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Remove the Primary Cause of Concrete Disintegration with
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Concrete disintegration starts with the solubles—one of which for example, is calcium hydroxide (free lime) 7% to 17% of the hydrated cement. Authorities all agree as to its nature and characteristics. Calcium hydroxide is an unavoidable waste product of the cementing reaction. It has no cementing value. It is soluble in water, highly soluble in acid or alkali solutions. Omicron, an entirely new ingredient in the form of a fine powder, activates new colloidal properties, greatly reducing the solubility of concrete, greatly increasing its strength, and greatly increasing its resistance to disintegration. Omicron is an exclusive product of the Master Builders Research Laboratories.

It is known that Omicron concrete will resist all forms of deterioration far longer than any plain concrete under the same conditions. Acids and alkalis, mild or severe, act very slowly upon it in comparison. The great strength it possesses (as high as 63% greater than plain concrete) is another life-lengthening factor. Omicron is now a basic ingredient of Master Builders integral concrete floor hardeners, greatly increasing the important service Masterbuilt Floors have been rendering industry and commerce for twenty years.

For Industrial Floors
METALICRON—an iron floor-finish aggregate, or metallic hardener, highly refined. Contains Omicron. Produces most wear-resisting, disintegration-resisting concrete—waterproof, dustproof. For monolithic or topping finish. Also available in colors.

For Commercial Floors
MASTERMIX—Omicron containing liquid paste, mixed with the gauging water. Hardens, waterproofs, dustproofs the entire topping. Meets every commercial floor condition.

For Colored Floors
COLORMIX—Omicron-containing paste, mixed with the gauging water. Stronger than plain concrete. Produces uniform, fadeproof colors throughout topping. Hardens, waterproofs, dustproofs.

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Factories: Cleveland, Buffalo, Irvington
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This symbol of a nation-wide industry certifies uniform quality, strength and toughness of rail steel bars produced by these associated mills:

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For information write
Rail Steel Bar Association, Builders Building, Chicago

RAIL STEEL for concrete reinforcing
In halls and lobbies, J-M Tile Flooring provides a tough, long-wearing floor—easy to keep in good condition. Clean cut lines and tight joints add to the effectiveness of many designs obtainable with J-M Tile Flooring.

Johns-Manville
TILE FLOORING
Type A
J-M Tile Flooring
.... resilient and decorative

ARCHITECTS have often been confronted with a real problem in the selection of a flooring that will meet all conditions, that will look well, not only at the start, but will continue to do so after years of use.

J-M Tile Flooring is a genuine contribution to better building. Years of use have shown that this type of flooring comes through the severest wear and preserves its appearance as time goes on. With this ability to stand rough service, it has the resilience so essential to comfort and quiet. It is available in a wide range of effective colors, and is most reasonable in cost.

A cement that is water-proof
The cement in which a flooring of this type is laid is a most important accessory. J-M Tile Flooring Cement is a unique product. For a number of years it has been used successfully with J-M Tile Flooring, forming a perfect and permanent bond between tile and underfloor—a bond which is not affected by dampness. For this reason, together with the fact that mineral gums are used in the manufacture of the tiles themselves, J-M Flooring will give good service in damp locations.

A thoroughly tested flooring
Installations of J-M Tile Flooring are giving successful service in practically all types of buildings. You can specify this flooring without hesitation. It is backed by the showing of actual performance and by our name.

Our Architectural Representatives will be glad to confer with any architect on matters referring to flooring. Our Architectural Representatives are, in fact, ready at all times to confer with you not only about flooring, but also about the widely varied Johns-Manville products which enter into building construction.
HOOSE

Tile-set plasterer—painter—are all united in our work when Natco Vitrite walls are laid. For each unit forms a section of a load-bearing wall, with the finish in place; finish that will last as long as the building, that never cracks, erodes, or discolors, that never needs painting, varnishing, or other maintenance.

Natco Vitrite is furnished in a range of beautiful shade-blends, that gives the architect plenty of latitude in color design. A comprehensive line of shapes and sizes gives plenty of latitude in structural designs. The size of the units speeds erection, promotes economics; the permanent glaze makes the wall easy to clean and keep clean, always sanitary, always attractive.

Write Natco Vitrite into the specifications—and write off all worries about plastering, painting, finish;—and write off a load of maintenance from the owner's shoulders. Widely anted—its excellent qualities demonstrated by repeated orders from users—Natco Vitrite is a good thing to know about, a fine thing to use.

Write Natco Vitrite into the specifications—and write off all worries about plastering, painting, finish;—and write off a load of maintenance from the owner's shoulders. Widely anted—its excellent qualities demonstrated by repeated orders from users—Natco Vitrite is a good thing to know about, a fine thing to use.

THE COMPLETE LINE OF STRUCTURAL CLAY TILE

AND THE BUILDING TRADES—TEXTILE BUILDING—NATIONAL FIREPROOFING COMPANY OF CANADA, LTD., TORONTO, ONTARIO

OFFICES: FULTON BUILDING—BOSTON

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THERE'S A NATIONAL HEATING SYSTEM FOR EVERY BUILDING NEED

NATIONAL BONDED NOVUS SECTIONAL BOILER
United for Heavy Duty—Divided for Light Handling

Schools, Hospitals, Large Apartments—applications where a heating boiler must have high efficiency at normal loads, coupled with reserve capacity to quickly meet sudden demands for extra heat—have long known the Novus for an outstanding performer. The split sections facilitate handling, make this boiler widely used as a replacement unit for large unit section boilers installed before the building was completed.

This boiler is designed to perform efficiently with all leading types of fuel: coal, coke, oil and gas. It can be converted on the ground to meet the individual requirements of the fuel selected. Engineering design scientifically coordinates every part to produce economical combustion and thoroughly satisfactory heating. The National Boiler Bond, furnished with each boiler, not only guarantees workmanship, materials, and design, BUT MOST IMPORTANT OF ALL SPECIFIES AND GUARANTEES BOILER PERFORMANCE. May we send you further information?

NATIONAL RADIATOR CORPORATION
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NATIONAL Made-to-Measure HEATING SYSTEMS

Copyright 1930—Nat. Rad. Corp.
People everywhere are awakening to a new interest in glass for windows, and to a new appreciation of quality in glass and what it means to window and room beauty. Back of this change in attitude is, of course, a marked improvement in window glass—an improvement which dates from the development of the exclusive Libbey-Owens flat-drawn process of manufacture.

Libbey-Owens "A" quality glass is a definitely superior product. It is exceptionally clear, has a sparkling lustre of unusual brilliance, and each individual light bears the familiar L/O label—a mark of identification and a symbol of unvarying high quality. Ask for Libbey-Owens glass by name, specify "A" quality, and look for the L/O label. Libbey-Owens Glass Company, Toledo, Ohio.
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sign: these are fundamental requirements of any modern flooring
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wear or blemish is an achievement that rests firmly upon quality:—the com­
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In the Stedman Process minute
cotton filaments uniting with the
rubber under high pressure and
heat, are responsible for its un­
usual resistance to wear, its last­
ing resilience and smooth imper­
vious surface—characterized by
veins of remarkable fineness and
beauty.

LIBRARY at the Massachusetts
Institute of Technology. The floor
is done in Stedman Reinforced
Rubber Tiles of Verde Antique,
laid in squares with the grain
alternating.
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THE development of AR-KE-TEX as the first structural wall tile to combine beauty, permanency and economy has been rapid and continuous. First came Insul-Glaz, a salt glaze tile—next Caentile, a further development, in a smooth, unglazed, but thoroughly impervious tile, then another refinement, Mottled Tile. This continuous improvement and development, coupled with widespread satisfaction in use, has gained for AR-KE-TEX Tile nation-wide acceptance—as THE STANDARD OF TEXTURED TILE.

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In addition to making possible new and unusual wall effects, AR-KE-TEX Tile makes a wall of lasting beauty that never needs painting. Its thoroughly vitrified face in any finish stays permanently beautiful. And that's important because it means tremendous savings in maintenance costs which continue for the life of the building.
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In schools and all public buildings, industrial buildings and residences where a sanitary, easily cleaned finish is desirable, Cream Buff STIPPLED AR-KE-TEX Tile is ideal. See this newest development in textured tile. The coupon below will bring you some pertinent data on its many adaptations.

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CLAY PRODUCTS COMPANY, INC. of INDIANA
Brazil, Indiana

Please place me on your list to receive the brochure, Better Walls. Also send me the name of the AR-KE-TEX Tile distributor in my vicinity so that I may receive samples.

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Address

City
If the roll were called

A ROLL call of Bayley installations would reveal an imposing list of buildings in outstanding industries and other prominent fields of endeavor — buildings that tower into the sky — buildings that cover several blocks — buildings that are located near and far.


The reasons for the growing use of Bayley Steel Windows and Steel Doors by leaders in all these groups are: a proven product and a dependable engineering service.

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A Bayley representative will gladly call and explain the scope and value of Bayley engineering cooperation on window and door problems. Illustrated folders on window or doors for any type of building will be mailed on request — The William Bayley Co., 134 North St., Springfield, Ohio.
The extreme of the most particularly desired door beauty and style is procurable in Roddis construction, as well as the conventional standard numbers catalogued by Roddis, and so widely used. For example, the door pictured at the left is of special pattern Australian Walnut; the door at the right is of Walnut with planted-on mould two sides, and divided ten lights. And both doors are of the completely solid five-ply Roddis construction illustrated and referred to below. The architect's specifications for special design are invited, assuring most satisfactory service and results.

Roddis construction consists of a core of softwood; with a hardwood edgestrip on all four edges; a hardwood cross-band veneer on both sides; a finishing, or surface, veneer of hardwood on both sides; a 5-ply, completely solid door, cement glued under hydraulic pressure, thoroughly dried and moisture free. Each part shown here, with a structural view of the door complete.
The "Galveston" is supplied with "Æolus" ventilators

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The U. S. Shipping Board installed 246 Æolus Improved Double Syphon ventilators on the officers' staterooms of the "Galveston" and similar ships.

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Nobly conceived, ably planned, painstakingly constructed—what a pity if work on the Baltimore City College had come to a halt just when its magnificent possibilities were actually visible!

Fortunately, Baltimore does not do things by halves. Every detail of this structure, which is one of the most beautiful in their extensive system of educational buildings, was calculated to make it perfect and was carried out with exactness. Conforming to the most modern standards, all joints in projecting members of stone work, roof copings, belt courses, and between door frames and surrounding masonry were caulked to a depth of $\frac{1}{4}$ inches with Pecora Calking Compound. The occupants are protected from wind, dust, and cold drafts. The building itself is protected from deterioration. It is complete.

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Even in modest homes like those shown here, Kohler quality and craftsmanship prove a profitable investment, providing truer beauty and higher efficiency at no greater cost. The reactions of these two Philadelphia builders are interesting—

"We want you to know how well pleased we are with the colored plumbing fixtures installed in our new operation. The green kitchen sink with your new Duostrainer is a wonderful feature, and the bathroom fixtures are beautiful.

"These colored fixtures have been the source of much favorable comment from the buyers of new homes, and have aided in selling out this operation more than any other single feature of the job."—FISIMAN & PARK.

"During the past year we have used colored enamelware and vitreous china fixtures exclusively in our bathrooms. These have been accepted with the greatest enthusiasm by an exacting public. We have featured the charm of colored fixtures in our advertising. The mellow beauty of Kohler colorware is especially pleasing."—HOLDEN & SKLAR.

Manufacture at one central point under one rigid criterion of merit makes Kohler quality and Kohler colors always uniform. Kohler colors are soft, true, pleasing. The enameled ware harmonizes with the vitreous china in tone and shade. An added advantage in all-Kohler installations is the fact that the fittings can be ordered with the fixtures. This assures efficient operation and often saves considerable expense, as the complete order comes in one lot. Kohler fixtures deserve Kohler fittings. . . . Kohler Co. Founded 1873. Kohler, Wis.—Shipping Point, Sheboygan, Wis.—Branches in principal cities. Look for the Kohler trade-mark on each fixture.
Eight miles out of Phoenix is the Arizona-Biltmore Hotel—forerunner of an advanced stage in modern architecture and construction.

The hotel, and 16 cottages adjoining, are all of reinforced concrete framework. Floors, stairways, and roofs are of concrete. Exterior walls are of cast stone blocks. All four edges of blocks are grooved to accommodate steel reinforcing rods—running vertically and horizontally—embedded in the mortar with which blocks are laid up.

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WHERE THE CHIMNEYS LOOM
LURKS TIME, THAT TOUGH OLD TESTER

Where the chimneys of industry loom black against the sky, Time, That Tough Old Tester, draws his deadliest weapons. With biting acids and alkalis, with shattering vibration and ceaseless strain, he here attacks the works of man with greater eagerness, to prove how long things last.

And here, amid the mightiest of Time's destructive forces, you will find Reading 5-Point Pipe . . . resisting corrosive gases and fluids . . . absorbing shock and strain in its tough, fibrous structure . . . lasting from two to five times longer than ordinary pipe!

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(for exteriors)

AND MOISTURE

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Your beautiful building remains a beautiful building, so far as protection against wet and moisture is concerned, when the outside walls are treated with Sonneborn’s Hydrocide Colorless that seals them against every weather condition.

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—Plaster Bond—For damp-proofing interior of exterior walls above ground.

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There are two important reasons why specifying the genuine Type "B" Von Duprin devices brings satisfaction to both architect and building owner.

First, and most important, is the fact that the genuine Type "B" has reliability, sureness of operation, far beyond even the other types of Von Duprins.

And then there is the factor of expense. Costing more than other devices in the beginning, the genuine Type "B" Von Duprins are so sturdy and simple in construction that maintenance costs are negligible. Over the period of their use on the building, these devices are the least costly in the end.

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Check your requirements against MacArthur qualifications:

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BLIZZARDS...snow...frozen water lines...tough business driving piles in weather like this; but we always come through, with our all steel modern equipment and experienced crews.

This reminds us of the weather we ran into last winter when we drove 1244 compressed concrete piles for the huge Goodyear-Zeppelin Hangar at Akron, Ohio. The weather man “gave us the works” during this job. To offset the bad weather handicap we added a third shift and completed the contract on time, to the entire satisfaction of all parties concerned.

This is a typical example of how the MacArthur organization gets back of a job and sees it through.

Giles Drilling Corporation (an affiliated company) will welcome the opportunity to submit estimates on core borings or soundings of any description.
Main entrance door to Gulf Research Laboratory Building at Craft Avenue and Emily Street, Pittsburgh, Pa. Architects, Schwab, Palmgreen and Merrick of Pittsburgh. General Contractors, Mellon Stuart Company. Main entrance doors fabricated by Newman Manufacturing Company, Cincinnati, Ohio.

Alcoa Aluminum used for spandrels, window mullions, cover mouldings for windows, and main entrance door. For details see next two pages.
There are 48 spandrels cast in two general sizes, from No. 43 alloy. The total weight of these spandrels is 3280 pounds.

The window cover mouldings are made of extruded aluminum. A total weight of 960 pounds. The window mullions are also made of extruded aluminum. Total weight 960 pounds.

The main entrance doors were fabricated from Alcoa Aluminum and both extruded shapes and plate were used.
nizing the unusual decorative and other qualities of Alcoa Aluminum.

May we send you our booklet, "Architectural Aluminum"? It shows where Alcoa Aluminum has been used, and why it was used. This booklet may suggest some interesting ideas to you. ALUMINUM COMPANY of AMERICA; 2406 Oliver Building, PITTSBURGH, PENNSYLVANIA.

"These aluminum spandrels, sills and other cast items shall be made of Alcoa No. 43 alloy, having a silicon content of 5%. The average tensile strength shall be 17,000 lbs. per sq. inch and the average elongation in two inches 5%. The weight shall not exceed .097 lbs. per cubic inch. The surface shall be free from imperfections and in all respects equal to sample submitted."
PERMANENCY

PERMANENCY is one of the outstanding qualities of the new City Hall and County Court House at Phoenix, Arizona, architects Lescher & Mahoney together with Edward F. Neild.

When considering the hardware equipment for the doors, emphasis was placed upon securing smooth, trouble-free operation for the life of the building. It is with pleasure that we announce the use throughout this new building of Stanley Ball Bearing Hinges.

As a reference book for hardware specification may we send you a copy of our "Architects Manual of Stanley Hardware"?

THE STANLEY WORKS
New Britain, Conn.
Steuben Club Building, Chicago.

Framework of "Bethlehem Sections"

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District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Buffalo, Pittsburgh, Cleveland, Cincinnati, Detroit, Chicago, St. Louis.
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This is the underlying principle in the production of Sterling Lifelong Blackboard. For, it possesses no qualities that do not make it more useful and efficient in the schoolroom. It is free from blemishes, irregularities and natural defects.

Sterling is recognized as another triumph of science—the product of our laboratories after years of exhaustive research—a permanent blackboard body, uniform and durable, with a better writing surface that only malice can deface.

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In close cooperation with Architects and Builders—following through designs submitted or offering the original suggestions of skilled artists—the J. W. Fiske Iron Works stands supreme today as a master in ornamental metal work for every purpose.

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(for every purpose, country estate or industrial usage)
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Glance at the new patterns. They are more beautiful than ever. There is a splendid design for every type of room. Every pattern is guaranteed to be cleansable with a damp cloth. This insures fresh clean walls for over a decade. Wall-Tex is priced for profit to the dealer and satisfaction to the user.

Architects, builders and decorators should write name and address on margin of this page in sending for samples, information and booklet, "The Modern Trend in Wall Coverings."

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Architectural Practice

The Handbook has been issued as a second edition. It is dedicated to its author, Frank Miles Day, Past-President of the Institute.

The Handbook is a complete exposition of good office practice. It discusses the Architect and the Owner; the Architect's Office; Surveys, Preliminary Studies and Estimates, Working Drawings and Specifications; The Letting of Contracts; The Execution of the Work; The Architect and The Law; and the Documents of The American Institute of Architects.

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Exit Signs

Kliegl exit signs are available in a wide variety of standard designs, and are made to specifications when required—in surface-wall, flush-wall, suspension, globe, and plate types—both plain and ornamental styles, and meet all requirements of Underwriters. Model No. 695-B is illustrated above— with Cathedral leaded amber-and-opal-glass face, and ruby-glass letters; galvanized sheet-metal box; removable hinged front. Write for descriptive literature.

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Millions of Bull Dog Floor Clips on over 8,000 jobs carry testimony of satisfaction. Made for 2, 3 and 4 inch sleepers. Regular and Junior Styles. Friction tight nailing facilities (nails gratis.) Write for catalog and samples.

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135 Representatives—15 Warehouse Stocks

BULL DOG Floor Clips

Original Patent granted June 14, 1921
Reissue Patent granted June 26, 1924
Process Patent granted May 19, 1925

REGULAR CLIP—3 sizes, 2, 3 and 4 in. 20 gauge galvanized iron
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The Bull Dog Buck Anchor

The Bull Dog Buck Anchor forms a rigid truss in the mortar joint which prevents the movement of the buck in any direction. It eliminates the use of nails, screws, bolts, tie-wires, strips of metal lath and iron, and all pounding against the back sides of the buck. Made in three widths of No. 10 Galvanized Steel Wire; 3 in., 4 in., 6 in. Ten per cent of anchors in backing cases are shorts to take care of spaces too short for the regular size anchor.
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Place a thermometer at floor line, breathing line and ceiling in an uninsulated structure. Note the wide variation in temperature—often as much as 10 or 12 degrees F. Such a condition creates drafts, especially on floors—drafts which breed ills and other ailments.

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MAF-LATH, made from the tough roots of licorice, is the same as, and has all the qualities of MAFTEX. It is merely in a more convenient size (16'' x 48'') so that it can be easily handled and quickly installed as plaster base by lathers.

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MAF-LATH Insulation insures increased sales and rental value—at no increase in construction cost over a modern uninsulated structure. Complete information on request.

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—asks the Editor of Architecture

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For the Texas Company in the new Chrysler Building, New York; for the Bank of The Manhattan Trust Company in The Manhattan Company Building at 40 Wall Street, New York, (these buildings to be the tallest in the world); and for the new Head Office Building of the Canadian Bank of Commerce, Toronto, Canada, (the tallest building in the British Empire) ... G&G Atlas Pneumatic Tubes will be installed and provide 30 feet per second Mechanical Messenger Service to speed handling of mail, telegrams and documents among scattered departments. For... Mechanical Messengers are faster and more dependable than human messengers ... Drawing of typical bank installation and table of space requirements upon request.

Catalog in Sweet's Archt. Cat. 23th Ed. pp. D 5113-15
Catalog in Specification Data 1929 Ed. pp. 228-229

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Fold Up The Walls
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Berrycraft HOUSE PAINT
A sensation

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BRINGS NEARLY 100
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5 lb. Pressure 350 lbs. hot condensate
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2650 Santa Fe Avenue, LOS ANGELES...333 Market St., SAN FRANCISCO
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Armstrong Cork Co., Ltd., LONDON...Okura & Company, JAPAN
Cooperating with Mr. J. C. Westervelt, architect, we have created an attractive and practical illumination in the Childs Spanish Garden in the Savoy-Plaza Hotel Annex, New York City. Besides the illuminated glass ceiling and arches behind the lunch counter, the windows and entrance are lighted with Frink concealed reflectors ...
A modern Convenience Feature which many Architects include in their Plans for Residences

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Many home owners want telephone outlets made available in all parts of the house... even in places where they do not want telephones immediately. This gives a desirable flexibility, allowing the service to be rearranged or expanded with little trouble.

Representatives of your local Bell Company will be glad to confer with you and your clients in planning for telephone arrangements. No charge is made. Just call the Business Office.

In the above residence at West Brentmoor Park, St. Louis, Mo., ten telephone outlets, including one in the servants' quarters and one in the garage, provide for telephone convenience. Maritz and Young, Inc., Architects, St. Louis.
LIBERTY MEMORIAL
KANSAS CITY

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An effect of Imposing, Inspiring and Dramatic Beauty is obtained by providing a structural background: rails, stiles and panels are of dull Nickel-Silver with relieved panel figures polished; rails and stiles enclosing the sculptured panels are Cast Bronze, its modelled ornament finished in black oxide with a glint of gold in the high lights, and as this ornament is pierced the silver background sparkles through.

Detail of a cast disc panel is inserted; the pencil sketch below indicates further the architectural surroundings in which these doors are porticoed and fittingly enframed.

H. Van Buren Magonigle, Architect
Models by
F. Lynn Jenkins, Sculptor
Done in Bronze Handling by
John Polachek Bronze & Iron Plant
A division of

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Then there is the long series by Mr. Freese on Geometry. Those who have written in concerning the "Geometry Series" have registered their interest and approval of the way in which the author has been revivifying and clarifying the old science as he translates it into drafting room terms. Logically enough, he began with elementary things which are fundamental. In the present and later parts of his series, which are scheduled for the months to come, he will show more and more applications of these fundamental principles to the solution of problems that at some time or other come up on every drafting board. If you have not yet delved into his articles we advise you to do so. No matter how skilled a draftsman you may be we think it very likely that you will find many useful pointers worth remembering. When you have investigated thoroughly, tell us your reactions.
As announced previously, we shall publish each month for the information of persons interested in the movement a detailed report of all activities up to the fifteenth of the previous month.

On February 20th we sent a letter to all architects notifying them that we were ready to receive subscriptions to the fund, and a few days later a similar letter was sent to a list of manufacturers notifying them that they might also contribute to the fund on a certain specified basis should they so desire. We list here contributions received (in the order received) up to the closing of business on March 15th:

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<tr>
<th>Name</th>
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<tr>
<td>Cook &amp; Canfield</td>
<td>Youngstown, Ohio</td>
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<tr>
<td>Gunning &amp; Bemis</td>
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<td>Aymer Embury 2nd</td>
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<td>E. H. Stimson and Abraham</td>
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<td>Leopold Hauf, Jr.</td>
<td>Philadelphia, Pa.</td>
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<td>A. O. Pollett</td>
<td>Maplewood, N. J.</td>
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<td>New Rochelle, N. Y.</td>
<td>$25.00</td>
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<td>Royal Barry Wills</td>
<td>Boston, Mass</td>
<td>$25.00</td>
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It is our feeling that to date the response to our announcement has not been particularly encouraging, as the number of subscriptions actually received is far below the number pledged in response to our letter of January 6th announcing our determination to take some action this year toward correcting a situation which is universally recognized throughout the country and which it is generally agreed requires prompt and vigorous action.

We realize that it takes time for such a movement to gather headway and we are hopeful that contributions to the fund will be received in increasing numbers from now on. Let it be understood clearly that no one is being urged to join with us in our plan to inform laymen concerning the nature and value of the architect's services unless they really wish to do so. It is not our idea to use so-called high pressure methods in the accumulation of the fund. Where such methods are employed it usually costs from twenty-five to thirty cents out of each dollar available for the real purpose of the campaign. Unless the architects, draftsmen, and manufacturers of the country are sufficiently interested in the movement we have started to support it we shall be forced to the conclusion that what we have proposed is not regarded as essential, at least at this time. We shall carry out our own program as originally announced and will then abandon the enterprise. We are not yet convinced that the cooperative plan we have proposed will not be successful but certainly a broad campaign likely to produce satisfactory results cannot be carried out unless the funds are available.
THE SKETCHES AND DRAWINGS
OF EDGAR I. WILLIAMS

By Rayne Adams

EDGAR I. WILLIAMS' COLLECTION of sketches and drawings are impressive by reason of their urbanity and delicacy. In his architectural design he shows what most of us will agree to be an unerring good taste. Yet important as his work is, considered architecturally, it is the quality of his work as a draftsman which is of peculiar interest to us here. It takes little examination to appreciate the habilis use of the pencil as shown in the two studies for the Metcalf House (p. 244). Although these two drawings are but preliminary sketches, with what sureness the shade and shadow are indicated. As in many of his pencil sketches we are conscious of deftness and economy. This facility in his architectural drawing must have been enormously indebted to his habit of sketching. During the years spent abroad in study, after winning the Rome Prize, Williams travelled much and sketched more. His interest was catholic and subjects of a thousand kinds found their places in his sketch books. And, since a slight biographical allusion has thus been made, it is fitting to make the story more complete. Williams was born in New Jersey in 1884 of French and English parentage. His professional work has its beginning with his entrance to the architectural course at the Massachusetts Institute of Technology in 1904. In 1909 he was awarded the Rome Prize. After some years abroad he returned to New York in 1912 and began his practice of architecture.

While Williams is an architect, he has remained a draftsman; he draws and he knows how to draw. And it is from a contemplation of his sketches that I have been led to speculate on the relation of sketching to the life of a draftsman. If, perchance, there should be points of contact between the commonplace epitome which follows and the earthly pilgrimage of Mr. Williams, they are only such points of contact, adventitious in their nature, which are shared, for all I know, by all who come under the compulsion of the draftsman's pencil.

One begins, as you know, at a most immature and untarnished age, to draw men and ships and animals. The men wear tall stove-pipe hats belonging, roughly, to the fashion of 1830. The essence of a stove-pipe hat is length, and this subtle peculiarity is impressed upon us without our knowing. It is one of the data of consciousness as William James claimed Time to be. Similarly, without being told by our bothersome elders, we know that the head and body may be represented by (///rtii-circles; that the arms and legs are straight lines; that the fingers, usually four to the hand, radiate like the spokes of a wheel. The ships we draw are majestic steamboats, laden with huge clouds of helical smoke. The drawing of the best-loved of all our friends—the animals—is an episode of relative disaster; for, unlike men and ships, the animals, in their forms as in their lives, are elusive. Nevertheless, though the animals of the cave-man drawings are superior to ours, our early efforts share in the genius of these prehistoric sketches. They are drawn, for their substance, as much from our interior as from the external world. By the magic of the untrained imagination which only the very young possess, they are veridical. The triumphant period of our aesthetic life
PENCIL POINTS FOR APRIL, 1930

A WROUGHT IRON LAMP IN SIENA

OLD COINS IN THE MUSEUM AT ATHENS

COPT OF A CARICATURE BY TIEPOLO

A WELL BALANCED FACCHINO

RANDOM SKETCHES FROM TRAVEL NOTEBOOKS
FROM A PENCIL AND CHALK DRAWING ON BUFF PAPER BY EDGAR I. WILLIAMS
REDUCED FROM FULL-SIZE DETAIL OF WROUGHT IRON TORCH HOLDER, PALAZZO PICCOLOMINI, SIENA
Original measures 21" x 28"

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opens the roads for the Anabasis of our hopes.

The roads, however, are not easily traveled. We are disillusioned of many things. We learn that a hand, to meet the requirements of convention, must have five fingers. And although there is strength in sophistication, yet we realize, however vaguely, that the fairyland dominated by our whim has been invaded. We learn that our drawings are not the counterparts of the things of everyday life. And thus, while we continue to draw, it is no longer with the abandon of genius.

Upon this early golden age follows the dark night. The young sketcher is sent to school and he is taught to draw. Instead, however, of drawing the marvelous creations of his whim, the phantasmagoria of illusion and truth—and drawing them in his own way—he is set to drawing rectangles, triangles, circles. This extravagant program is varied by an initiation into the mysteries of drawing conventionalized flowers: four open petals arranged methodically, like the Presbyterian Shorter Catechism. Perhaps the instructor may, following the play instinct which, as Mr. Spencer points out, underlies our aesthetic impulses, set the young student to drawing a conventionalized rabbit. And so, by easy stages, under the cover of a darkening young student to drawing a conventionalized rabbit.

Thus Europe and thus Art. Against this background the rising star of the ambitious sketcher must make its ascent; it is the American scene, with all its stimulus to action. There is some value in drawing after all. So he continues. He wanders out into the fields and makes sketches of mountains and plains. Not knowing the difficulties involved, he makes a sketch of a whole mountain clad with an unending mantle of pine trees. He may even color it.

"We must send the boy to an art school; he will develop talent."

So he makes his bow to the plaster casts—those phantoms of the world of art. He makes a drawing of a huge ear or of a hand that might, for size, have belonged to Zeus on Olympia. He swims in sterility and believes he is on the track of Michelangelo. His soul is flattened and his ardor dimmed by the gray light filtering through unwashed windows upon the grave-yard of plaster casts. Who said these things were beautiful anyway? That statue of Apollo, for instance?

Who shall interpret and who shall lead the way?

The years pass. He reflects; he is rebellious. Has he talent or hasn't he? If he devotes his life to art, can he make a go of it? The daily bread, imaged in a hundred ways before him, oppresses him with its insistent appeal. Well, at least he can compromise. He can become an architect. That, he understands vaguely, is a combination of the practical and the beautiful. He can paint the pictures of his fancy with his left hand while his dexter manages somehow to grasp the necessary commission. And, after all, as John Morley says, this is a world of compromise. . . .

Compromise? That depends. There are many instances just as there are many inventions. In the
TWO PRELIMINARY CHARCOAL STUDIES BY EDGAR I. WILLIAMS, ARCHITECT

DRAWING AT TOP MEASURED 26" WIDE—THAT BELOW WAS 24" X 18"
foregoing recital I have assumed that our hypothetical Jason was emotionally interested in drawing: that he believed that the graphic arts offered him the Golden Fleece. For such a one it is a compromise. There are, however, three classes of draftsmen: those who cannot help drawing; those who draw when they have to; and those who can't draw. Out of the raw material of these three classes architects are born, grow to maturity, and die. Some of those who are gifted may continue happily to express themselves emotionally through their sketches and drawings. And they may manage to do this somehow, in spite of the demands made on their time by their architectural practice.

For how many of these, however, do the dreamy days of Rome and Florence seem far away. How dusty are their sketch books. If one only had time! And though he draws, he no longer draws only those things which appeal to his sense of whim; or his sense of beauty. He draws walls and windows according to the requirements of the Building Code. And this cessation of emotional expression marks the real Catabasis. It is the march down to the sea.

Why do we draw? Why do we wish to put down two dimensional forms on paper? Is it for the same reason that impelled the father of Anatole France's small Pierre to stuff all creation into his zoological cabinet—the mania of possession? It is because, by the sketch, we somehow effect a mystical marriage between ourselves and nature, so that our being is enriched! Or do we simply draw because we do?—a crude truism which may nevertheless express the ultimate reality better than a thousand qualifying phrases can do. And there is this relief to the confused mind of those who, aware that the road is long and hard, pause and wonder: if their work appears to them barren, yet it may have a moving significance for others—which is sociology.

Perhaps under the inspiration of some wise teacher—for there are such—our Jason may realize that sketching, after all, at its best, is an expression of the inalienable "whim." You may admire the Virgin of the Rocks of Leonardo, but will you, in the presence of all the hypothetical deities, place your hand on your heart and claim that it has more emotional stimulus than that given by the drawing of the child playing with a cat? Wondrous as it is, the Virgin of the Rocks is labored; the sketch is of the essence of play. It is genius of whim.

Every man—and it can hardly be said too often—
FROM A CHARCOAL FULL-SIZE DETAIL OF A CARVED OAK PIANO CASE SHOWN ON PAGE 245
DESIGNED AND DRAWN BY EDGAR I. WILLIAMS AS DATA FOR THE WOODCARVER
THE SKETCHES AND DRAWINGS OF EDGAR I. WILLIAMS

FROM TWO CHARCOAL FULL-SIZE DETAILS BY EDGAR I. WILLIAMS
DECORATIVE PLASTER PANELS FOR RESIDENCE OF MRS. C. R. HOLMES

Originals measure 22" x 17½"

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brings us, as Swinburne puts it, the message of his peculiar gospel. It is difficult for an actor to be compelling equally as a tragedian and a comedian. When those who are devoting their lives to the study of architecture travel among the ancient towns of Europe—what do they get? Only that which they bring. If their temperament be this—it is one thing; if that, it is another. The sombre notes of some of our most competent architectural draftsmen indicate a sort of invincible quality; they will get knowledge, by God! no matter what it costs. Fate made them that way. And they give us much—if we have open minds. There are others to whom the European scene presents a less bitter battle-ground. Dowered with a special grace, they give us perhaps less bread and butter, but more sunshine in which to enjoy it.

In the well-filled sketch books of Mr. Williams nothing is more noteworthy than his ability to catch and hold light things and slight. His sketches are gay; they lack the gravity which we associate with the fall of empires, death, and transfiguration. In the small sketch of an interior—one of the charming sketches reproduced in Guy Lowell's "Italian Villas and Farmhouses," and which is shown in this issue of PENCIL POINTS, there is a peculiar quality of intimacy and delicacy which is altogether charming. Note the economy of line. It is a drawing made, it is safe to say, on a day when he felt warmed quite through with the sunshine of Italy. Look at the tiny clock; the vase, the simple suggestion of homely peasant life. It is full of a certain whimsical quality. Serious and suggestive, it is a picture out of fairyland.

FROM A PAINTING AND A SKETCH BY LEONARDO DA VINCI, ALLUDED TO IN THE TEXT

FROM A PAINTING AND A SKETCH BY LEONARDO DA VINCI, ALLUDED TO IN THE TEXT
HE WAS A rosy complexioned young man, and I have often wondered if some psycho-analyst would find a connection between that and his rose-colored dreams! It took several years for me to learn that his spectacles, which appeared to be mere optical glass, were in fact rose-hued. Not literally, perhaps, but certainly that is the way he saw things. Above the average height, large framed, inclined to fatness, with clear blue eyes that looked straight at you, he was truly a likeable fellow. He possessed a certainty of touch in his conversation! I found later this also extended to the purses of numberless friends and victims.

We had met socially some years previously, and now he was embarked in a business which, to hear him tell it, promised riches for all concerned. He was president of the Bankers' Finance Corporation. The business of this corporation was to organize banks in communities not possessing proper banking facilities. He had just completed the "organization" of three banks, all going concerns. It was his purpose to "organize" another in a nearby community. (He always used the word "organize" in connection with his enterprises; the more usual "promote" being strictly taboo.) He wanted a capable architect to cooperate with him and had selected me. It is nice to be "selected" as a capable architect from among your competitors. Not that you are surprised at the honor, rather, you are at times distressed that others do not exercise the same good judgment!

His plan was simple and straightforward. Finding a community where banking facilities were needed, he would set about crystallizing sentiment. Selecting a suitable and available lot he would secure an option on it with a view to its purchase for a banking house. His architect was then to draw an arrangement floor plan and make an attractive picture of the proposed building, for exhibit to prospective stockholders. A less imaginative person would not have gone about this from the usual commissions. The first bank was typical of many small communities some years past. Banking facilities badly needed, but local factions unable to get together. If Bill Smith started it, Jim Brown's faction would have nothing to do with it, and vice versa. Not enough capital could be obtained from one following to insure success, with the other factions left out. With great finesse he got all factions represented on the proposed board of directors, and chose a president who fell for my picture. A Jewish merchant, not long from Russia, sent post haste for me. "Send me dot archeeteck," he ordered. He wanted a store built, but I had some difficulty in finding out what he meant by a "shoo-in front." He was so captivated by my drawing of the bank that I was both flattered and curious. By chance I learned what struck him. The bank entrance was a large archway, deeply recessed in stone. From the top of the arch ceiling the sketch showed a chain suspending at a lower level a large ornate lantern. This lantern I had picked out in gilt. They told me Abe could not keep his eyes off of it.

"Vill you loog at dot? Shust like real goldt, aindt it?" Abe became a substantial stockholder and a valuable member of the board of directors.

The bank was "organized" rapidly, and has from the start been a successful institution. Others followed, and while the buildings were not elaborate or

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very costly, the business was profitable and the clientele desirable.

To us the building of bank buildings was a part of the routine, and the profits no greater than on some other kinds of work; but to the Bankers' Finance Corporation, the organization of banks was a bonanza. Twenty per cent. of the funds raised was retained by the "organizers." It was an era of expansion, and even that enormous discount from the assets did not prevent some of the banks from making money. It was inevitable, though, that the game should be overplayed. From promoting banks where they were needed, it was an easy step to promote them where they were not needed. Complaints began to pour into the State banking departments. A law was passed limiting bank promotion fees to ten per cent. Still the game went on. Like the merchant who advertises his goods to be sold at "half price," one imagines the profit must have been substantial indeed when he was selling them for full price!

The Bankers' Finance Company expanded. It began to take on other promotion enterprises. A banker wanted additional capital (most people do!) and the Finance Company undertook to secure it for him. A coal miner needed money to open up and develop his mine and they took that on. Blue sky laws were unborn, and the sky was the limit to what a glib tongued salesman would promise as the certainty of income to be had from whatever stock he happened to be selling that week. Of course there was only one certainty—it paid him an income when he collected $20.00 on every share sold and pocketed half of it!

Poor old Washington Irving rusts on the book shelves, and the lesson of the Mississippi Bubble has to be re-enacted millions of times, only to leave the public about as gullible as ever.

"Don't think prices won't fall again," counsels kindly old Irving.

"This stock should double in value in five years," assures the salesman.

When the peak is reached the decline begins before even the wisecracks sense it. Money "tightens up." Bankers begin to refuse good loans. As credit shrivels, buying falls off. Stock issues become unsalable, even for tried and true investments.

The president of the Bankers' Finance Corporation had been rolling in wealth. Luxurious motor car, fine new home, substantial gifts to charity. But promotion enterprises commenced to fade from the picture. Ugly rumors floated about. Suddenly, like a bolt from the blue, an indictment was brought against him. Unruffled and unworried, his pink face wreathed in its usual smiles, he declared the matter was all "nonsense." Events proved otherwise. Primarily a salesman himself, a careless auditor and auditing system had confused the funds of a National Bank with some industrial financing that had failed, and there was a shortage of funds to the bank's account. He offered to make the amount good, and the authorities permitted him to—then went ahead with the indictment. The truth is, they "had it in for him." Bankers were angry at the competition he had brought about and were now after his scalp. He was tried on a charge of violating the banking laws, convicted and sentenced to a brief term in prison.

The State Solicitor General happened to be a man of character and knew our rubicund friend personally. He determined to secure his pardon from the Governor, and quietly went to work to prevent him having to serve a day in jail. Night after night he worked personally on the case, not trusting anything to a subordinate, who might let something out and thus bring about counteracting political pressure. One day he sent for the sentenced man, exhibited the result of his labors and said, "This is timed to go to the Governor in three days. I will present it to him myself. Ten days later, before your sentence begins, you will be a free man."

The following night the Solicitor General fell dead among his books and papers at his office.

Thus ended the Bankers' Finance Corporation.

The aftermath was interesting also. Upon being released from prison, still pink and smiling, although of greatly reduced girth, our ex-president betook himself to another state to start life anew. In less than a year he learned of a big bank that was about to go under. Making a quick investigation, he became convinced the situation could be saved. Asking to be allowed to appear before the Board of Directors, he quickly outlined a plan by which a crash could be averted and the bank continue in business. Confronted by the statement of the bank president that his plan "would never get anywhere with the State Banking Department," he exhibited a letter from that very department, signed by its head, endorsing his idea.

The Board grasped the opportunity like the drowning man the straw, and our "organizer" set to work. By clever manipulation and a tremendous amount of personal effort he untangled the situation within ten days to such an extent that the State Banking Department withdrew its threat to close the institution. In another ten days the bank was completely reorganized, new capital and backing secured, and in less than thirty days the entire storm had been "blown over."

Our "jailbird" got a magnificent letter from the State Banking Department, praising his work and success.

I never heard him make but one comment on his year spent behind the prison bars. It was this:

"You know what's a fact? I met more bankers that year than any!"
SOME ARCHITECTURAL STUDIES BY JACQUES CARLU

AN EARLY SUGGESTION FOR A CORNER ENTRANCE AND ARCADE

PLAN AT GROUND FLOOR SHOWING ENTRANCES TO OFFICE BUILDING AND THEATRE—LOUNGE AT STREET LEVEL

PLAN AT GRAND FOYER LEVEL SHOWING ALSO THE BANK

STUDIES FOR AN OFFICE BUILDING AND THEATRE—DRAWINGS BY JACQUES CARLU

Carlu & Boyle, Architects—Warren & Wetmore, Consulting Architects
THE CAIUS CESTIUS PYRAMID IN ROME
FROM A WATER COLOR DRAWING BY JACQUES CARLU

PENCIL POINTS
(April, 1930)
This drawing by the distinguished French architect, Jacques Carlu, was made on medium rough water color paper with both transparent and opaque colors. The original measured 19” x 12½”. It was done in 1922 while M. Carlu was in Rome as a “Grand Prix” at the French Academy. This particular example of his skill as a water colorist is notable for its rich color harmony and its composition. A long article on M. Carlu, with which were illustrated a number of his drawings, was published in Pencil Points for May, 1926.
A SKETCH BY JACQUES CARLU—EARLY STUDY FOR A CIRCULAR FOYER GALLERY
FOR A TWO-THOUSAND-SEAT THEATRE IN A SIXTY-FIVE-STORY OFFICE BUILDING
Carlu & Boyle, Architects—Warren & Wetmore, Consulting Architects
STUDY FOR THE GRAND FOYER OF A PROPOSED TWO-THOUSAND-SEAT THEATRE IN A SIXTY-FIVE-STORY OFFICE BUILDING

PERSPECTIVE DRAWING IN GOUACHE BY JACQUES CARLU SHOWING ACCESS UP AND DOWN TO BALCONY AND ORCHESTRA FLOORS

Note that the light comes from behind wall panels of cast glass—Carlu & Boyle, Architects—Warren & Wetmore, Consulting Architects
PERSPECTIVE SKETCH STUDY BY JACQUES CARLU FOR A TWO-THOUSAND-SEAT THEATRE IN A SIXTY-FIVE-STORY OFFICE BUILDING

THIS STUDY SHOWS THE SIDE OF THE PROSCENIUM OPENING WITH ITS ORGAN SCREEN OF PIERCED GLASS

Carlu & Boyle, Architects—Warren & Wetmore, Consulting Architects
A DRESSING TABLE COMPOSITION IN SILVER BY PAUL T. FRANKL

The work of an American designer who is the originator of the "skyscraper bookcase," this example indicates French inspiration. On the wall is a German paper with a design of crossed shaded lines not accented so as to be obtrusive, but strong enough to avoid monotony. All the forms are simple, and without ornament or mouldings. The snakeskin pattern of the chair upholstery is the only ornament. One would not grow tired of a room such as this: one cannot say the same of the work of those designers who try in any one example to use "the whole bag of tricks." A visit to almost any recently built moving picture house forcibly brings to mind the old adage, "it is what is left out that makes a work of art," and the atelier quip, "the best work is done with the rubber."
**DESIGN IN MODERN ARCHITECTURE**

**4—THE MODERN INTERIOR**

By John F. Harbeson

"**Simplicity is the keynote** of modernism, but there are certain other characteristics that help to make a thing modern. These could be summed up as follows: continuity of line (as we find in the streamline body of a car or in the long unbroken lines in fashions), contrasts in colors, and sharp contrasts in light and shadow created through definite and angular moldings and by broken planes. Things modern also have in them a definite rhythm such as we find in modern dancing and music and in the frank accenting of form in fashions. They avoid imitation in material."

"We have brought forward the fact that simplicity seems a characteristic of our time. But this is only a surface kind of truth, for simplicity is a kind of cover for the complexity within us. It is true that our clothes and our buildings and modern art are constructed on comparatively simple lines, with little ornamentation in detail, but ... life is more intricate and complex today than it ever was."—Paul T. Frankl, *New Dimensions.*

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*A HOTEL WAITING ROOM BY MLLE. RENÉE KINSBOURG*

This is an example of the rather mannered type of modern work, with a search for eccentricities, though those in this example are mild compared to much that is now being done, especially in American work, by designers with insufficient training or minds not too well balanced. The various breaks in the ceiling at the top of the side wall are not all likely to be caused by constructive requirements, and do not seem an essential part of the decorative scheme. The small bookcase over the corner seat is so arranged as to ruin any book placed in it, because of the acute angles into which the books must settle by force of gravity, and has some corners too small to be used, too small to be cleaned, but large enough to collect dirt and dust. Nor does there seem adequate reason, aesthetically or practically, for making a chair with an arm projecting further on one side than on the other, in combination with a seat that keeps the knees from turning to one side easily. Attempts to be "different" are often mistaken for modern spirit, but, without other values, will make work that, like the "whatnot" of a past generation, will be discarded by the next.
DINING ROOM DESIGNED BY MICHEL ROUX-SPITZ

This architect's work was much published in the "Concours" of the Ecole des Beaux Arts of the years just before the war—work that was always rich in character, able in design. Here is a room of which the architectural lines are simple, but in which, with the exception of the ceiling, the plain surfaces are enriched with veining, as in the walls, or tessellated as is the floor, and with a richly decorated panel behind the sideboard. The elaborate chandelier is a feature much less used in modern interiors than formerly. The furniture, while simple in line, is quite sophisticated.

From "Intérieurs au Salon des Artistes Décorateurs," 1929.

STUDIO OR OFFICE BY J. RUHLMANN AND A. PORTENEUVE, PARIS

A room truly modern in its simplicity, the only decoration being the border of the rug, the decorative wall map in which the main background color is almost the same in value as the color of the walls—and the people who use it. For the architecture of the room is treated as a stage setting for the actors who are to use it, and so is conceived without ex-traneous elements that might draw attention from the "actors." A room of great height, the lighting is concealed by a shelf-like projection just above the eye-level. The furniture is simple, but comfortable—there are no interlaced triangles, no chevrons, nothing that is bizarre.
Walls and ceiling are simple, and plain carpet on the floor, but over this is a rug of contrasting colors in "modern" design based on primitive or peasant art. The furniture, like the room, is simple in line, but not so in detail. It is made of several kinds of wood, with various kinds of grain, some of highly burled character, and with inlays. The chair upholstered in a designed textile is a little clumsy in design compared to the other.

Interior architecture has always been less formal than exterior: there is less expression of the structural members or processes, which are usually concealed so as to make an interior comfortable, convenient for use, and easy to keep in order. Designers have frequently used the orders in interiors, often in the standardized stone proportions, as shown by the work of the Adam brothers, and in such widely used books on design as the Recueil of de Neufforge. But there have always been those—especially at school judgments—who object, for instance, to the use of a pediment in an interior, even when used decoratively, as being entirely out of place because that form originated as a roof to shed water.

Certain schools of modern thought, objecting to all "useless" forms, including forms intended purely for decoration, believe in simplicity at all costs. Some, like Le Corbusier, are quite willing, in some of their interiors, to have steam-pipes enter and leave a room unconcealed, in much the same fashion as on the ocean liner of a few years ago (before the days of such boats as the Ile-de-France).

Designers of this school eschew mouldings, care for few, if any, pictures, and prefer furniture of flat surfaces and strong lines in which "sentimental" mouldings, as they term them, are avoided, and panelling also, "in order to gain the effect of extreme and severe simplicity."

But not all modern designers subscribe to this simplicity: in the design of the interior as well as of the exterior there are a number of different movements of the modern. Those who have always been interested in ornament, and are skillful in the use of ornamentation, are irked by the principles of functionalism, of severe simplicity. For them the "modern" is simply a different "style" in which new forms are used as elements of composition. These designers often use as much ornament as was used in the past—as much sometimes as is found in florid examples of Louis XV style. The ornament is of a different kind, based on chevrons, triangles, or other geometric forms, on magnified plant forms, on forms of primitive art—forms that have developed from modern science or the mechanistic viewpoint of today.

Some modern work is "modern" only in the type of ornamentation, and if this were replaced by the ornamentation of fifteen years ago, the work would not be modern. In other words, the work is not modern in
From "Moderne Bauformen," December 1929.

KITCHEN OF HOUSE IN STUTTGART. BLOCH AND GUGGENHEIMER, ARCHITECTS

Here is a truly modern interior—an interior of "machinery" of various kinds, each with a purpose, but arranged in so orderly a manner as to give an appearance of simplicity, as does the automobile.

any real sense, but is dressed in the clothing of the present fashion.

If the last generation used documents scrupulously, and often ended by making "period architecture," this generation uses documents omnivorously, voraciously, with no thought of attempting re-creation, with no desire for period archaeology. Sometimes the thoughts so gained are well-digested, assimilated, and reappear with a new coating of the personality of the designer, so that though individual ideas may have been taken from Swiss peasant work, from negro art, from machinery, from Italian architecture, or what you will, there is a certain unity of scale, of method of handling material, by means of which the designer weaves this material into one creation.

To be able to use ideas in this way, to harmonize thoughts into a unified composition, is a great gift, and few there are who have it. Most designers are not able to assimilate dissimilar ideas and pass them through the factory of their own minds and turn them out as a homogeneous product; these, wanting to be modern, take thoughts of different kinds, ideas from different documents, with different "scales," with nothing, in fact, in common, and make them lie as bedfellows, and the result is more often than not painful to the eyes of the beholder.

A number of Germans made use of unusual documents and did work that was quite "modern" in spirit ten or more years before the war. Ludwig Hoffman, Bruno Paul, Peter Behrens, Otto Wagner, and others made a study of the Italian Renaissance, but sought picturesque variants of the art of that time, rather than copying, carefully, the accepted "best examples." But it was the Exposition of Decorative Arts in Paris in 1925 that brought the movement forcibly to the attention of America through the great number of American travellers who there saw, for the first time, an art entirely new to them.

The modern style is based on all previous knowledge, and draws where it will from all sources of inspiration, whereas the art of former times had little (comparatively) besides its own past to draw upon. The enormous increase in the number of books published, the improvement in illustration, in photography, has placed the entire storehouse of knowledge before the modern designer. Books on primitive art, on the peasant art of every country, scientific books, books of microscopic photographs, photographs of machinery taken by artists who there discovered a field worthy of
Here is a sophisticated, thoroughly studied modern design, based on a wide and understanding knowledge of past styles. There is recall here of Chinese, Louis XV, and primitive art, blended into a unity, and with a sure sense of proportion and color values. The lines of the architectural background are severe, even though the surfaces are covered with decorative painting.

As the new work becomes more familiar to the average eye the merit of mere strangeness will evaporate and work will be judged, as of old, on its intrinsic values.

We have said that in the theory of modern thinkers a room should be simple: and the smaller the room, the simpler should be the architecture of the room, for this is like the setting on the stage—"a setting too elaborate and too striking in color and design would immediately take the attention away from the actors and the lines in the play." To often these actors, though a part of the final composition, are not considered as an element in the study.

There are two parts of any interior: the stationary part—the walls, with their doors and windows, the floor, and the ceiling—and the movable part, consisting of the furniture, the hangings, the draperies, lighting fixtures, and the small objects, and the people, without which the room does not fulfill its function.

For a small room the ideal foundation is a plain flooring of quiet color—a vulcanized wood floor, or a plain carpeting in gray, taupe, or black. There are, of course, "modern" carpets of intricate geometric design in contrasting colors, interesting in themselves as pieces of design, but usually ruinous in a room, and much too evident to fit into any composition in the subordinate place that the down-trodden floor must naturally remain in.

The ceiling should be plain, of tone and color lighter than the walls. A dark ceiling is apt to make a room look lower, a light ceiling higher, than it really is. While there are chandeliers in the "modern" style, made by applying new decorative forms to an old appliance, lighting in the modern spirit is, as much as possible, concealed, or flush with wall or ceiling, or is part of the movable furniture.

If the floor and ceiling are thus plain, it is on the walls that most attention is directed. Design is partly a question of form, proportion, and scale, and partly...
a question of material. As the form is simple in the modern interior, the material plays an important rôle. The texture of a plaster wall is worthy of study; the veining of marble may in itself be a rich decoration of an unobtrusive kind; polished or waxed surfaces and the choice of stuffs and textiles assume importance. The commercial penetration into hitherto little known parts of Asia, Africa, and the islands of the sea, has brought into the market a number of new woods with interesting burls and figures, available in veneers for wall coverings and for furniture. The rich figurings of zebra-wood, tuyha wood, and macassar-ebony, to mention but a few, give to the plain surfaces of modern design a new interest, without any attempt at “ornamentation,” as we usually term it. We shall next month look at modern ornamentation of the latter kind.
PROGRAM
AN OPEN ARCHITECTURAL COMPETITION
FOR THE DESIGN OF
AN EIGHT-ROOM HOUSE AND
TWO-CAR GARAGE

The Designer may assume that the choice of Materials is at his discretion.

Authorized by THE PENCIL POINTS PRESS, INC.

[Russell F. Whitehead, Architect and Editor, has been appointed as Professional Adviser to prepare this program and to act as Adviser in the Conduct of this Competition.]

Participation in this Competition is not limited. PENCIL POINTS is appealing to the competitive spirit of all Architects and Draftsmen, hoping they will be inspired to produce designs of outstanding merit.

Contestants may submit any number of designs.

This Competition Closes at 6 P. M., Thursday, May 15th, 1930.

COMPENSATION TO COMPETITORS

PENCIL POINTS PRESS, INC., agrees to pay the Winners, immediately after the Award by the Jury the following Prizes:

| Premiated Design | $1000.00 |
| Design placed Second | $300.00 |
| Design placed Third | $200.00 |
| Design placed Fourth | $100.00 |

SIX MENTIONS

JURY OF AWARD

PENCIL POINTS PRESS, INC., agrees that there shall be a Jury of Award composed of Five Architects, representing different sections of the United States.

PENCIL POINTS PRESS, INC., and the Competitors agree that the Jury of Award has authority to make the awards and that its decisions shall be final.

PROBLEM

PROBLEM: Mandatory. The design of a distinctive and modern house with eight principal rooms, to be built of materials chosen by the designer. The occupants are to be a cultured man, his wife, two children of high-school age, and a servant. Provision shall be made for overnight guests and for genial hospitality.

The house is to be located in the suburbs of a city or in the residential districts of a progressive town, anywhere in the United States. The assumed geographical location to be stated on the drawing. The site is assumed to be in the middle of a block and the land to be level. The lot is rectangular and has a frontage of seventy-five feet (75'-0") on the Street and a depth of one hundred and fifty feet (150'-0"). The Northerly end of the lot faces the Street. A restriction states that no house can be erected nearer than thirty feet from the highway property line and that no building may be placed directly on the other lot lines.

The total area of the first floor shall not exceed one thousand two hundred (1200) square feet, including the area of the garage and porches.

Provision is to be made for Living Room, Dining Room (separate or combined), Kitchen and Five Bedrooms. Four Bathrooms, one two-fixture Lavatory and Pantry are to be provided.

One of the Bedrooms and one of the Bathrooms are to be located on the first floor for possible use as maid's room or guest room. The necessary circulations are to be included. There shall be at least one Closet for each Bedroom, a Linen Closet and a Coat Closet. If cellar is to be used for other than utilitarian purposes accessible stairway shall be included.
A garage for two automobiles is required. It is assumed that the owner prefers that the garage be directly connected to the house.

CONSIDERATIONS OF THE JURY OF AWARD:
1. Evidence of the imagination and skill of the competitors.
2. The Architectural Merit of the design and the Ingenuity shown in the development of the plans.
3. Fitness of the design as a whole to meet the spirit and needs of the problem.
4. Practicability of Construction. Excellence of Rendering, while desirable, will not have undue weight with the Jury, in comparison with its estimate of the Competitor's ability, if otherwise shown.

COMPUTATION OF THE TOTAL SQUARE AREA:
Measurements to be taken from the outside of exterior walls, or porch foundations. All square area figures will be carefully checked before designs are submitted to the Jury. Designs exceeding 1200 square feet total first floor area will not be considered.

PRESENTATION, DRAWINGS: Mandatory. The following drawings are to be submitted:
1. Perspective of the residence, at the scale of one quarter inch equals one foot, heights to be measured at corner of building nearest the spectator, indenibly true, rendered in pen and ink, clearly indicating the character of the exterior finish and showing a scenic background which is in keeping with the limitations of the site.
2. Plan at the scale of one eighth inch equals one foot, of the First Floor and the Second Floor. The walls and partitions are to be inked solid black and the name and dimensions of each room lettered plainly to be read easily when reproduced at one quarter the size of the original drawing. Range, sink, cupboards and beds are to be shown.
3. One Side and the Rear Elevation, at the scale of one eighth inch equals one foot.
4. Detail of some Exterior Feature of the design at scale of one half inch equals one foot.
5. Graphic Scales must be shown.
6. The drawings shall be made in full black ink and shown on one sheet of white paper. Diluted black ink, color or wash; cardboard, thin paper or mounted paper is prohibited.
7. The sheet is to be exactly 26 x 39 inches. Single black border lines are to be drawn so that space inside them will be exactly 25 x 38 inches.
8. The drawing shall bear the title: Design for an Eight-room House—The Pencil Points Competition. It is to be signed by a Nom de Plume, or Device.
9. An itemized computation of the total square area together with a note stating the assumed geographical location is to be placed upon the drawing in a space not to exceed 4" x 1 1/2", surrounded by single border line.

COMMUNICATIONS: Mandatory. As this is an open Competition it will be impossible to answer inquiries. Therefore, the contestants shall not communicate, on the subject of this competition, with the Professional Adviser, or with any other person in any way connected with it, either directly or indirectly.

ANONYMITY OF DRAWINGS: Mandatory. The drawings submitted shall contain no distinguishing mark, except the Nom de Plume or Device, which could serve as a means of identification. No competitor shall directly or indirectly reveal his or her identity to the Professional Adviser.

With each drawing there must be enclosed a plain, opaque envelope, containing the true name and full address of the contestant. The Nom de Plume of the contestant shall be placed on the outside of the sealed envelope. The envelope will be opened by the Professional Adviser, in the presence of the Jury, after the awards have been made.

DELIVERY OF DRAWINGS: Mandatory. The drawings submitted in this competition shall be securely wrapped, in a strong tube not less than 2 1/2" in diameter, to prevent creasing or crushing, and addressed in plain lettering to Pencil Points Press, Russell F. Whitehead, Professional Adviser, 419 Fourth Avenue, New York, N. Y. No other lettering shall appear on the wrapper. Contestants sending drawings by registered mail must obliterate the return name and address and not demand return receipt.

Drawings shall be delivered to Pencil Points office or placed in the hands of the Post Office not later than 6 P. M. Thursday, May 15th, 1930. The postmark will serve as evidence. Drawings submitted in this competition are at the competitor's risk. Reasonable care, however, will be exercised in their handling, keeping and package for return.

EXAMINATION OF DESIGNS: The Professional Adviser will examine the designs and records of their receipt to ascertain whether they comply with the mandatory requirements of the Program and will report to the Jury any instance of failure. The Jury will satisfy itself of the accuracy of the report and will place out of the competition and make no awards to any design not complying with mandatory requirements. No drawing shall be exhibited or made public until after the Award of the Jury.

JUDGMENT: The Jury of Award will meet shortly after the close of the Competition.

ANNOUNCEMENT OF THE AWARDS: The Professional Adviser will send, by mail, the names of the winners of the Prizes and Mentions, to each competitor, as soon as possible after the awards have been made and the envelopes have been opened. The announcement will also be published in the July issue of Pencil Points. Requests for this information by telephone and telegraph will not be answered.

REPORT OF THE JURY: The Jury will make a full report, stating the reasons for the selection of the winning designs and offering helpful criticism and comment upon designs not premiated. This report will be published in Pencil Points along with the reproductions of the winning designs and such additional designs as may be selected.

THE PRIZE DESIGNS: Are to become the property of Pencil Points and the right is reserved by this publication to publish or exhibit any or all of the designs not premiated. In every case where a competitor's design is shown his or her name and address will be given.

RETURN OF DRAWINGS: The Authors of non-premiated designs will have their drawings returned within a reasonable time, postage prepaid, insured for $50.00.
FROM A DRYPOINT BY WILLIAM C. McNULTY
TIMES SQUARE, NEW YORK

PENCIL POINTS
The original drypoint from which the reproduction on the reverse of this page was made measured 7 3/4" x 10 1/2". It was shown recently in New York as one of the Fifty Prints of the Year chosen by John Sloan for the American Institute of Graphic Arts from among nearly a thousand prints submitted.
GARDEN GROUP BY ORONZIO MALDARELLI, SCULPTOR

"A SON OF NEPTUNE"

PENCIL POINTS
The bit of garden sculpture shown on this plate is a companion piece to the other group by Mr. Maldarelli published in the July, 1929, issue of Pencil Points on page 474. Like the other, this subject is designed to be cast in either bronze or lead and stands 31" high. This reproduction was made from a photograph of the plaster cast in the sculptor's studio. The piece was exhibited in the Garden Club section of the International Flower Show held last month at the Grand Central Palace in New York.
THE CAPITOL FROM THE FORUM, ROME
FROM A WATER COLOR DRAWING BY JACQUES CARLU

PENCIL POINTS
(April, 1930)
Jacques Carlu, who is Professor of Architectural Design at the Massachusetts Institute of Technology and Director of the American School at Fontainebleau, is represented in this issue by two color plates and several black and white reproductions of some recent architectural designs. The water color shown on this plate measured 19 1/2" x 13" in the original and, like its companion, was done in Rome in 1922 while the artist was pursuing his studies as holder of the Grand Prix de Rome in Architecture. It was done almost entirely with transparent water colors with a few touches of gouache.
It is interesting to compare the foliage in this drawing by Schell Lewis with that in the rendering by Louis Kurtz, reproduced on page 189 of the March issue. Another drawing by Mr. Lewis of this house, showing the rear view, will be published next month.
RENAISSANCE ARCHITECTURE AND ORNAMENT IN SPAIN

A PLATE FROM THE WORK BY ANDREW N. PRENTICE

PENCIL POINTS
“This is another ancient house (now used as a store) the history of which seems to be entirely forgotten. The detail is very beautiful and of the best Plateresque period. The plan is a very usual one, with a large doorway permitting entrance on horseback. The rich ‘artesonado’ roof to the staircase has plaster shields bearing the same arms as are shown over the entrance door.”

A. N. Prentice.
THE GEOMETRY OF ARCHITECTURAL DRAFTING

9—PRINCIPLES AND PROPERTIES OF SCALES

By Ernest Irving Freese

EDITOR'S NOTE:—This article, which is copyrighted, 1930, by the author, continues the series begun last August.

JUST SUPPOSE you knew nothing about a scale, nor possessed any knowledge of the geometric principle upon which it is founded. All right. You are required to lay out the plan of a proposed structure. This plan, in order to come within the limits of your drafting board, must be drawn, say, at 1/48th full size, that is, the distance between any two points on your drawing must measure 1/48th of the corresponding dimension of the building. One of the required dimensions of the building is 43'-7". To find the length of the corresponding line on your drawing, you'd divide 43'-7" by 48. But you certainly wouldn't do it by "mental" arithmetic. You'd set down the 43, multiply it by 12, add 7, and finally divide by that 48. After this arithmetical detour, and after going over the route a time or two more to discover whether or not you were right the first time, you'd probably conclude to represent that distance of 43'-7" by a line 10 43/48" long. In the same manner you'd divide every other given or controlling dimension of the proposed building by 48 in order to find the length of line to proportionately represent it on your drawing. And then what? Well, then you'd go hunting—for a rule that would read to 48ths of an inch. Assuming that you were fortunate in that respect, then you might proceed to lay out the plan from the table of calculated dimensions you had prepared for that purpose. And you might not. Possibly the value of the ground upon which the originally proposed structure was to have been erected, had, due to the elapsed time factor, increased to such an appreciable extent that an economic return on the investment now demanded a more extensive structure to be erected thereupon.

Of course, the above is simply an entertaining and forcible illustration of the value of the drafting scale as an instrument of proportionate measurement. This instrument, once the "scale" of the drawing is determined upon, immediately yields the length of line required to represent any actual dimension. The drafting scale is the most indispensable and least understood instrument in the modern draftsman's kit of tools. It possesses other properties, aside from the one outstanding property of proportionate measurement, that are equally expeditious but less commonly utilized. And there are other scales, of differing types, which, though not as well known as they should be, are of immense value, both from the standpoint of speed and of precision, when the occasion for their use arises.

Any scale, of any type whatsoever, is purely a graphic, or geometric, short cut by means of which the value sought is directly obtained by sight instead of by tedious and time-consuming calculation. A thorough concept of the functions and properties of scales, coupled with working knowledge of how and when to use them, is the most speed-productive asset that a draftsman can acquire. The four types of scales that are herein considered and fully exemplified are the drafting scale, the diagonal scale, the conversion scale, and the comparing scale. The nominations are purely a matter of convenience, however, since each type possesses certain properties or characteristics in common with one or more of the others.

I: DRAFTING SCALES

A ruler is an instrument used as a guide for the ruling of lines.

A scale is an instrument graduated in representative, or proportionate, units of measurement.

A foot on a rule is an actual foot. A foot on a scale is a reduced, or sometimes enlarged, representation of an actual foot. If you were to photograph a foot rule with the camera placed so as to bring the axis of the latter perpendicular to the plane of the rule, then the pictured rule would be a scale. It would represent one foot. And if this representation were, say, one and a half inches long, it would thereby become a scale of 1 1/2"=1'-0", and would properly be so designated. Hence, by knowing the actual or proposed linear dimensions of an object, you could make a geometric drawing of same by utilizing this reduced foot rule, with its proportionately-reduced inches and inch-subdivisions, as a representative unit of actual measurement. Your resultant drawing would then become a scale working drawing, and the length of each line thereon would be a certain definite and invariable fractional part of the corresponding linear dimension of the object. No architectural draftsman, however, who cherishes the ambition to become a designer, should ever allow himself to think of a scale value as that certain fractional part of the actual dimension which it represents, for the acquirement of such a habit of thought will most certainly blockade any desired development of a sense of proportion and render impossible a fundamental conception of "scale" in that sense. Think in scale. To a scale-conscious draftsman working at, say, a scale of one-quarter inch to the foot, a quarter inch IS a foot—not 1/48th of the linear dimension which it represents. Moreover, his 20-inch by 30-inch drafting board is 80 feet wide and 120 feet long. And his instruments, likewise, are "in scale" with his drawing.

The geometric genealogy of drafting scales is graphically portrayed in Figure 82 at Diagram "1." This is their "family tree." And the foot rule, here necessarily shown at reduced size, is the progenitor of them all. This Diagram brings out the fact very
clearly that a scale is not a rule but a proportionately-reduced or enlarged representation of same. Any straight line paralleling the foot rule and limited by the converging lines \( ac \) and \( bc \), or by their prolongations, will complete a triangle similar to the triangle \( abc \). Hence, by virtue of the linear proportionality of similar triangles, the aforementioned line will become divided in the same manner as the foot rule by any one or all of the lines converging to the common vertex \( e \). So, since the converging lines here emanate from, or pass through, the graduation marks of the ancestral foot rule, any proportionately subdivided scale unit whatsoever can be materialized from this Diagram, assuming, of course, that the foot rule is actually a foot long. A scale unit of 3”=1'-0" will now be illustratively invoked: From the 3-inch mark on the foot rule, that is, from the point \( d \) on \( ab \), project a line paralleling \( ac \) and crossing \( bc \) at \( e \). Then the line \( ef \), paralleling \( ab \) is the scale called forth by the geometric magic of similar triangles. And, if \( ag \) were an actual inch on the foot rule, then \( fh \) would be a \textit{representative} inch at a scale of 3”=1'-0". And the distance \( eh \) would have a scale value of 11", since it is representative of the eleven actual inches, \( bg \), on the foot rule. If, now, the scale unit \( ef \) (which is actually 3" long) be laid off from \( e \) to \( t \), \( t \) to \( u \), and \( u \) to \( v \), and the mark at \( e \) called zero, then the marks to the right of zero would represent scale feet, and the marks to the left of zero would represent scale inches. Hence, the distance \( vh \), say, would have a scale value of 3 feet plus 11 inches, or, reading it directly, 3'-11". It is thus seen that the simple and ingenious expedient of designating the mark at \( e \) as zero (instead of so designating the end mark at \( f \)), renders it wholly unnecessary to “divide” any foot unit save the initial one \( ef \), as shown. The others, \( et \), \( tu \), etc., giving the whole number of feet contained in the “laid off” or “scaled” dimension, are left “open.” This type of drafting scale is therefore termed “open divided,” and is the type commonly used in the architectural drafting room. Now, as a further inculation of the clarifying fact that a scale is not a rule but a rule’s \textit{linear relative}, imagine a yardstick placed in continuation of the foot rule, that is, with its zero end at \( f \), and extending to the right in line with \( ab \). Then the line \( ext \), which is the locus of all one-foot marks on the scales, will meet the yardstick at its 12" graduation. And the line \( cyu \), being the locus of all two-foot marks on the scales, will meet the yardstick at its 24" graduation. And the line \( cxe \), cutting the scales a scale yard from zero, will cut the prolongation of \( ab \) an \textit{actual} yard from \( e \). If you have heretofore had any misconception as to just what a scale is, I am certain you will no longer suffer from that malady. The foregoing elucidation should utterly remove the confusion which young draftsmen repeatedly exhibit in using a scale. The discussion has mainly pertain to \textit{reduction} scales, that is, to those of which the representative foot unit is less than a foot long. But the diagram also shows that \textit{enlarging} scales, of which \( kl \) is one, are identical in principle and property with the others. On the enlarging scale shown in the Diagram, the scale inch \( km \) is further divided into scale eighths, the latter, again, emanating in accordance with the law of linear proportionality from the actual eighth-inch marks of the foot rule.

There is seldom any necessity for the draftsman to construct any of the regularly-used drafting scales, either of feet-and-inches or decimal parts. These can be purchased at a lesser price than his time would be worth in constructing them. Moreover, since the purchased scales are “machine divided,” the utmost degree of precision in spacing is attained. However, it occasionally happens that an odd scale must be constructed for some special purpose. Apparently, then, the genealogical process by means of which the scales of Diagram “1,” Figure 82, are chronologically placed in relation to the originating foot rule (or in relation to a line so divided), could also be utilized as a means of \textit{constructing} a scale unit. And so it could. But it is not so intended, since, in actual execution it might prove both unwieldy and inexact. So, to \textit{construct} a scale unit, the more practical method indicated at Diagram “2” is to be preferred. This method is an application of the identical principle underlying the genealogical chart adjacent. There are several variations of this general method of linear subdivision, but the method given is apt to be productive of the greatest accuracy since the direction of projection is made vertical, hence can be accomplished with a triangle operating on the T-square in normal position. It does, however, require another scale as a spacer. Let \( np \), laid off on a horizontal, be the length of the foot unit of the required scale, and let it be required to divide this unit into scale inches and scale quarter-inches, that is, into 48 equal parts. Project \( pq \) vertical. Indent the point \( n \). Now, utilizing, say, a chain-divided decimal scale as a spacing device, so maneuver it as to cause one limiting graduation-mark of any 48 equal and consecutive divisions to register precisely with the indentated point \( n \), and to cause the other limiting graduation-mark of these 48 divisions to register precisely with the line \( pq \). Then, by indentation with the point of the dividers placed snug against the edge of the raking scale, mark off the required number of equal spaces, meanwhile holding the scale immovable. Identify the indentated points, if necessary, with a penciled tick-mark. Then remove the scale and project the indentations vertically to the line \( np \), thus dividing the latter into 48 equal parts of which each group of four then represents one inch at a scale of \( np=1'-0" \). Observe that the above construction requires no construction \textit{lines} except the line \( pq \). The scale line \( np \) and some of the vertical projection lines are shown merely to clarify the method of projection. Observe, also, that the edge of the scale used as a direct spacer must be a \textit{straight} edge, since if the points along \( np \) are not collinear, the division of \( np \) will be inexact.

The most desirable qualification that a scale can possess, aside from the requisite one of precise graduation, is that its cross-sectional shape be such as to allow of its graduations just meeting, or ending contiguous with, the paper, yet to render said contiguity apparent without tipping the scale or viewing it in a direction other than perpendicular to the paper. Of the var-
ous available manufactured scales, the ones having the triangular cross-sectional shape shown at Diagram "A," Figure 83, are the only ones possessing this desirable qualification. This shape (which is a decided improvement over the other triangular shape at "C") has its graduations carried full to its "feather edges" and, since it bears on these edges rather than on its undermost surfaces, and since the exposure-angle, \( \alpha \), is sufficient for legibility, it therefore meets the above-named qualification. Strangely enough, however, this shape was apparently designed to accomplish another wholly different purpose: namely, to prevent the eventual wearing away of the graduations on the bearing surfaces most frequently in frictional contact with the paper. But it does not accomplish this purpose. For, in this "improved" shape, shown at "A," the entire wear is concentrated on the edges, whereas, in the other shape, shown at "C," the same amount of wear would be distributed over its surfaces. Nevertheless, regardless of this question of "wear," the shape shown at Diagram "A" is, for the reason first stated, preferable to the other. To the student, "wearing quality" is irrelevant. To the professional draftsman it may possibly be worth considering. In the latter case, one or more of the "flat" scales, of which Diagram "D" is the preferable cross section, should be added to take care of the usual run of drafting-room work which, ordinarily, calls for the repeated use of one or another of the following three scales: \( \frac{1}{2}'' = 1'-0" \), \( \frac{3}{8}'' = 1'-0" \), and \( \frac{3}{16}'' = 1'-0" \). These three separate scales will take the everyday "wear and tear" off the triangular scale which is then held in
reserve for work requiring geometric exactitude or for work at a scale not ordinarily or frequently used.

An elevation of one face of the "architect's" triangular scale is reproduced at Diagram "B" of Figure 83, at reduced size, necessarily. This manifold instrument, as fully designated on the cross section at Diagram "H," comprises ten differing feet-and-inches scales and a foot rule. The scales are "open divided," as further illustrated by Diagram "1" of Figure 84. But the foot rule is "chain-divided," that is, continuously, into sixteenths of an inch. The foot rule, aside from its obvious use, is therefore valuable as a spacer when working to some particular scale. Also, for this latter use, the otherwise uncommonly used scales of 3/32", 3/16", and 3/8" to the foot, are exceptionally desirable: so much so, in fact, that this useful property alone is sufficient reason for the possession of this triangular scale.

The "flat" two-way-reading individual scale, pictured at Diagram "E" of Figure 83, is the most expeditious and convenient scale of them all. It is cross-sectioned at Diagram "D," which section, from the standpoint of the accuracy with which a dimension may be transferred from this scale to the paper, is next in order of preference to the heretofore discussed triangular section diagramed at "A." The individual two-edge scale, being identically graduated on both edges can, if it meets the 90-degree test referred to in the Figure, be used directly to lay off or read any measurement perpendicular to a given line at the given scale. This property, under the same condition that the scale shall meet the test indicated, is possessed in a measure by all unrockable two-edge scales, but only fully by those carrying the same scale on both edges in the way shown at Diagram "E." In the two-edge scales of the cross-sectional shapes indicated at "F" and "G," however, this advantageous property does not exist, since it is manifestly impossible to bring the two edges of either into contact with the paper at the same time: in other words, these scales are the "rockable" kind. All things considered, then, the two shapes shown at "A" and "D" are the preferable ones. True enough, the shape shown at "D" is "hard to pick up." But this oft-repeated criticism is impertinent. Why pick it up? There's nothing on the other side. Slide it!

In addition to the feet-and-inches scales, by means of which architectural scale working drawings are invariably laid out, the draftsman should also possess an "engineer's" triangular scale carrying the decimal scales designated on the cross section at Diagram "J" of Figure 83. In reality, this instrument is not a scale, but a rule that can be used as a scale, since its invariable unit of one inch is also a unit of actual measurement, and since it is "chain-divided" into the decimal parts noted. Diagram "4" of Figure 84 gives a reduced facsimile of but one of the six faces of this triangular scale. The various typical uses lettered A to J, inclusive, indicated thereon, should be sufficiently suggestive to require no further recommendation as to the desirability of this decimal scale to an architectural draftsman, regardless of the fact that decimal scales are never used for working drawings. Take particular note, however, that the decimal scales
are read from the end thereof, in exactly the same manner in which a rule is read. This is made clear in this Figure which indicates both the manner of reading the architectural scales of feet-and-inches at Diagrams "1," "2," and "3," and the decimal scale, or rule, at Diagram "4." Note also, the single instance in which an architectural scale is also a rule: namely, the scale of $1"=1'-0"$, shown at Diagram "3." In this one and only instance the unit graduation marks of the scale are also actual inch marks. And the initial unit of this scale is divided into 48 equal parts, each part representing a quarter inch at this scale but being actually 48ths of a real inch. Hence, this scale can be used directly to lay off or read a measurement to 48ths, 24ths, 12ths, 6ths, or 3rds of an inch as at A and C of Diagram "3"—which same can not be done by the regular foot rule. Thirds of an inch can also be gotten on the decimal scale; namely, 10/30ths. Simple too, but seldom thought of. A third of an inch is 16" at a scale of $3/4"=1'-0"$. So there you are: the common spacing of studding, etc. Mark 'em off on the chain-divided decimal scale of 30ths: 10, 20, 30, 40—as far and as fast as you like! This is only an inkling of what you are going to learn about the practical use of drafting scales in Parts 10 and 11 of this geometry. Meanwhile, there's more to learn about scales in general.

No scale for practical drafting should be less than a foot long. The "vest pocket" variety are a nuisance for this use. For some work, scales two feet long will become desirable. A scale of $3/8"$ to the foot, 12" long, will scale 12 times 8 feet or 96 feet, which is 4 feet short of a hundred. But scales can be procured 12½" long which, at a scale of $3/8"$ to the foot, will encompass a full hundred feet without a shift, and at a scale of $3/4"$ to the foot will lay out or measure a full fifty feet without a shift. This, again, is sometimes an advantage, inasmuch as property divisions commonly occur in fifty-foot units. Moreover, in laying off a long distance, necessarily requiring consecutive placements of the scale, it is easier, and safer, to reckon in 50-foot or 100-foot intervals than in 48-foot or 96-foot jumps.

Three conditions operate to determine the particular scale at which a drawing shall be made: (1) The size of the drafting-board, or the predetermined or standardized size of the sheets that make up the eventual "set of working drawings." The determination of sheet size is influenced by the economy of conforming to the available widths of paper, cloth and blueprints, as well as by a consideration of the practicability of handling the sheets on the job without the necessity either of rolling them or of folding them. (2) The accuracy with which the drawing is to be laid out, or the completeness of its figured dimensioning or subsequent "detailing" and "full sizing." (3) The accuracy with which the drawing can be "scaled" with the builder's rule, or the degree of approximation allowed him in so scaling an unfigured distance.

The first two conditions require little comment. Under condition (1), if the size of the board is the limiting factor, merely measure the board at the proposed scale of the drawing and you will readily discover if the board will contain it. Under condition (2) the graduation-intervals of the scale unit will measure the minimum distance that can be accurately laid off. At a scale of $3/8"=1'-0$", a scale inch must be estimated, since the unit subdivisions of this scale are usually two inches apart. On the other hand, at a scale of $3"=1'-0"$, an eighth of an inch can be accurately represented, but a sixteenth must be determined by interpolation. Condition (3) deserves more than passing comment: it should be, and herein will be, dwelt upon. Draftsmen who "never get away from the board" persistently overlook the significant fact that, while drafting scales are invariably used to lay out working drawings, they are, outside the drafting-room, seldom used to read them. Hand each of ten builders a drafting scale, and ask each to therewith
"scale" a drawn line. Nine of them will immediately recoil from the proffered mathematical-looking instrument and—reach for their two-foot rules. The tenth may possibly accept the challenge, fumble the scale for awhile, finally get the proper foot-mark at one end of the line, doubtfully count the inch-marks between zero and the other end of the line, shove your scale aside, reach for his rule, and thereby check the dimension before staking his reputation upon a "fool scale." Joke? All right, then here's another one: Lay aside your T-square, your triangles and your finely-graded scales, and make a working drawing with a steel square. Now whose turn is it to laugh? It's just as unreasonable to expect a builder to make use of a drafting scale to read a drawing as it is to expect a draftsman to make use of a builder's steel square to make a drawing. In fact the former expectation is the more unreasonable of the two—for a "working drawing," by its very designation, connotes a drawing from which a builder can work, that is, a drawing from which he can procure, with the means at his command, the information necessary to materialize the thing which the drawing represents. The only instrument that is held in common by a draftsman and a builder, and the only instrument with which both are equally familiar, is a rule—which is neither a drafting scale nor a steel square. Hence, lacking explicitly-designated dimensions, the rule becomes the only equitable means of interpreting the "scale" of a working drawing. Therefore: (a) A scale working drawing should be fully dimensioned, or (b) it should be drawn at such a scale that the unfigured dimensions will correspond to an exact graduation interval on the builder's rule, or (c) the inexplicit portions should be detailed at larger scale, or (d) an approximation in "scaling" should be allowed equal to the builder's ability to estimate the distance that any portion of a sixteenth of an inch would represent at the scale noted on the drawing. In other words, if the proposed scale of the contemplated drawing were, say, $\frac{3}{8}''=1'-0''$, a dimension of 17'-9" should be, (a) given in figures, or (b) the drawing made at a scale of $\frac{3}{4}''=1'-0''$, or (c) a larger scale detail or full size section referred to, or (d) the builder allowed to "estimate" this distance anywhere between 17'-6" and 18'-0".

Of course, there are "vest pocket scales" and there are "scale rules." But a census of the building mechanics who understand and use such instruments would not equal the population of an agricultural town on the Mohave desert. A rule, graduated no finer than sixteenths of an inch, is the builder's scale. And by means of this rule he interprets the draftsman's scale somewhat in accordance with the mental processes indicated by the arithmetical and other symbols of the psychological document herein designated as Figure 85. Note that, so far as being interpretable with a builder's rule, the scales of $\frac{3}{32}''$, $\frac{3}{16}''$, and $\frac{3}{4}''$ to the foot are utterly hopeless. These scale units are not aliquot parts of an inch: no divisions on the workman's rule, and no mental gymnastics of which he is capable, would tell him, for instance, how many $\frac{3}{32}$nds, $\frac{3}{16}$ths, or $\frac{3}{4}$ths of an inch were contained in that distance of 4 7/16" which his rule here measures. If, for that reason, you brand the workman as lacking in mentality, try to solve this riddle yourself—not with your scale, but with his rule. Observe, again, that in the scales of $\frac{1}{2}''$ and 1" to the foot, the least number of whole inches that can be read is three. Put the scale unit of each of these scales alongside an inch on the rule and you'll see why: the only inch-marks of these two scales that coincide with the sixteenth-inch-marks of the rule are the third, sixth, and ninth. Hence, no whole inches, except 3, 6, and 9, can be read off the rule: they must be "estimated" instead. As a matter of fact, then, these scales can not be read by a builder any more closely than the scale of $\frac{3}{4}''=1'-0''$, for the non-corresponding whole-inches interval is the same in all three cases. True enough, as Figure 85 indicates, the scales of $\frac{3}{4}''$ and 1" to
the foot can be read to the particular fractional inches shown, provided the drawing is laid out in the same manner, as it merely happens to occur in this example if taken at these scales. In practice, however, this is seldom the case, and, even though it were often the case, it is doubtful if a workman would ever become thoroughly conscious of the fact that a sixteenth of an inch on his rule represents exactly one and a half inches at a scale of \( \frac{3}{8''} = 1' \- 0'' \), and three quarters of an inch at a scale of \( 1'' = 1' \- 0'' \). The diagram here referred to, however, gives him the benefit of the doubt!

To sum up: The scales of \( 3/32'', 3/16'', 3/8'', \) and \( 1'' \) to the foot are unsuitable for drawings proposed to be worked from, even though said drawings be fully dimensioned. Never lose sight of the fact that a contractor, in taking quantities off a plan, or in estimating the cost of a building therefrom, seldom reads figured dimensions—there'll be time enough for that when he gets the job. So he notes the scale, then "slaps his rule on the plans" and therewith speedily "scales" them in his own peculiar way. Another thing: In this day of high-speed production, when an architect's client keeps the telephone busy with inquiries, the contractor does the scaling—not the draftsman. All of the foregoing significant, but often disregarded, facts, should have a direct and influential bearing upon the manner in which building plans are prepared for a builder to build from. They must be translatable in his language if they are to become "instruments of service." Finally, bear in mind that while comparatively large-scale drawings require more paper and run up the blueprint bill as well, yet they are actually made in less time than the same drawings at a finer scale—thereby not only making up for the higher cost of material by faster production and prolonged eyesight, but also becoming actual working instruments instead of suggestions.

Now let the decorative panel shown in Figure 86 represent a scale detail of some intricate tile paving or other pattern work which is, usually, adjudged by a contractor to cost "so much per square foot." Suppose further that there were no units recognizable in this design that would unmistakably serve to establish the scale at which the drawing was made, which scale, in this instance, was not marked thereon and that, unfortunately, the drawing occurred in the immediate vicinity of another detail of which the designated scale was twice that of the detail under consideration. The contractor, logically assuming the scale of the panel as twice its actual scale, got an area of 12 square feet, upon which he based his cost—and got the job! Naturally; for the actual dimensions of that panel were twice what he assumed, hence, the area four times as great as he had calculated! Wherefore an argument eventually became precipitated—and the architect paid the difference. But the latter individual never again let a drawing or a detail leave the drafting-room minus a scale designation. The proportionality of drafting scales, one to another, is linear, not quadratic. That's the lesson of Figure 86.

If you make a drawing at, say, a scale of one-quarter inch to the foot, for magazine reproduction, and designate the scale of same by an equation (as you ordinarily would on a working drawing) like this—Scale, \( \frac{3}{8''} = 1' \- 0'' \)—and the drawing is then reproduced at, say, one-fourth of its original dimensions, that carefully-lettered scale equation would no longer be true, for the scale of the reduced reproduction would be \( 1/16'' = 1' \- 0'' \): said scale "coming down" along with the drawing, and in identical ratio. But if, on the original drawing, you had drawn a line, say 1" long, and visibly divided it into four scale units, and marked this line "Four Feet"—which it certainly would have been at the scale of your drawing—then this line, and its marked length, would have remained "Four Feet" in the reduced reproduction, although it also would have "come down" to one-fourth of its original length, that is to \( \frac{3}{8''} \), which is four feet at a scale of \( 1/16'' = 1' \- 0'' \). Hence, the graphically-presented scale would have remained true of the reproduction, as it would have been true of the original. Moreover, it would have remained true regardless of any change whatsoever in size—whether by reduction or enlargement, shrinkage or expansion. Wherefore, "graphic" scales (so-called only in distinction to a scale equation) of any design that may please the draftsman's fancy should be prominently placed on all drawings that are to be reproduced by any process that would appreciably alter linear dimensions. In exceedingly rare cases, blueprinting may come under this classification, but ordinarily, blueprinted, or contact-printed, working drawings in which the over-all and controlling dimensions are given in figures, need cause

![Why the Scale of a Drawing Should Be Unmistakably Designated](image-url)
no concern in this respect, since the shrinkage of a print in drying does not alter a figured dimension, nor does it affect the distances that must be "scaled" therefrom to such an extent that a builder could discern the difference on his rule—a difference, more or less, of a hundredth of an inch to the foot. Moreover, if you were to put drawn scales on a set of working drawings in lieu of the customary equations, the bewildered contractor would wonder where in thunder he had to put all those carefully-dimensioned ladders!—and why in the selfsame-sequence-of-lightning you hadn't marked a scale or two on the plans!

Architectural draftsmen are sometimes required to make shop drawings of patterns, moulds, or castings. Cast material contracts in cooling. The most emphatic and pertinent instance of this is, of course, architectural terra cotta. A piece of unfired terra cotta—which is clay—measuring 12 7/8" square, will be reduced to 12" square after firing. This unqualified statement is merely by way of example: it may not always hold true, since the degree of shrinkage in cooling depends upon the thickness of the piece, the kind of clay used at any particular plant, and the conditions under which it is cast and burned. Assume, however, that it is correct. Then, in order to make a "full-size" shop drawing of this panel you'd have to detail it at a scale of 12 7/8" = 1'-0", which is greater than full size. The only difference between this drafting scale and the ones heretofore fully discussed is that this one is an "enlarging" scale: it also being designated as such in Figure 82 here first given. However, enlarged scale drawings, of the kind now under consideration, are read with the same scale that was used in making them.

In the hands of a pattern-maker, a drafting scale of 12 7/8" = 1'-0" becomes a chain-divided "shrinkage rule"—the latter designation being a trade term applied by him to this particular kind of scale, that's all. For the draftsman's reference, a complete table is here given of the various enlarging scales, or shrinkage rules, commonly used by the pattern-maker in laying out patterns for castings of the materials named. Of course, for simple straight-line patterns, such as would be required for castings of structural details etc., no "enlarged" scale drawings are usually required: the pattern-maker can, in these cases, work from any dimensioned drawing or full-size detail by merely noting the given dimensions and, using the corresponding values on his "shrinkage rule," laying out the thus-enlarged patterns directly. In work of an architectural or ornamental nature, however, in which the character, or "feeling," of the design would be lost by this translation, drawings for the enlarged patterns should be made. The scale values here given in TABLE 1 are those ordinarily used in practice. Previous to adopting any one of them, however, a verification of same should be obtained by local inquiry. Where much of this kind of drafting is contemplated, the regular manufactured shrinkage rules (so-called) should be procured, either of the standard graduations or made-to-order as the demand may be. For occasional work, a needed scale can readily be constructed that will serve as well as any. (See Figure 82)

<table>
<thead>
<tr>
<th>Material of Casting</th>
<th>Scale of Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALUMINUM</td>
<td>12 3/16&quot; = 1'-0&quot;</td>
</tr>
<tr>
<td>Bismuth</td>
<td>12 5/32&quot; = 1'-0&quot;</td>
</tr>
<tr>
<td>BRASS</td>
<td>12 3/16&quot; = 1'-0&quot;</td>
</tr>
<tr>
<td>Britannia</td>
<td>12 1/32&quot; = 1'-0&quot;</td>
</tr>
<tr>
<td>Copper</td>
<td>12 3/16&quot; = 1'-0&quot;</td>
</tr>
<tr>
<td>IRON</td>
<td>12 3/16&quot; = 1'-0&quot;</td>
</tr>
<tr>
<td>LEAD</td>
<td>12 5/16&quot; = 1'-0&quot;</td>
</tr>
<tr>
<td>Steel</td>
<td>12 1/2&quot; = 1'-0&quot;</td>
</tr>
<tr>
<td>TERRA COTTA</td>
<td>12 3/8&quot; = 1'-0&quot;</td>
</tr>
<tr>
<td>Tin</td>
<td>12 5/16&quot; = 1'-0&quot;</td>
</tr>
<tr>
<td>Zinc</td>
<td>12 5/16&quot; = 1'-0&quot;</td>
</tr>
</tbody>
</table>

II: DIAGONAL SCALES

A diagonal scale is a scale of fractional parts. It can not be used directly, in the manner of a drafting scale, since it is not edge graduated. In other words, a required dimension must be transferred from the diagonal scale to the paper by other means than the scale itself. However, in spite of this outstanding disadvantage, it will, on the other hand, yield values which no other scale or rule contains. Hence, though the diagonal scale is of limited use, it becomes the only expedient and practical means, at times, of determining a required value. Its construction and use should therefore be thoroughly understood—though no terrific mental effort is required to achieve this understanding.

Two simple cases will be illustrated, which will dictate the procedure for any others that may arise. Let it be required to construct a diagonal scale that will read to, say, any number of 64ths of a given distance, and let this given distance be the line $AJ$ of Diagram "1," Figure 87. The denominator of the scale is, then, the number 64. And any value read off the scale will then be the numerator of the fractional part yielded. Now, as in all cases, determine the two largest or most convenient whole numbers which, multiplied together, will just equal the denominator of the proposed scale. In this case, since the number 64 is a perfect square, the two largest integral factors of this denominator are 8 and 8. So far as the construction of the scale is concerned, however, the two factors might just as well have been 4 and 16, or 2 and 32, or 1 and 64. The choice is a matter of convenience and practicability, as you will discover. In this case, 8 and 8 are, at once, the largest and most convenient factors that can be used. Next, divide the base line of the proposed scale, which is the given line $AJ$, into a number of equal parts corresponding to either of the two chosen factors. Since, in this example, both chosen factors are 8, there is here no
choice in the matter: $AI$ must be divided into 8 equal parts. If the distance $AI$ is such that this can not be done directly with a rule or a drafting scale, then utilize the method heretofore shown at Diagram "2" of Figure 82. In any case the division must be exact, for you are now manufacturing an instrument of precision. Hence, instead of marking the points $A$, $B$, $C$, $D$, etc., by lines crossing $AI$, mark them by indentation only, and precisely on the given line. Then, through the indented point $A$, project a line $AO$ of any length and in any direction, but preferably perpendicular to $AI$ as shown. Now, with the bow spacers, or directly from a drafting scale, space off on $AO$, commencing at $A$, a number of equal parts corresponding to the other factor of the scale denominator—in this case 8. But these parts can be of any convenient magnitude whatsoever—they are obtained by spacing, not by dividing. So far, so good: the number of parts in $AI$, multiplied by the number of parts in $AO$, equals the denominator of the scale—64, in this case. But the condition stated is a typical requirement—and easy to remember. Now then, commencing at the upper point on $AO$, which is the zero graduation of this scale, designate the vertical graduations in numerical sequence as shown: 0, 1, 2, etc., etc., ending at one extremity, $A$, of the given line. Through these graduation marks draw the lines paralleling $AI$, which lines are here horizontal—and always preferably so, since they can then be projected with the T-square in normal position. Then, utilizing the precise technique and manipulation heretofore made plain in Diagram "A" of Figure 53, Part 6, project the extraneous line $BO$, and project the remaining diagonals parallel therewith through the given points $C$, $D$, $E$, etc., as Figure 87 directs. Finally, mark the first diagonal from zero, on the top line $OM$, with the same number that occurs at point $A$, which number, in this case, is 8. Using this number, whatever it may be, as the graduation interval of $OM$, number the successive diagonals as shown. This should result in the number of the last diagonal (here 56) being one interval short of the number which is the denominator of the scale. This last interval, however, is not a requisite but is here indicated for clarity. The diagonal scale is complete. Now to read it:

Every intersection of a horizontal with a diagonal is some definite number of 64ths of $AI$ from the vertical $AO$. And this number is the sum of the index numbers of that particular horizontal and diagonal. Consider the point $R$. Its index numbers are 7 and 24 which, added together, make 31. Hence, 31 is the numerator of the fractional part $7R$ whose denominator is the denominator of the scale—64. The distance $7R$, then, is 31/64ths of $AI$. That's all there is to it. The system of numbering makes the reading simple. Suppose $AI$ were an inch. Pick off 37/64". Find the nearest lesser index number to 37 on the top line—by looking along the line from zero to the right. It's 32. And 32 from 37 leaves 5. Follow down the 32-indexed diagonal to its intersection with the horizontal bearing 5 as its index. Then $SP$ equals 37/64". By the same token, $3N$ equals 3/64", since 3 plus 0 is 3. Now, suppose $AI$ were still one inch, and divided into 16 parts instead of 8, and that the scale were reconstructed accordingly. Then you'd have a scale that would read to 128ths of an inch, since its denominator would be 16 times 8, which is 128. Or if instead of marking off 8 spaces on $AO$, you mark off 16, still making $AI$ one inch and also divided into sixteenths, then you'd have a scale with a denominator of 16 times 16 or 256—and you could pick off therefrom a line to 256ths of an inch. You certainly could not do that by any other means—a quarter of 1/64" is 1/256"—no edge-graduated instrument could contain 256 marks to the inch and be readable.

Referring again to Diagram "1" of Figure 87: connect the lettered points on the base line with the numbered points on the top line, as the dotted lines of the Diagram indicate. These lines will, naturally, be parallel with $AO$. By this arrangement, the number 64 now indicates that 64 is the denominator of the fractional parts of $AI$, and the number 56 indicates that 56 is the denominator of the fractional parts of $AH$—etc., etc.—the number 8 indicating that 8 is the denominator of the fractional parts of $AB$. So now, $3N$ is 3/4ths of $AB$, 3/16ths of $AC$, 3/24ths of $AD$, etc., etc., and 3/56ths of $AH$ and 3/64ths of $AI$. Similarly, $5P$ is 37/40ths of $AF$, etc., etc., as well as 37/64ths of $AI$. And $7R$ is bound to be
31/32nds of \( AE \), etc., etc., as well as 31/64ths of the line \( AL \). All of which is evidence that a scale of fractional parts, of any denomination whatsoever, is possible. In case the denominator is a prime number, however, this type of scale becomes less compact than when the denominator of the desired fractional parts is capable of being factored as shown—although, even in the prime case, it may possibly prove to be the only precise way of achieving the result desired.

The other scale at Diagram "2" reads to hundredths of \( AL \). Wherefore, letting \( AL \) equal 100, the distance 38 equals 3 plus 0, or 3. And the value of 57 is 5 plus 60, or 65. And 7 and 5 is 37. Getting down to "brass tacks," if \( AL = 1" \), then, in the order named, the above values would be .03", .65", and .37". So there you are: lay out an inch scale of this type on a piece of Bristol board, using a razor blade to draw the lines instead of a pencil, and you have an exceedingly useful instrument from which you can pick off 100ths of an inch—which none of your drafting scales yield. The nearest you can come to, say, .69", on the decimal drafting scale, without interpolation, is either 34/50" or 35/50". And the nearest corresponding value on the foot rule is 11/16", which, in this particular case, happens to be more nearly exact than the decimal drafting scale approximation.

Again, in Diagram "2," suppose \( AL \) were a foot long and divided into 100 parts instead of ten, and that \( AO \) were 100 spaces instead of ten. Then you'd have a scale with a denominator of 100 times 100, or 10000, that would read to ten-thousandths of a foot without any confusion whatsoever, since the diagonal lines of this scale would still be nearly an eighth of an inch apart. The index-numbering would be accomplished in accordance with the identical system already explained in connection with the scale of 64ths. And the hundredths divisions of the foot, along \( AL \), could be laid off directly from the decimal scale of 50, since 6/50" is 1/100—hence, chain-space them off—0, 6, 12, 18, etc., etc., to 600 at the end of the decimal scale. And, as has been said, the 100 spacings on \( AO \) could be any equal distances. In this case, however, they might just as well be the same as those on the base line \( AL \), thus making the scale a foot square.

Decimal scales of this diagonal type can also be used as conversion rules by applying a foot rule directly to any part of the scale and reading the decimal to the nearest sixteenth of an inch on the foot rule.

And here's another "wrinkle" with the diagonal scale: Let \( AK \) of Diagram "2" be the length of one-fourth the circumference of any circle, either actual measurement or to any scale. Then, since \( AK \) is divided into nine equal parts, and \( AO \) is ten equal spaces, the denominator of the scale is now 9 times 10, or 90. But 90 is the number of degrees in a quarter circle. Incontrovertibly, then, if \( AK \) were made the length of that 90-degree arc, then 38 would be the length of a 3-degree arc, 57 the length of a 55-degree arc, 7 and 5 the length of a 37-degree arc, etc., etc., the scale yielding, directly, the length of every arc of whole degrees from 1 degree to 90, inclusive.

III: CONVERSION AND COMPARING SCALES

Draw a line of any length whatsoever. Divide it into 64 parts by marks just meeting it on one side. Divide it into 100 parts by marks just meeting it on the other side. You have constructed a conversion scale. In other words you have set up a convertible system of purely relative values, whereby you could tell, by mere inspection, how many 64ths of anything were contained in a certain number of 100ths of the same thing—or vice versa. The anything could be an inch, a foot, a pound, a door-knob, or a battleship—whatever designation you choose to assign to the scale. For this scale simply gives you two means of expressing the same relation of a part to the whole. For instance, if the scale represented an inch, it would show you that you could express \( 1/4 \) of a door knob as .25 of a door.

<table>
<thead>
<tr>
<th>FRACTIONS to DECIMALS</th>
<th>CONVERSION SCALE</th>
<th>DECIMALS to FRACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>12ths</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>24ths</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48ths</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>96ths</td>
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<tr>
<td>100ths</td>
<td></td>
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<tr>
<td>64ths</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32nds</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>8ths</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Any unit value may be assigned to above scale... if it represents a foot then 12nds-inches, 96ths-eighth inches, & 100ths=decimals of a foot.

FIGURE 88
THE GEOMETRY OF ARCHITECTURAL DRAFTING—PART 9

knob. But it wouldn’t tell you the actual magnitude of either inches or door knobs.

Draw another line. But don’t divide it this time. Instead, from one end of the line, space off thereon any definite units of measurement—say sixteenths of an inch—as far as you like. Then, from the same end of the line, space off any definite units of any other linear system of measurement—say millimeters—about as far as you did the others. You have constructed a comparing scale. In other words you have set up a comparative system of actual values, whereby you could tell, by mere inspection, how many sixteenths of an inch were contained in a certain number of millimeters—or vice versa. And that’s all that this particular scale would tell you—although, being constructed of actual units of measurement of the compared systems, you could also use it to determine actual magnitudes that were to be measured or laid off by either system—provided the scale were extensive enough for the purpose.

Obviously, the names of the above two scales might be just the reverse, since conversion of one value to another equivalent value is accomplished in both by optical comparison. As has been noted, however, the nominations are convenient rather than distinctive.

The Conversion Scale given in Figure 88, and the Comparing Scale given in Figure 89, were prepared by the author for actual drafting-room use. They are working instruments. And the Conversion Scale, especially, will be found to be much more expeditious and complete than mathematical “tables” for accomplishing the same thing. Moreover, the graphic conversion of fractions to decimals, or vice versa, shows you just how close an approximation the conversion results in.

All engineering calculations are made decimally. And the results, if they determine linear dimensions, must be expressed in feet and inches on the drawings, since no building-construction workman uses a decimal rule. Again, surveyors use the decimal system of linear measurement which, in order to make it understandable to a workman, must also be converted into terms of the mechanic’s foot rule. Both of these conditions render likely the everyday use of the conversion scale shown here at Figure 88. A calculation calls for a steel rod to be .81” in diameter. But steel rods are made in diameters varying by sixteenths, not hundredths. Looking along the 100-strip of the scale, stop at 81. The nearest sixteenth to this is immediately seen to be 13. Hence the size of the rod goes on the plans as 13/16” in diameter. A survey comes in with a dimension marked thereon of 19.95’. How much is that .95’ in inches to the nearest eighth? Eighth inches are 96ths of a foot. The nearest 96th to the 95-mark of the 100-strip is 91, which, as the scale instantly shows, is 111/32”. For you have not failed to see that, when a value of one foot is assigned to this scale, the upper half can then be read in precisely the same manner as a foot rule, regardless of the fact that all subdivisions are here numbered consecutively from the end of the scale.

![Comparing Scale](image-url)

**Figure 89**
GUY LOWELL SCHOLARSHIP AWARDED

The Guy Lowell Memorial Scholarship for 1930 has been awarded to Charles Le Boutillier, Jr., of New York. B. S. Gruzen of Jersey City and O. K. Fulmer of Cambridge, Mass., were placed second and third respectively.

The subject of the competition was An Assembly Hall and Theatre for Music and the Drama, which it was proposed to erect at a fashionable seaside resort which could be assumed either in the north in the summer time or in the south in the winter.

For this purpose the program stated that there would be a sufficient area, but not to exceed 120,000 square feet, on a wooded hillside sloping sharply toward the sea. The composition of the requirements given herewith and the arrangement of the grounds, including access by land and water, constituted the problem. The building proper was to contain an assembly hall for 500 people with a stage accommodating 60 and such necessary facilities as dressing rooms, toilets, vestibule or loggia, and lounge. As a part of this building an outdoor theatre seating 1000 persons was required.

The Jury of Award was composed of H. P. Richmond, Philip A. Cusachs, James Ford Clapp, Niels Larsen, and Professor William Emerson of the Massachusetts Institute of Technology.

The Jury's report stated that "the winning drawing represents the most intelligent use of the site in accordance with the spirit of the program. The placing of the two essential parts of the composition in relation to view and use is excellent. There are some minor defects of arrangement and admittedly the elevation is not of great interest."

Mr. Gruzen's design, placed second, is a most ingenious solution, which in the opinion of the Jury was not in any particular sense suited to the site in question, but showed originality and careful thought.

These designs are illustrated on the following pages.

The Scholarship, which is given in memory of Guy Lowell, provides an annual award of $1,000.00 to assist draftsmen and students in schools of architecture, with three years of office experience, to benefit by six months' travel in foreign countries. The scholarship is under the direction of the Chairman of the Committee of Education of the Beaux-Arts Institute of Design, the head of the Department of Architecture of the Massachusetts Institute of Technology, and a practicing architect in Boston.

COMPETITION FOR THE GEORGE G. BOOTH TRAVELING FELLOWSHIP IN ARCHITECTURE

The Seventh Annual Competition for the Booth Traveling Fellowship will be held as usual during the Spring recess. The preliminary sketch will be given out on April 12, the problem being developed during the two weeks beginning Monday, April 14. All graduates of the University of Michigan who have not reached the age of thirty-one on April 12 will be eligible, also students in residence under the age limit who will complete the requirements for graduation in June, 1930.

Candidates resident in Michigan go to Ann Arbor to make the drawings; those living in other States of the Union may go there for the competition, or can arrange with someone in the office where they are employed to supervise the preparation of the drawings which must be produced without criticism or assistance from others.

All those intending to compete should notify the office of the College of Architecture, University of Michigan, Ann Arbor, as soon as possible in order that suitable arrangements can be made.

CHARLES LE BOUTILLIER, JR.

Charles Le Boutillier, Jr., the winner of the Guy Lowell Scholarship for 1930, was born in Tewksbury, Massachusetts, in 1903. He attended the public schools in Lowell, Massachusetts, and in 1920 was awarded the Lowell Harvard Club Scholarship. During his work at Harvard Mr. Le Boutillier concentrated on the Fine Arts and graduated with a B. A. Degree in 1925. Following this he studied at the Harvard Graduate School of Architecture under Jean Jacques Haffner. During the summer of 1926 he attended the Fontainebleau Summer School. In 1928 Mr. Le Boutillier was a special student at the Massachusetts Institute of Technology, studying advanced design under Jacques Carlo. Since this time he has continued his studies by doing the projects of the Beaux-Arts Institute of Design at New York University under Percival Goodman, and in the Atelier Whitman-Goodman, which is conducted by his present employers. Mr. Le Boutillier has also worked in the offices of Kilham, Hopkins, and Grecley, in Boston, and York and Sawyer, in New York.

ROTCH TRAVELLING SCHOLARSHIP

ANNOUNCEMENT

Preliminary Examinations for the Rotch Travelling Scholarship will be held this year on April 7 and 8. There will be sketches "en loge" April 14 and 16, open to all who are eligible under rules of the Scholarship. From the logistes there will be made a selection of four (4) who will be admitted to final competition April 19.

The award will be made on recommendation of a jury, and the candidate chosen will be given the scholarship for a time to be determined by the Committee in consultation with the winner.

The amount of the prize is $3,000. The Boston Society of Architects has offered a 2nd Prize of $100 to be awarded to candidate placed Second.

For further information apply to C. H. Blackall, secretary, 31 West Street, Boston, Mass.
WINNING DESIGN BY CHARLES LE BOUTILLIER—COMPETITION FOR GUY LOWELL SCHOLARSHIP, 1930

"AN ASSEMBLY HALL AND THEATRE FOR MUSIC AND THE DRAMA"

(See text on page 289)
DESIGN PLACED SECOND BY B. S. GRUZEN—COMPETITION FOR GUY LOWELL SCHOLARSHIP, 1930

"AN ASSEMBLY HALL AND THEATRE FOR MUSIC AND THE DRAMA"

(See text on page 289)
In Which the Question of Increasing the Architect's Percentage Charge is Brought Up for Discussion

"I AM VERY GLAD to notice that you are apparently contemplating taking a definite step concerning the education of the public with regard to the value of architectural services.

"A certain card has just come into my office. There is a motto on it which reads, 'Success in life consists in making the best of getting the worst of it.'

"That the profession of Architecture has been 'getting the worst of it,' is certain; but we have been making the best of it long enough.

"The idea now, an idea by which I have been advocating for years, seems to be to make a definite effort to educate the public as to the proper duties of an Architect and the reasons for employing him. This is fine, but I want to say in this connection that a good deal of the effort in the beginning should be directed toward educating those interested in the building industry itself. For every practicing architect, there are fifty contractors, subcontractors, material men, real estate brokers, developers and others affiliated with the building industry, everyone of whom maintains a closer contact with the public than the architect does and every one of whom is a potential salesman or advocate of the value of architectural services.

"The odds are about fifty to one that a person contemplating building will talk with one or more of these people before he talks with an architect and these people, themselves, in most cases are not entirely sold as to the value of an architect's services, nor do they recognize the architect for what he actually is; the proper logical and real leader of the industry.

"Does the average architect himself, fully realize the importance and responsibility of his position? There is a tremendous moral responsibility and there is also a legal responsibility which he cannot escape. I will give just one illustration.

"In 1922, following a heavy snow fall, the roof of a certain theatre in a neighboring city collapsed, burying several hundred people in the debris and killing between thirty and thirty-five. Subsequent testimony developed the fact that this was a job where the architect, for a reduced fee, simply 'drew plans' with the understanding that he was not to supervise. The contract for the building was given to a general contractor rated as one of the best. The action of the Grand Jury was as follows, viz.—They indicted—the General Contractor?—No. They indicted the Architect and, to keep him company, several of the Sub-contractors and a couple of the Assistant Building Inspectors. This, despite the fact that sworn testimony showed that the Architect's plans were changed during the progress of the building.

"I wish to make two suggestions for changes that are, in my opinion, vitally important, necessary, and entirely practicable—

1—The use of the term 'Architect's Fee' is entirely wrong and injurious as well as a minnow in the connection in which it is commonly used.

2—The Architect's 'Compensation' — 'Charge' — or 'Fee (including cost and profit),' or whatever designation be decided upon, would be changed from 6% to 8%.

"In explanation of the first suggestion, my experience shows that to the layman's mind, this so-called 'Fee' is generally considered as profit comparable to the Builder's 10% profit, and it takes a deal of explaining to convince the average client that only about 45% or 50% of this is really profit and sometimes not even that.

"In explanation of the second suggestion, the Institute Schedule of Charges refers to it as a 'minimum charge,' but in their contract forms they speak of it as 'Fee.' The public does not think of this as a minimum charge but as the maximum fee, and custom has fixed it in the public mind as such and it is not nearly so much thought of as other business or profession calling for an equal amount of talent, training, brains, devotion and hard work and involving as much responsibility is anywhere nearly as poorly paid. The average architectural office, from the Chief down to the greenest boy, is woefully underpaid. The wonder is that the average architect can hold his head up at all, and where is the incentive to a young man to enter a profession where, after years of study and experience, he finds himself, as an employee in an architect's office, working for the wages of a bricklayer.

"It is unnecessary and entirely the profession's fault. Who is responsible for the generally accepted idea that a builder's legitimate profit is 10%? Why, the builder, of course. And why should a builder receive a profit of 10% plus his 'overhead' and 'general conditions,' and the Architect a paltry compensation of 6% which gives him a profit, if he is lucky, of about 3%.

"The very fact that the Architect is so poorly paid, is, in my opinion, one of the reasons that he is not more and better thought of among business men and why it seems so hard for most builders to think of him as the leader in a building enterprise. Students of psychology will understand this. People generally are inclined to take a man at his own value.

"A certain man came to my office recently to engage me in a certain matter. He had arranged his financing and in conjunction with his bankers had the figures all 'set up.' They proposed to engage a certain builder on an 'open' contract. His overhead of about 6% was all figured in, his profit was set down as 10%, the Architect's fee as 6%, the bankers accepting that as the prevailing rate. It could just as well have been 8% or 10% for the architect, if the profession had thought it was worth that much and had promulgated the idea some time ago.

"Someone will say, 'What is the use of asking 8% when we have difficulty now in getting 6%?' My answer to this is that they would have the same difficulty if the prevailing rate were 4%, since there always have been and always will be people who hope to get something for nothing and try to drive a bargain; but if the architects are convinced that their services are worth at least 8% and have the courage of their convictions they will find it no harder to demand and receive it than it is to get the 6%.

"I have said a great deal more than I had intended but have still left a prodigious amount unsaid.

"I should certainly like to see some discussion along the line of the suggestions made in this letter."
PLANNING OF WINNING DESIGN—COMPETITION FOR THE GEORGE ROGERS CLARK MEMORIAL
HIRONS AND MELLOR, ARCHITECTS
(See text on page 295)
WINNING DESIGN—COMPETITION FOR THE GEORGE ROGERS CLARK MEMORIAL
HIRONS AND MELLOR, ARCHITECTS
(See text on opposite page)
The George Rogers Clark Sequicentennial Commission was established by resolution of Congress "for the purpose of designing and constructing at or near the site of Fort Sackville, in the City of Vincennes, Indiana, a permanent memorial commemorating the winning of the Old Northwest and the achievements of George Rogers Clark and his associates in the War of the American Revolution."

The subject of the competition was a memorial structure and its terraces or accessories, it being a mandatory requirement that the structure be a building.

The program suggested "that there be mural paintings representing in pictorial form the achievements of George Rogers Clark and his associates, together with contemporary events which furthered the purposes of the War of the Revolution in the West. It should be observed that the episodes of Clark's career, both civil and military, leading to the capture of Fort Sackville are of such brilliant and dramatic interest as to be vivid subjects for mural representation."

The plan which has been developed for the memorial grounds was a fixed condition of the program insofar as it was fixed upon by construction work completed or started before the competition terminated. The construction work which was completed or started before that time is the bridge and its approach, and the river wall, as shown in the plan of the winning design on page 293. The river drive was a fixed condition of the program, and it must pass under the bridge approach at the point shown on the ground plan, as the necessary deadroom can be had only at that point. Any necessary adjustments in the details of the ground plan, which did not involve the fixed conditions set forth will be made through collaboration between the architects of the grounds—Bennett, Parsons, and Frost, of Chicago—and the successful competitor. William E. Parsons of Chicago was appointed architectural adviser by the Commission. The competition was open to architects practicing architecture in the United States who are American citizens.

The winning design by Hirons and Mellor, New York architects, is shown on pages 293 and 294. Some of the other designs submitted in the competition will be published in the May issue, together with comments on the designs by the Jury of Award.

Two Fellowships in Architecture University of Pennsylvania

Two One-Thousand-Dollar Fellowships in Architecture, gift of an anonymous donor, are announced for the year 1930-1931. The Fellowships will be awarded to the winners of a Competition in Design to be held from 9:00 A. M., Saturday, May 10, 1930 (local standard time), to 9:00 A. M., Saturday, May 17, 1930 (local standard time). Each candidate selected for the competition will take this locally in compliance with the governing regulations.

Candidates of high standing from approved institutions or ateliers will be selected for the competition by the Fellowship Committee from applicants on the basis of records, recommendations from School Heads and patrons of ateliers, and samples of work done by the applicant in Class A, B.A.I.D. competitions, or equivalent grade at the applicant's institution. The samples of work will be returned to each applicant after inspection.

The competition will be judged shortly after the rendu by a jury, whose chairman will be Dr. Paul P. Cret, chief of the staff of design in the Department of Architecture, University of Pennsylvania.

The candidates selected shall agree to perform and complete at the University of Pennsylvania the full year's program in Design, and other subjects as may be required of them, giving full roster time to this program. If the holder be a candidate for a degree, he shall agree to give his full time to the prescribed course.

The holder, if eligible, will take as part of his required work competitions for foreign travelling scholarships, such as the Paris Prize, Fellowship of the American Academy in Rome, Le Brun Prize, and so on.

The holder of the fellowship will pay the regular tuition and other fees.

Applications must be made by letter to the Chairman of the Committee on Prizes—Professor Harry Sternefeld, School of Fine Arts, University of Pennsylvania, Philadelphia, Pa. The application must be accompanied by records, recommendations and specimens of work, as mentioned above and a statement that the applicant will enter the competition if approved as a competitor. The applicant must, at the same time, apply for admission as a student to the University of Pennsylvania, this act, of course, not committing him to attendance in case he should not be awarded the Fellowship.

Applicants must be able to pass the entrance requirements of the University if they have not already passed the college entrance requirements elsewhere.

Applications must be mailed to bear postmark of date not later than Saturday, April 12, 1930.

About Malcolm Osborne

Malcolm Osborne, one of whose plates is reproduced as a frontispiece in this issue of Pencil Points, was born in Somersetshire in 1880. His art training has been exceptional. "He first studied art at Bristol and came to London with a Scholarship for the Royal College of Art; but it was not until he had tried in turn sculpture, architecture, black-and-white design, and book-illustration that he finally found his ground in engraving, and set himself to master every form of it under Sir Frank Short. After five years of hard study he sought still further training in the effective transaltive work of the painter's engraver. In 1906 he was elected to the Painter Etchers' Society, and it was while on active service in 1918 that his election as an Associate Engraver of the Royal Academy was announced. If this distinction was primarily a recognition of the merit for which this particular class was first created, his election as a full Academician in 1926 has no such limited significance. In his landscapes on copper the complete vision of a master was revealed, and in etched portrait the Osborne has reached the heights of creative expression. He has crowned his brilliant career by succeeding Sir Frank Short as Professor of Engraving at the Royal College of Art."

"We sometimes forget what the fine craftsmanship of an artist like Malcolm Osborne really signifies—that it is the warranty of his art. The power to express that can be acquired in the schools must ultimately be lost if it is not unremittingly fostered by the sheer need to express, if the artist does not recognize in the medium given him his one means of delivery."

"Malcolm Osborne's entire work shows that when once craftsmanship has liberated the spirit of expression, that spirit dictates all that follows, the creative activity impelling its instrument towards ever more perfect response."

—From unpublished Notes on Modern Etchers, by Max Judge.
BUILDING FOR THE ELECTRIC ILLUMINATING COMPANY OF BOSTON
BICHLow, WADSWORTH, HUBBARD, AND SMITH, ARCHITECTS

The building shown by the accompanying rendering will be the first electrically welded building in Boston. It will have 14 stories, and will be 60 ft. wide, 112 ft. deep, and 155 ft. high. A total of 1,200 tons of steel will be used in the structure. The entire field fabrication will be done by electric arc welding. Its progress will be watched with interest by architects for it will be one of the earliest electrically welded buildings of architectural importance to be built in this country.

PRATT ARCHITECTURAL CLUB
It is with deep regret that we announce the death of one of our members, William J. Crichton, Class of 1912, on February 17, at Hazleton, Pa. After teaching at Pratt Institute for a time, Mr. Crichton went to Hazleton and engaged in the practice of architecture with Peter B. Sheridan, also a Pratt man. Following this he started his own practice which was very successful. His many friends extend sincerest sympathy to his family.

On March 11, the Annual Open-House Meeting was held at the Fraternity Club with a spirited discussion on the general affairs of the club. This was followed by a novel and most interesting talk by "Johnny" Hayes, the old American Olympic Marathon Champion, on American Sports. Some of Mr. Hayes' anecdotes of the various incidents and doings of our older champion athletes were highly amusing—and he was voted the thanks of the entire club.

Plans are now in full swing for the Annual May Meeting and Dinner under the guidance of H. Eugene Child, '14. The event this year will be held on May 7th at the Fraternity Club, 38th Street and Madison Avenue, New York, and preparations are being made for our biggest affair. We have been fortunate in securing as our guest speaker, a man who is in great demand, Mr. H. C. White, of the Edison Lamp Works, of the General Electric Co. Mr. White will talk on and demonstrate the Wonders of Modern Lamps and we have been informed that those fortunate enough to have heard him before have been most enthusiastic in their praise. This night will also be Reunion Night for the Classes of 1925, 1920, 1915, and 1910, so we hope to reach through Pencil Points all old Pratt Architects in distant parts; jot down the date, May 7th.

A NEW SERIES OF KNOBLOCH CONSTRUCTION DETAILS
In this issue we are presenting the first of a new series of construction detail plates drawn by Philip G. Knobloch, who is well known to most of our readers as the author of two volumes on Good Practice in Construction. The plates will appear from now on, until further notice, two in each issue.

The current pair, showing a refreshment bar, was worked up from data supplied by the office of LeRoy P. Ward, Inc. The next set will be on "Concealed Flashing."

We wish to call attention to a minor change which should be made in the upper right-hand corner of the plate showing sections through the bar, where the scale of the small profile of the finger ledge is stated as "full size." This should have been written "half full size." The error was discovered too late for correction before going to press.

CHARCOAL CLUB ATELIER
The Charcoal Club Atelier of Baltimore, Maryland, has elected the following officers: Harry Sopher, Massier; Joseph L. Betlejeski, Jr., Sous-Massier; and Pieter C. Pauw, Librarian. Louis Fentnor is the sole patron of the atelier.

CORRECTIONS
In the advertisement of the Nailcrete Corporation, which appeared in the March issue of Pencil Points, the Riverside Church in New York was attributed to Allen & Collens, architects. Credit should have been given to Henry C. Pelton and Allen & Collens.

The name of the architectural firm was inadvertently omitted in connection with the Capt. W. G. Roper residence illustrated in the Libbey-Owens Glass Company advertisement which appeared in February Pencil Points. The Capt. Roper residence was designed by Cooper and Cooper, Architects, of Atlanta, Georgia.
DETAILS OF CONSTRUCTION FOR A REFRESHMENT BAR—DRAWN BY PHILIP G. KNOBLOCH

PENCIL POINTS

(April, 1930)
SECTIONS—DETAILS OF CONSTRUCTION FOR A REFRESHMENT BAR—DRAWN BY PHILIP G. KNOBLOCH

PENCIL POINTS
(April, 1930)
COLLABORATIVE COMPETITION

SPONSORED BY THE AMERICAN ACADEMY IN ROME ALUMNI

The Association of the Alumni of the American Academy in Rome, wishing to encourage the participation by students of painting, sculpture, and architecture in collaborative problems, issued a program for the treatment of an interior of a sanctuary.

The competition was open to any group of students in schools of art or ateliers, or to anyone employed in offices or studios. The problem could be done under the supervision of a patron, but the designs had to be the work of the competitors.

The Problem: The body of Woodrow Wilson is now temporarily buried in Washington. A group of his friends desire to erect for him and his family a final resting place that shall typify what this man represented to them—a great sociologist and idealist who labored and devoted his life to the furtherance of international peace and tolerance.

The entrance, from the north, is into the main sanctuary which shall not exceed fifty feet at its greatest horizontal dimension. The vertical dimension shall not exceed seventy-five feet. This sanctuary may be lighted by windows or top light and may take any shape. To the right and left are smaller doors leading to the two actual burial vaults. There is to be a main feature, which may be an altar, a tabernacle, sculpture, sarcophagus or what, in the estimation of the designer, is most appropriate. The decorations are left to the discretion of the designer and may con-
Eight schools were represented in the competition:
Armour Institute of Technology in collaboration with the
Art Institute of Chicago entered two teams; Cooper Union
and Cornell University each had one team; Syracuse
entered ten teams; University of Pennsylvania, collabor­
ing with Pennsylvania Academy of the Fine Arts, three
teams; at Yale University School of Fine Arts thirty teams
collaborated. The total number of teams was 47 and 32
of these received awards, including two first medals, nine
second medals, seven first and fourteen second mentions.

The Jury of Award was composed of Thomas H. Ellett,
James K. Smith, Leo Friedlander, Paul Manship, Berthold
Nebel, Barry Faulkner, Eugene Savage, and Frank Schwarz.

Two first medals were awarded—one to a Cornell
Team, and the other to a Yale Team, as shown herewith.

Commenting upon the design submitted by the Cornell
team the Jury report stated: “This is a simple, strong plan
and the accent is on the main wall where it should be.
Strong presentation. Color scheme is excellent. Design
of the floor and ceiling is very good. The painting has a
very adequate style. Color and tone go excellently with
the architecture. Good collaboration of the three arts.”

Commenting upon the Yale team design the Jury report
stated: “This is an impressive, simple plan, possessing great
dignity. Sculpture in relation to the wall where it is
placed has nobility. The painting is weak in composition.
The main wall is composed of a series of very good shapes.
The rendered sculpture is better than the model.”

FIRST MEDAL WON BY YALE UNIVERSITY TEAM—WILLIAM B. CRAM, ARCHITECT;
MABEL K. SALOOMEY, PAINTER; CURTIS S. HAMILTON, SCULPTOR
COLLABORATIVE COMPETITION SPONSORED BY THE ALUMNI OF THE AMERICAN ACADEMY IN ROME

PENCIL POINTS FOR APRIL, 1930
ARCHITECT; HOME BUILDER; MANUFACTURER—A TRINITY

By Raymond Hawley

The architect provides the plan—the home builder provides the money—the manufacturer provides the materials. Each is indispensable to the other; yet at times they seem to be working at cross purposes, or at least with less than that harmony or mutual understanding of interests that makes for the most efficient results.

Certain of the architects seem to have resented advertising on the part of manufacturers to home builders, whether of new structures or additions or alterations to present ones. Architects in some instances have objected to Mr. and Mrs. Home Builder knowing what they want and specifying it. Certain home builders have objected to seeming stubbornness or arbitrary attitudes on the part of architects. Certain manufacturers have objected to lack of cooperation on the part of architects, and so on. There seems to be some justification in the contentions of each.

The fact remains, though, that Mr. and Mrs. Home Owner are getting more up-to-date, modern, and better equipped homes in many ways than ever before. Advertising of the manufacturers to the consumer has been to a large degree responsible. True, where a manufacturer pleads his cause with great fervor, his products may have been used at the expense of eliminating certain construction features, which the architect regards as essential.

Certain architects have taken the stand that they are being put in the unpleasant positions of being little more than purveyors of square feet; that their inspirational, aesthetic, and creative talents are permitted inadequate scope. Their ability to have a much freer hand is greatly aided by the advertising of certain manufacturers who so well appreciate that the merit of their appeal rests on beauty, as well as utility.

Beauty and design are just as essential as utility if that dream house for which Mr. and Mrs. Home Owner have saved for so many years (and in many instances will be paying for long after occupancy) is to be a perpetual beauty, as well as utility.

The architect alone cannot possibly hope to educate the consumer on its importance, certain manufacturers to the general cause in their advertising. There is only was the harmony of beauty and suitable metals neglected, but the vital protective element as well. The architect was unable to stem the thought in the consumer's mind that low price was the only determining factor.

Advertising by the manufacturers to do it. Such advertising certainly strengthened the architect's hands and resulted in benefit to all.

The real aim in home building is not merely how much, but how good. The better the coordination of architect, owner, and manufacturer, the better the homes will be. The architect alone cannot possibly hope to educate the consumer, and he will find it most advantageous to view the manufacturer's advertising along broad-gauge lines.

Few intelligent home owners, parting with their hard-earned dollars, will close their minds to helpful suggestions and constructive, practical advice from capable architects, who acquire their wisdom and lore through painstaking education, study and experience. At the same time, the home builder who pays the bills, after friendly discussion, is entitled to what he wants. When a man knows what he wants and demands it, the responsibility is not then solely the architect's if things don't work out as anticipated.

The home builder, through his own personal and business purchases, has learned the value of the trade-marked articles which tell their story honestly and continuously. He frequently wants trade-marked articles throughout his home; despite the erroneous impression it's just an ordinary and necessary feature. It can be the final element which makes or mars. If incongruous, with lack of harmony or suitability, its inconsistency can be absolutely glaring. Therefore, to increase their own sales, to strengthen the architect in his recommendations for hardware of beauty, value and utility, and to educate the consumer on its importance, certain manufacturers are making noteworthy and profitable contributions to the general cause in their advertising.

The architect provides the plan—the home builder provides the money—the manufacturer provides the materials. Each is indispensable to the other; yet at times they seem to be working at cross purposes, or at least with less than that harmony or mutual understanding of interests that makes for the most efficient results.

No, hardware is just an “allowance” to be slashed for this and for that. A larger automatic refrigerator is desired, lop something off the hardware; or a greater capacity heating plant, or this and that; just take it from the hardware “allowance.” Even though the “allowance” was adequate initially, it frequently holds the world’s record for shrinkage.

Despite opinions to the contrary, builders’ hardware is decidedly conspicuous in the home; despite the erroneous impression it’s just an ordinary and necessary feature. It can be the final element which makes or mars. If incongruous, with lack of harmony or suitability, its inconsistency can be absolutely glaring. Therefore, to increase their own sales, to strengthen the architect in his recommendations for hardware of beauty, value and utility, and to educate the consumer on its importance, certain manufacturers are making noteworthy and profitable contributions to the general cause in their advertising.

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The home builder, through his own personal and business purchases, has learned the value of the trade-marked articles which tell their story honestly and continuously. He frequently wants trade-marked articles throughout his home and he is going to have them. He knows then that he does not have merely to rely on his own judgment or the judgment of his advisor. He knows that the manufacturer, through his national advertising and by his trademark, sets his guarantee upon the commodity.

Architect, manufacturer, and home builder constitute a trinity. They have much in common, for the desire of each is better homes. While it doubtless is annoying frequently to architects to have home builders come in with preconceived notions which may be ridiculous, yet the advertising of the manufacturer on the whole has been decidedly beneficial to all.
SIDE ELEVATION—WINNING DESIGN IN COMPETITION FOR THE WRIGHT MEMORIAL
ROBERT PLINY RODGERS AND ALFRED EASTON POOR, ARCHITECTS
(See text on page 306)
SITE AT KITTY HAWK, N. C., WHERE THE MEMORIAL WILL BE ERECTED

PLAN OF WINNING DESIGN—COMPETITION FOR THE WRIGHT MEMORIAL
ROBERT PLINY RODGERS AND ALFRED EASTON POOR, ARCHITECTS
(See text on page 306)
CONTE CRAYON DRAWING BY LEO SORETSKY

WRIGHT MEMORIAL COMPETITION

THE ACT OF CONGRESS of March 2, 1927, provided that there be erected on Kill Devil Hill at Kitty Hawk, North Carolina, "a monument in commemoration of the first successful human attempt in all history at power driven airplane flight achieved by Orville Wright on December 17, 1903."

The program of the competition stated that the monument "is to be a tower with provision made for lights which will serve as beacons for aviators and for ships at sea." Kill Devil Hill, the site of the proposed memorial, is a group of enormous sand hills or dunes, entirely devoid of vegetation, which rise from a flat plain of sand covered with grass. The constant action of heavy northeast winds has moved these hills in a southwesterly direction. In order to arrest this movement, the Government will plant certain types of grass and shrubbery. The hills are about one mile from the seacoast and can be seen for miles in every direction. They are monuments in themselves. From the largest of these hills, which is ninety-seven feet high (shown in the photograph on the preceding page), Wilbur and Orville Wright made thousands of gliding flights during the three years from 1900 to 1903, and from a point near the base the first successful power driven flight took place on December 17, 1903.

It was required by the program that the monument be designed to be seen from great distances and that it support a standard lighthouse lantern of the fourth order, which will serve as beacons for aviators and for ships at sea.

Sharply triangular in plan, the monument is meant to convey the effect of forward motion and speed. The apex of the triangle points down the landing field, and its flat face confronts the land approach, with an inscription legible at a great distance. A more detailed description encircles the plinth of the monument. The pylon is set upon a star-shaped basis, forming the insignia used on the military and naval planes of the United States. Thus the monument will serve as a distinctive day mark for airplanes, as well as supporting a lighthouse and airplane beacon.

The Jury of Award in making its recommendation to Secretary Davis stated that: "The design selected is one which stood out from all the rest by reason of its extreme simplicity. The power of imagination manifested by the authors strikes one at first sight and increases on acquaintance. It is not only most original and impressive as seen from land, but would also be extremely effective as seen from the air."

DETROIT ARCHITECTURAL BOWLING LEAGUE

With but four more weeks of bowling this season, there are several teams still in the running. The final results will be announced in next month's issue of Pencil Points.

The team standings on February 28 were as follows:

<table>
<thead>
<tr>
<th>Team</th>
<th>Score 1 game</th>
<th>Score 3 games</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. L.</td>
<td>1052</td>
<td>1052</td>
</tr>
<tr>
<td>Robert O. Detrich, Inc.</td>
<td>45</td>
<td>24</td>
</tr>
<tr>
<td>McGrath &amp; Dohmen</td>
<td>43</td>
<td>26</td>
</tr>
<tr>
<td>Albert Kahn</td>
<td>42</td>
<td>27</td>
</tr>
<tr>
<td>Smith, Hinchman &amp; Gylls</td>
<td>39</td>
<td>30</td>
</tr>
<tr>
<td>Mueller &amp; Krecke</td>
<td>36</td>
<td>33</td>
</tr>
<tr>
<td>Donaldson &amp; Meier</td>
<td>34</td>
<td>35</td>
</tr>
<tr>
<td>VanLoven, Schilling &amp; Keough</td>
<td>31</td>
<td>38</td>
</tr>
<tr>
<td>Malcolmson &amp; Higginbotham</td>
<td>28</td>
<td>41</td>
</tr>
<tr>
<td>Weston &amp; Ellington</td>
<td>25</td>
<td>44</td>
</tr>
<tr>
<td>Louis Kamper</td>
<td>22</td>
<td>47</td>
</tr>
</tbody>
</table>

And the team and individual records to date:

High team score 1 game—Albert Kahn        | 1052         | 1052         |

High individual score 1 game—Thompson A.K. | 267          |

High individual average—Jolson R.O.D.      | 186          |

Most 200 scores—R. Fraser V.S.A.K.          | 21           |

THE ECONOMIC HEIGHT OF THE SKYSCRAPER

AN IMPORTANT STUDY to determine the economic height of buildings in relation to the value of the property upon which they are built has just been completed by the American Institute of Steel Construction. The study was carried on during the past two years under the direction of W. C. Clark, Chief Economist and Vice-President of S. W. Straus & Co., and was undertaken for the purpose of proving that tall buildings in congested centers are economically advisable. The report found that buildings of 75 stories are not only economical but that under certain conditions they will return more on the investment than buildings of 50 stories or 30 stories.

These conclusions were based upon investigations made upon specific plans for buildings of varied heights drawn by J. L. Kingston, architect, of the staff of Warren and Wetmore. In making the studies the cooperation of numerous experts was enlisted, such as Stephen F. Voorhees of Voorhees, Gimelin, and Walker; R. H. Shreve of Shreve
and Lamb; David Lindquist, Chief Engineer of the Otis Elevator Co.; S. F. Holtzman and David C. Coyle of Gunvald-Aus, Consulting Engineers; Levering and Garriques and McClintic-Marshall, steel fabricators; Otto Goldschmidt, Consulting Engineer and expert on mechanical equipment; Hatzel and Buehler, electrical contractors; W. G. Cornell Co., plumbing, and in the building managers and rental field such experts as Lee Thompson Smith, Clarence T. Coley, and William C. Demorest.

A study of the economic possibilities requires the careful consideration of various factors which enter into the physical construction, the rental outlook, and the restriction laws surrounding skyscrapers. Among the important factors noted in the investigation were the following:

1. Value of the land;
2. Size and shape of plot;
3. Legal restrictions;
4. Efficiency of architectural design and layout;
5. Building factors showing tendency to increase in cost as height is increased
   (a) Structural steel,
   (b) Elevators,
   (c) Brickwork,
   (d) Plumbing and water supply,
   (e) Heating and ventilating,
   (f) Electric light and power wiring,
   (g) Total mechanical equipment,
   (h) Permanent interior partitions, and
   (i) Windows and glazing;
6. Building factors showing tendency to decrease in cost as height is increased
   (a) Roofing,
   (b) Excavations and foundations,
   (c) Miscellaneous;
7. Building factors showing tendency to constant cost at all heights
   (a) Interior finish,
   (b) Concrete floors,
   (c) Exterior finish;
8. Absorption of rentable area by elevators and other service facilities;
9. Level of construction costs;
10. Variations in rental value of floors at various heights;
11. Variations in operating costs at various heights.

The full report of the investigation will be published by the American Institute of Steel Construction in book form. This will include the details of the studies made, together with all the tables of calculations proving the results.

Inquiries may be addressed to the Institute at 285 Madison Avenue, New York.

FROM A LITHOGRAPH OF WASHINGTON SQUARE, NEW YORK, BY MILDRED E. WILLIAMS SHOWN RECENTLY IN NEW YORK AS ONE OF THE "FIFTY PRINTS OF THE YEAR"

[307]
The losers of every architectural competition accuse the judges of being drunk and weep over their decisions.
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. Good Wrinkle Section: a prize of $10.00 is awarded for any suggestion as to how work in the drafting room may be facilitated. No matter how simple the scheme, if you have found it of help in making your work easier, send it in. Competitions close the fifteenth of each month so that contributions for a forthcoming issue must be received by the twelfth of the month preceding the publication date in order to be eligible for that month's competitions. Material received after the closing date is entered in the following month's competition.

The publishers reserve the right to publish any of the material, other than the prize winners, at any time, unless specifically requested not to do so by the contributor.

This month our heading is by C. Molinelli of Martinsville, Indiana. The drawing was submitted by Mr. Molinelli in our recent competition for a new heading for Here and There. It is our intention to use a different drawing each month to show our readers the excellence of many of the heading designs submitted in this competition.

G. C. Stone of Bristol, Virginia, carries off first honors in Class One with his sketch reproduced below. Arthur D. Roberts of Cambridge, Massachusetts, is the winner in Class Two. Fred Kock carries off honors in Class Three and Gerald Kaufman gets the ten dollars for Class Four.

Our old friend, "Doc" Caulstone, after a long silence, has sent in a poem which we are glad to print.

Mr. Charles A. Johnson, of Cass Gilbert's office in New York, has given us an idea by sending in the following experience with one of his clients. Such contributions as this will be welcomed by Here and There, and if you contributors like the suggestion, and prove it by sending in your stuff, we'll establish a monthly ten dollar prize for the most amusing anecdote.

Mr. Johnson writes: "I designed a house recently for a woman who was 'nouvelle riche,' as her husband acquired his riches during the war. When I was showing the sketches of the house to my client, she inquired whether or not I had provided a medicine cabinet in the bathroom.

"I told her that I had and showed it to her on the plan,
explaining that it was right over the lavatory. She looked at me and said, 'Wouldn't it be rather awkward to get at it if it is over the lavatory?'

"I said that the medicine cabinet is always placed over the lavatory as that is the most convenient place for it.

"She replied with a haughty air, 'Well, in my apartment on Riverside Drive the medicine cabinet is over the wash basin.'"

For all of you that are out after bigger and better prizes, we refer you to pages 265 and 266 of this issue. Why not make a stab at winning a thousand dollars?

**ODE TO EARLY SPRING**  
*By "Doc" Caulstone, of Cambridge, Mass.*

The first snow's in a snow bank  
The second green's a flood  
The third—a drive and iron shot  
Is ankle deep in mud.

Oh, the clubhouse, the clubhouse  
Stands empty now and chill  
The thirsty hole the nineteenth  
The clubhouse on the hill.

Along that second fairway  
Flows the river dark and wet!  
And balls I lost last summer  
Must be lying down there yet.

But after March is over  
And April has gone by  
We'll see a little sunshine  
We'll get a golfer's sky.

I've bought two dozen golf balls  
And a driver that's a bird  
And May will find me hitting  
A sweet drive off that third.

Oh, Mac and Doc and Fordy  
Will gather there once more,  
And maybe, if I'm lucky  
I can beat my last year's score.

A letter from Arthur D. Roberts gives the source of inspiration for his poem:

"In one of the classes at Massachusetts Institute of Technology—School of Architecture, the Professor said that the word 'architect' really means two distinct persons, that is, the designer of the aesthetic part of the building, and the designer of the engineering details. They both help plan specialized parts of the building, and yet an 'architect' is supposed to know all about both, in the popular notion.

"Thus, the Professor sought to make a finer distinction between these two types of architects by calling them archi-esthete and archi-gineer. I thought the words clever and quite to the point, and the enclosed poem [printed herewith] is the result."

**UNITED THEY STAND**  
*By Arthur D. Roberts*  
*(Prize—Class Two—March Competition)*

No architect's office is quite complete  
Without an Archigineer and an Archiesthete.

Their work is united, and yet far apart.  
For one cares for structure, the other for art.

The beautiful sketches, the castles in air,  
Are the work of the esthete, the layman's despair.

He plans the cornice, the setbacks, the doors,  
The color, the details, the texture of floors.

He says the lighting shall be soft and mellow,  
Decides whether walls shall be brown, blue, or yellow.

Decorations he plans, for each room in his scheme,  
And works day and night, 'til he's finished his dream.

When he's finished his sketches, the Archigineer  
With sliderule and handbook, is needed, 'tis clear.

He figures, and searches through dry building codes,  
Gets stresses and strains, and all total loads.

As the engineer figures, he starts to find fault,  
And begins to think artists arc not worth their salt.

"These spans are too long, these windows too small,"  
But the Archiesthete will not change them at all.

So the engineer hears what the esthete has to say,  
And finally agrees that 'twill look better that way.

Then he figures foundations, with piles through the silt,  
And the beautiful dream of the artist is built.

Thus the building of beauty from the artist's trained hand,  
Has the "bones," steel and concrete, the engineer planned.

Neither one could have done it, were he left alone,  
For the esthete builds beauty, he's not skilled in "bone."

And the Archigineer should not deem it his part  
To rival the esthete, whose forte is pure art.

To both some have tried, but never for long,  
For one needs the other, so I still sing this song:—

No architect's office is quite complete  
Without an Archigineer and an Archiesthete.
THE PROSPECK
(SOME NOTES ON THE HABITS OF A STRANGE, CURIOUS BIRD)

By Gerald Lynton Kaufman

THESE LITTLE WINGED CREATURES, of the genus Rara avis, species Clientus Possibilis, is one of our most cherished native types of bird-life. The variety most often seen in the United States seems to have evolved through a crossing of the Black and White Warbling Creeper with the Yellow-bellied Sapsucker, both well known members of the Woodpecker family. In fact the Prospeck itself was originally called the Prospecker, a word evidently derived from the root “Pro” now become a colloquialism for “Professional man,” and the verb “to peck” or pick at. It is surprising that the exquisite coloring of its bright plumage never attracted Mr. Louis A. Fuertes to add it to his charming water-color studies, nor has Mr. Frank M. Chapman incorporated it in any of his famous works on ornithology.

The Prospeck has habits similar to other members of the Clientus family, but is more shy, more delicate, and harder to catch. It is generally found with its bill in the soft soil of vacant lots in sparsely settled areas, though it has been known to seek nesting-places in large cities as well. Like others of the feathered tribe, the male is far more brilliantly colored than the female, and sings the shriller song. The vibrant notes are used less to attract a mate, but to crow and cackle as well, the male usually cuts in that while the female bird is known not only to chirp, to peck, etc., etc., etc.)
Mr. Mudrosion of N.York says:

"Note that the musical show in a cavalry
Bill Randell & I. Remember have finally
united their forces. I believe we ought to
take the next step. The show was a succes
less except for the one scene who continuously
tried to sing along with the poor quartette
and knew the quartette was bad enough
before him. But when a copy was ultima
tes like that. I am sure he should rewrite
other kinds. One might say of the story
with that about which would do. He had a big
time. It seems that that live kernel* was
not unlike at the performance and that
he wanted to give in the show. But I can
assure you that from where I was sitting,
I really thought he was one of the smoothest.
His face harmonized perfectly. It's the best
Paul Revere was charring that plug the
entire time he began to whistle the song
and harmonize."

\*Launched

PENCIL POINTS FOR APRIL, 1930

FILLING STATIONS AND THE MORNINGS AFTER

SHOULD ARCHITECTS ADVERTISE, PASS OUT
BALLOONS, OR EMPLOY SANDWICH MEN?

WHEN I'M THAT WAY, I'M THIS WAY

Anonymous

WHAT 20 YEARS IN DRAFTING ROOMS MADE ME SAY
A PERSONAL EXPERIENCE

SKYSCRAPERS VS. FOOT SCRABERS

HOW TO USE THE DIAL PHONE

EDITORIAL

FARSITECTURE

Late Night Edition

PERSONALS

C. Collins announces his
"big chances" as Third
assistant "directorship" for
William M. Burton

J. Smith has left the game to
over a kiadener agency
Manufacturers' Literature
and sample desired

Ed. Thorne & E. Pick wish
to announce a partnership
for better rolling services,
roiling close & rolling over

Cincinnati Arch. Club announce
meeting for Feb 4th

DESIGNED AND DRAWN BY FRED KOCK OF THE OFFICE OF TIEITIG AND LEE, ARCHITECTS

Blue prints of this score were sent to members of the Cincinnati Architectural Club as an announcement of a club meeting.

(PRIZE—Class Three—March Competition)
THE SPECIFICATION DESK
A Department for the Specification Writer

ROOFS AND ROOFING MATERIALS—2
By David B. Emerson

After shingle, slate, and tile, probably the most popular types of roof coverings are the various sheet metal roofings—tin, copper, lead, zinc, and Monel metal—all of which can be used equally well on sloping or flat roof surfaces. The so-called “tin plate” used for roofing is a black plate, either a copper bearing steel, or a ferrous alloy coated with a mixture of lead and tin, called by the trade a “terne” plate. Tin makes a good roof if properly cared for; it should be painted on the under side before laying and painted at least two coats on all exposed surfaces after laying. Painting should be done with red lead, iron oxide or metallic brown, mixed with pure linseed oil. Copper and painted at least two coats on all exposed surfaces after "terne" plate. Tin makes a good roof if properly cared with a mixture of lead and tin, called by the trade a “terne” plate. Tin makes a good roof if properly cared for; it should be painted on the under side before laying and painted at least two coats on all exposed surfaces after laying. Painting should be done with red lead, iron oxide or metallic brown, mixed with pure linseed oil. Copper and painted at least two coats on all exposed surfaces after "terne" plate.

Copper is an excellent roofing material and if properly laid it will last as long as the building; some copper roofs in Europe have lasted for two and three centuries, and roofs in China and Japan are claimed to have lasted over five centuries. Only soft or roofing temper copper should be used, and experience has proven that sixteen ounce is the proper weight to use.

In addition to the regular sheet copper, a new material, lead covered copper, is now being used for roofing, flashing, gutters, and leaders. It looks like sheet lead, but is much lighter, is easier to handle and to support and it does not dent and damage as easily. It comes in a rough or old English finish which looks like a weathered sheet lead, and in a smooth finish. I have tried to scrape off the lead coating and expose the copper and found it impossible, so it is fairly safe to say that it will stand up under any ordinary service.

Lead has been used for centuries as a roof covering; in England it was recorded by Bede in 638 that the roof of the church at Lindisfarne was covered with lead, and in later years many of the cathedrals and great houses had lead covered roofs. It makes a very good and lasting roof, and being the least resonant of metals is practically noiseless. The only fault which lead has, so far as I know, is that it is inclined to crawl with the heat, and to settle toward the low points of the roof. Hard lead which is an alloy of lead and antimony, the antimony content varying up to twelve per cent., has not the faults of sheet lead as it does not crawl nor distort with heat, and is stiff enough to stand up quite as well as the harder metals.

For roofing or flashings either with sheet lead or hard lead, three pound lead should be used and for cap flashings one half inch seams flat locked and soldered, and each sheet should be held in place with metal cleats locked into the seams, using not less than four cleats to a sheet. All metal roofs should be specified to have all surfaces covered with rosin sized or asbestos building paper where nails be driven through the metal sheets.

There are two methods of applying sheet metal to sloping roof surfaces. These are the standing seam method, and the ribbed seam method. In the standing seam method the edges of the sheets are bent up, and double locked together with the seams running vertically, and the metal is secured to the roof sheathing by means of cleats spaced eight to ten inches apart, locked into the seam and nailed to the roof. Standing seam roofing may be used on any type of sloping roof, where the slope is not less than three inches to a foot, but should never be used on flat roofs, as the seams being unsoldered are not watertight. In the ribbed seam method wood ribs or battens, usually two inches square with the sides bevelled about one eighth inch, are nailed to the roof sheathing (or secured to the fireproof roof slab). The sheets are laid between the ribs, with the edges turned up, and the sheets are fastened to the ribs with cleats spaced eight inches apart. The ribs are covered with sheet metal caps, and the edges of the caps and the edges of the sheets are locked together. This method of roofing is generally used on large buildings of a monumental character. For all flat roof surfaces, that is roofs having a slope of not over three inches to the foot, if metal roofs are desired, flat seam roofing should be used. Flat seam roofing should be laid with small sheets of metal, about 18” x 24”, with one half inch seams flat locked and soldered, and each sheet should be held in place with metal cleats locked into the seams, using not less than four cleats to a sheet. All metal roofs should be specified to have all surfaces covered with rosin sized or asbestos building paper weighing not less than 6 pounds per 100 square feet, before laying the metal roof. All joints in paper, both horizontal and vertical, should be lapped at least two inches, and be nailed with large flat head nails.

All nails used for tin roofs should be zinc coated, those used for zinc either zinc coated or cut zinc, and for lead or copper roofs should be copper. Under no circumstance should nails be driven through the metal sheets.

In addition to the various types of covering for sloping roofs already described, there are numerous forms of asbestos shingles, composition shingles, and metal tiles and shingles on the market, all of which make excellent roof coverings both as a matter of utility and as a matter of looks. Nearly all, if not all, of these various forms of
shingles and tiles are patented and are sold under trade names, and should be applied according to the directions issued by the manufacturers. For flat roofs, that is roofs having a slope of from one half inch to two inches to one foot, the built up roof is probably more extensively used than any other type. Built up roofs are of three general types: coal tar pitch or natural asphalt and felt with a protective coating of either granulated blast furnace slag or gravel, asphalt and felt with a special asphalt surfacing, and coal tar pitch or natural asphalt and felt with a covering of promenade tile, slate slabs, or brick.

The old reliable tar and gravel (or slag) roof is undoubtedly the most popular as well as the oldest type of built up roof. This type of roof is only good for a slope of two inches to one foot when laid over sheathing boards, and one inch to one foot when laid over concrete or other fireproof slabs, for slopes of over two inches and not exceeding six inches to one foot, natural asphalt and gravel (or slag) should be used. The highest grade of tar and gravel roofs are a five ply roof laid over sheathing boards or a four ply roof laid over a concrete roof slab. At least one company gives a twenty year guarantee bond on these roofs. A four ply roof laid over sheathing boards or a three ply roof laid over a concrete slab is a good roof, and will be guaranteed for ten years by any reliable roofer. In specifying tar and gravel (or slag) roofs on boards, one thickness of sheathing paper or un satu rated felt, weighing not less than 5 pounds per 100 square feet, should always be laid on top of the sheathing, lapping the sheets at least one inch and nailing with large head nails. This is what roofers in some sections of the country call a "dry sheet," and it prevents the pitch running through the boards when the roof is laid.

In specifying the high grade four or five ply bonded roof, all that is necessary is to use the manufacturer's short form of specification and the roof will be properly laid, and the bond properly delivered. If a three ply roof on concrete or a four ply roof on sheathing boards is to be laid on a competitive bidding basis, always specify that the felt should weigh not less than 14 pounds to 100 square feet, that it should be lapped not less than twenty-two inches on concrete slabs, and not less than seventeen inches on boards and should be well built in in pitch and that felt should not touch felt. Also, specify that for a three ply roof on concrete not less than 175 pounds of pitch, and 400 pounds of gravel or 300 pounds of slag 3/4 inch to 5/6 inch size should be used, and for a four ply roof on boards not less than 125 pounds of pitch, and 400 pounds of gravel or 300 pounds of slag should be used.

The smooth surfaced asphalt roofs are built up similar to the gravel coated roofs, except that the surface is given a protective coat of specially prepared asphalt, which is, so far as I know, a more or less secret process and is protected by patents, each manufacturer having a trade name for his product. In specifying this type of roof, always use the manufacturer's short form of specification.

With the built up roof, as with all other forms of roofing, one of the great essentials in securing a watertight roof is the flashing. Flashing may be done in one of two ways, either the time honored metal flashing, or the newer built up flashing laid by the roofer as a part of the roof may be used. Metal flashings may be of galvanized sheet iron, tin, copper, lead, or zinc. The most approved method of flashing with metal at the present time is to lay three layers of felt saturated with pitch at the junction of the roof and the vertical wall extending six inches up on the wall, and out over the roofing felt, to lap the felt six inches, five inches, and four inches respectively. Over this felt bond the metal base flashing, which should extend at least six inches out on the roof and at least five inches up on the wall. When laid over board sheathing, the flashing should be nailed at the edge every six inches. Two plies of felt at least fifteen inches wide, and cemented together with hot pitch should be laid over the horizontal lap of the base flashing and cemented to the roofing felt. The base flashing should be cap flashed, and the cap flashing should turn down four inches over base flashing and should be carried through the entire thickness of the parapet wall.

The patent built up flashing should either be caulked into a reglet formed in the brick work or into a special type of flashing block with the reglet formed in the block. If patent flashings are used a metal strip as wide as the parapet wall should be built into the wall, one course above the reglet, to stop seepage water from entering the wall below the roof. Leader outlets on flat roofs should be of the dome type, as the sunken type of roof sump frequently gets covered with dead leaves and rubbish, and becomes clogged or a sheet of newspaper may fall over it and successfully stop it up, whereas the dome type of outlet will function when several inches of foreign matter have accumulated around the base of the dome.

The built up coal tar pitch or asphalt roof with a covering of promenade tile, slate slabs, or brick, is the most expensive, as well as the highest type of roofing used on flat roof surfaces. This type of roof should be used on roofs which are to be walked on to any extent, and on all roofs where windows look out on the roof, such as roofs at the bottom of light courts and at set backs. In laying these roofs a five ply felt and pitch or felt and asphalt waterproofing the same as for a gravel or slag roof should be laid. Immediately before the tile is laid, this waterproofing should be given a uniform coating of pitch or asphalt. The tile or slate slabs should be set in not less than 3/4 inch of cement mortar with joints 3/16 inch to 3/4 inch wide and grouted with one to two cement grout. Brick as a roof covering is very seldom if ever used now, but was quite common some years ago for promenade roofs where heavy traffic was liable to occur. If bricks are to be used they should be a paving brick laid flat to decrease the dead load. It is very necessary in laying promenade tile, slate slab or brick roofs to provide proper expansion joints at regular intervals in the roof surface (not much more than twenty feet apart), and at all walls. Expansion joints should be at least one inch wide and filled with a non-hardening asphaltic mastic or a plastic cement.

An excellent precaution against possible future trouble with built up roofs is to specify scuppers in the parapet walls, they may never be needed, but if the leader outlets should ever be stopped up, there will be no damage caused by the flooding of the roof. Another very good practice in the construction of built up roofs which is becoming quite general, is insulating between the roof slab and the felt and pitch. Any one who has ever worked in the Summer in a drafting room on the top floor of a building that has an uninsulated roof will agree with me that it is at least a humane practice, to say nothing of the fact that it is rather an expensive practice to burn up coal to provide heat to melt the snow off the roof. Quite a number of different forms of insulating materials are available, among which are cork boards, and a number of other boards made from different materials such as licorice roots, sugar cane fiber, specially treated wood fiber, peat moss, flax fiber and other materials which produce a cellulose.

(Continued on page 86, Advertising Section)
MODERN SPECIFICATIONS FOR PAINTING

By William J. Miskella
Director of Finishing Research Laboratories, Inc.

TIMES HAVE CHANGED the time-worn method of specifying paints, varnishes, lacquers and other finishing materials used in the building trade. After many years of alternating between attempts to specify the chemical formula and omitting the formula and mentioning only the fact that certain well-known trade brands shall be delivered to the job in sealed containers, the architect is at last provided with a means whereby he may get what he specifies.

When the architect stops to analyze the facts he is more than likely to come to the conclusion that it is just as well for him not to try to know much about the composition of paints and other finishing materials. Take steel, for example; it is common practice to specify the chemical content, tensile strength and so on. It must be done if the architect is to be sure that the building will stand up under all conditions. But when one talks about the chemical contents of the various finishing materials he immediately gets into hot water because of the great variety of raw materials used and the wide limits which mark each one of these items.

In steel it is carbon and iron. In paints it is several kinds and grades of oils; a large number of different kinds of pigments; a limited list of driers and an endless list of thinning or reducing materials. Pray tell how can the architect be expected to know the characteristics of the various items in the list in detail, and the effect that each one has on the resultant material when the experts within the paint manufacturing industry do not agree?

Architects have been widely criticized for their adherence to the old standby—lead and oil mixed on the job for outside painting, for example. The question is also often asked, “Is this criticism justified?” I am inclined to feel that it is not. Not after a person has been disappointed several times and fails to get what he specifies in the way of a desirable finish. Especially when he has placed confidence in a certain brand that has been presented to him, along with a lot of sales points to win his interest, and he later finds that this factory-mixed material failed to support the reputation given it.

Of course, every one connected with the building industry will admit that every effort is made to reduce the prices of steel, cement, lumber, trim, and so on, by eliminating hand labor with the substitution of modern machinery. Even automatic machinery is used wherever it can be introduced to cut the cost which in turn tends to lower the selling price. Hand wrought iron parts, for instance, are sometimes used for high class hinges and decorative hardware, but when steel is used it is machine made.

This is not so in the case of exterior paints when lead and oil are specified. The architect actually forces the painting contractor to do hand mixing on the job. The lead is delivered in iron kegs and the oil in tin cans. There are certain prescribed steps necessary in the mixing procedure of these two important elements of exterior paints but they are not always properly followed. When they are not properly mixed the coating will not do justice to the pure ingredients used by the painting contractor, as directed in the specification.

Generally speaking the greatest fault lies in the insufficient amount of labor used to mix the lead and oil thoroughly. Naturally a painter will not spend any more time than he really has to in performing the unpleasant task of hand mixing. He will apply the material which he mixes when he thinks he has it in the proper condition to be brushed or sprayed satisfactorily. Months afterwards the owner will enter a complaint but then it is too late, for the contractor has been paid and there is no recourse. One need only to observe the painted surfaces as he walks along the street to note the variation in the different work. In some cases there will be coarse brush marks, in others there will be uneven streaks and spots. In many instances the appearance of the surface might be overlooked if the paint lasted satisfactorily but generally it does not.

Just what is this modern method that might be used in specifying paints? What can the architect do to overcome this hand-mixing and still have the assurance that he is getting quality material? There are two ways in which this may be handled. One is for the architect to have comparative tests made—comparative between what he knows is right and that which he wishes to be sure about. The other way is for the architect to specify “that the paints that are to be used and the method of application shall be acceptable to—” naming whatever firm, or expert, he may wish to supervise that part of the work.

In the comparative test suggested the theory is that the architect knows of a certain material that will do the work to his satisfaction. That particular material may be his favorite and so may be called his “standard.” Along comes an advertisement, a letter, or a salesman who offers something better—it may be a ready-mixed paint—it looks (Continued on page 86, Advertising Section)
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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.

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Notices submitted for publication in these Service Departments must reach us before the fifth 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

F. A. Schmitt, 3301 Farragut Road, Brooklyn, New York, has for sale a **Monograph of the Work of McKim, Mead and White**, 1879-1915, 100 plates, 14" by 20".

Frank Schmitt, 812 East 15th Street, Oklahoma City, Oklahoma, has for sale all copies of PENCIL POINTS from June, 1920, to December, 1929, inclusive.


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Chris Steketee, 311-312 Association of Commerce Bldg., Grand Rapids, Michigan, has the following copies of PENCIL POINTS for sale: May, June, July, August, September, October, November, and December, 1921; January, March, and April, 1922.


Henry J. Moloney, Architect, has moved his office from 3600 Gertmantown Avenue to 45 Maplewood Avenue, Germantown, Penna.

E. R. James, Architect, has moved from Bartow, Florida, to Apalachicola, Florida.

PERSONALS

Conrad & Cummings, Architects, have moved their offices from the Security Mutual Building to 509 Birmingham Savings Bank Building, Birmingham, New York.

Abraham Goodman and Archie H. Shulman have opened offices for the practice of architecture under the firm name of Goodman & Shulman, at 20 Smith Street, Paterson, N. J.

Robert Louis Gill, Architect, has moved his offices from 5600 Gertmantown Avenue to 45 Maplewood Avenue, Germantown, Penna.

A. Thomson Thorne, Architect, has moved from the Atco Bldg., to Suite 332, Exchange Bank Bldg., Tulsa, Oklahoma.

FREE EMPLOYMENT SERVICE ITEMS WILL BE FOUND ON PAGES 90, 94, AND 95 IN THE ADVERTISING SECTION

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MODERN SPECIFICATIONS FOR PAINTING

(Continued from page 315, Editorial Section)

good, but the architect hesitates to deviate from past prac­tices. Everything sounds fine but nothing is certain as to final results.

If the architect really wants to know if the proposed new material is as good as what he has been using all he has to do is to have an accelerated comparative test made between the two grades of paint. He may even have the test made on a group of five or six samples. When the test is finished and the results are tabulated in an engi­neering report then the true story will be known and the possibility of having established a new standard will have been considered.

In making these comparative tests the competitive samples are sent to the laboratory under secret code numbers. When the architect receives the engineering report he also receives actual sample panels made under laboratory conditions so he may see, with his own eyes, just what these tests have determined.

It is not necessary to go into detail regarding the con­struction of the rather expensive and highly scientific machine upon which such tests are run. Rather let it be understood that a number of things are done simultaneously to the samples under test to make them break down and that the average length of time required to make these tests is seventeen days and nights, or 400 continuous hours.

During this period the meritorious samples survive the rigorous treatment whereas the weak ones break down very quickly. Thus it is a proven fact that it is no longer neces­sary for the architect to take anybody's word regarding the quality of a painting material. It is possible, with the aid of these accelerated comparative tests, for him to learn all the facts necessary regarding finishing materials just as he learns about steel and cement-by similar methods.

Once the material question is settled there is another point that is largely overlooked by architects. I refer to the application of the specified materials after they have reached the job and are reported by the inspector to be in accord with the specifications covering that particular part of the work. There are all sorts of variables that enter into the matter after this. Principal among them are the kinds of reduction solvents used and the method of thinning. Closely following these are the kinds of driers added to the paints to make them dry quickly and properly.

An architect would have to become a journeyman painter before he could know all the tricks of the trade and be able to specify just exactly what should be done.

The unfortunate part of it is that he would soon become out-of-date in his methods if he failed to keep up his practice, for new methods and new materials are evolved almost every day in the scientific laboratories of the paint­ing industry. A wide awake architect desires to keep up to-date on these matters but he can hardly do so without spending too much time on them, due to the ever changing conditions of the industry.

Lacquer is an example of this. It is just beginning to obtain a foothold in the building industry and yet there are few architects who know much about lacquer and its possibilities. No doubt this fact is responsible for the hesitancy of the building trade in accepting lacquer as a finishing material.

Anyway, the comparative testing idea given herein will aid in determining the best finish, whether it be paint, varnish, lacquer or whatnot. There is one caution regard­ing comparative tests that should be mentioned. The tests are of no practical value if one of the interested companies is going to run the tests, as so many unscrupu­lous ones offer to do free of charge. These tests can be made by an independent laboratory but for not much less than $25.00 per sample and about $18.00 of this rep­resents actual operating costs. Nearly all paint companies have their own testing machines, the same as the ones herein mentioned. They use them in determining just how their own materials rate with others—for their own information. Thus there is only one sure way to get an impartial test made and that is to send the unidentified samples to an impartial laboratory equipped to do the work. A laboratory should be selected that will have no interest whatsoever in the test. Due to the blindfold nature of these accelerated comparative tests it is thought that a paint company can make an impartial test without knowing that their own material is included. This is a great mistake for there are many ways of learning which one of the group is the one that is to be favored and it would be by the wildest stretch of imagination that a company would test its own material competitively and turn in a written report to that effect.

ROOFS AND ROOFING MATERIALS

(Continued from page 314, Editorial Section)

lar structure. The usual method of applying the insula­tion is to coat the roof surface thoroughly with hot pitch or asphalt, the thicker the better, and bed one thickness of the insulating board in this, then coat the board with pitch or asphalt bedding the second thickness of insulating board, breaking all joints in both directions, then mop with pitch or asphalt and lay the roof in the usual manner.

The flat slate roof which is coming into favor at the present time is a good type of hard surfaced roof which is not so expensive as to be prohibitive and gives good service. In laying a flat slate roof, the roof surface should be waterproofed the same as for a tar and gravel roof, with four or five plies of pitch and felt, and then well mopped with a bedding compound, either a mixture of 60% coal tar pitch and 40% Trinidad asphalt, or 50% coal tar pitch and 50% Trinidad asphalt, or even pure asphalt is sometimes used. The slate should be well pressed into this bedding compound. All slate should be at least 3\(\frac{1}{4}\) inch thick and not over 12" x 12", and even smaller sizes are more satisfactory. This type of roof naturally will not stand the traffic the promenade tile roof will stand, but it makes a good smooth surface that can be swept off and kept clean.

Another type of roof for covering flat decks, and one which is unlike any of the roofs previously described in any of its general characteristics, is the canvas roof. This type of roof is largely used on residential buildings for covering the roofs over porches, the floors of sleeping porches which occur over rooms, and other roof surfaces where a noiseless roof which can be walked on is desired. In laying canvas roofs either a regular twelve ounce cotton duck or a specially prepared bitumen soaked cotton duck may be used, and I have seen good results from both. The manufacturers of the prepared duck claim the plain cotton duck is subject to rot and attacks of the mildew germ, also that oil in paint burns the cotton fiber. Untreated canvas should be well wet before laying, but treated can­vas should be laid without wetting. Canvas should be bedded in white lead, thinned with linseed oil. All seams should be lapped not less than 1\(\frac{1}{2}\) inches, and should be tacked with tinned carpet tacks or copper tacks, spaced four inches apart on the lower edges and 3\(\frac{1}{2}\) inch apart on the upper edges. Canvas should be carried up on all (Continued on page 168, Advertising Section)
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Butler’s Pantry Sinks.—A.I.A. File No. 29-b-6. New brochure, prepared especially for architects and specification writers, describes in detail and illustrates modern designs of Butler’s pantries and accessories. Specifications, rough-in measurements, dimensions. 40 pp. 8 1/2 x 11. Elloy Manufacturing Co., 4704 Arthington St., Chicago, III.


Loonis-Manning Water Filter.—Illustrated publication presents much useful information on the subject of water filtration with detailed description of this type of filter suitable for residences, hospitals, hotels, swimming pools, industrial plants, etc. Plans, elevation, capacity tables. 48 pp. Loonis-Manning Filter Distributing Co., 1421 South 37th St., Philadelphia, Pa.


Creo-Dipt Hand-Splt Pilgrims.—A.I.A. File No. 19-4-d. Portfolio with series of plate illustrations showing various roof treatments obtained with this kind of shingle. Specifications. Chas. H. Conmany, Walnut & 32nd Sts., N. Y.

Lighting Glassware Moderne.—New brochure showing numerous new designs of lighting globes of the moderne trend. Tables of sizes and prices. 12 pp. 8 1/2 x 11. Gleason-Tiebout Glass Co., 99 Commercial St., Brooklyn, N. Y.

Cast Stone.—Attractive new publication on the subject of cast stone contains a discussion of the characteristics and advantages of this material and an explanation of the various factors involved in its production. Included are illustrations of many interesting applications. 28 pp. Standard filing size. The Cast Stone Institute, 33 West Grand Ave., Chicago, Ill.

Galloway Pottery.—Catalog No. 30, just off the press, shows a wide range of products including flower pots and boxes, vases, benches, jugs, bird baths, sun-dials and fountains. 16 pp. 8 1/2 x 11. Galloway Terra Cotta Co., Walnut and 32nd Sts., Philadelphia, Pa.


Gypsted Pre-Cast Floors and Ceilings.—A.I.A. File No. 44-b-1. Service Bulletin No. 3 presents specifications and details of design and construction for Gypsted pre-cast floors and ceilings. Table of joists for various spans and loads. 8 pp. Standard filing size. Structural Gypsum Corporation, Linden, N. J.


Berrycraft Finishes.—New publication with detailed information for architects on this line of architectural finishes, paints, stains, varnishes, enamels, lacquers, etc. Specifications, charts, color samples. 18 pp. 8 1/2 x 11. Berry Brothers, Inc., 211 Leib St., Detroit, Mich.

Facts Concerning Keystone Copper Steel.—Illustrated booklet is devoted to a non-technical presentation of the value of copper steel for sheets and tins plates. 24 pp. 8 1/2 x 11. American Sheet and Tin Plate Co., Frick Bldg., Pittsburgh, Pa.

Practical Planning for Club Food Service.—A.I.A. File No. 35-c-4. Fourth of a series of five books for architects on the subject of food serving problems in various fields offers useful ideas and information on the correct handling of food service in both town and country clubs. 32 pp. 8 1/2 x 11. The John Van Range Co., Oakley, Cincinnati, Ohio.

Metal Lock Seam Chutes.—A.I.A. File No. 35-d-4. New bulletin with specifications and detail drawings covering these types of laundry and waste chutes equipped with automatic sprinkler jets. 8 1/2 x 11. Metal Vitrix Co., 35 South Dearborn St., Chicago, Ill.


Oxwelded Contraction for Club Services.—Useful document for architects and engineers on the subject of oxy-acetylene welding process presents salient facts concerning the welding of steel and wrought iron piping for modern services. 78 pp. The Linde Air Products Co., 30 E. 42nd St., New York, N. Y.

ABC Weatherstrips.—A.I.A. File No. 35-f-4. Data sheet with specifications and detail drawings covering this type of weatherstrip for windows and doors. 8 1/2 x 11. Horn Metal Products Co., Horn Bldg., Long Island City, N. Y.

The Selection of Piping Material for Building Construction.—A.I.A. File No. 35-g-4. Technical paper C-10 presents the results of an extensive investigation made to determine the life of iron and steel gutters, rain pipes, flashings, etc. 4 pp. 8 1/2 x 11. The Red Book of Building Material.—Valuable new handbook for architects and specification writers covers this complete line of gypsum products. Included is section devoted to contracting division. Many pages of specifications and detail drawings. 65 pp. Standard filing size. United States Gypsum Co., 300 West Adams St., Chicago, Ill.

Wheeler Floodlight.—Standard filing size bulletin with descriptive data and dimension drawings describing this new type of equipment for general short range floodlighting. Wheeler Reflector Co., 275 Congress St., Boston, Mass.

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Architectural Draftsmen and Designers write us for experience card so we can refer you to positions. No advance charge of any kind. Thirty-seven years’ experience serving technical and architectural firms. The Engineering Agency, Inc., 53 West Jackson Blvd., Chicago, Illinois. (Adv.)

Sales Engineer Wanted: Manufacturer, prominent in his field, looking for manufacturer’s sales representative for eastern and western Pennsylvania territories who has earned in excess of $5,000.00 in selling heating or ventilating equipment to architects and engineers in these districts. Give complete history to forwarding connections and earnings. Box No. 400, care of PENCIL POINTS.

Wanted: Good draftsman for general architectural work who is able to develop working drawings from sketches, one who has several years’ experience. Our practice includes hospital, school, municipal and residential work. Karl Scott Putnam, Nonotuck Bank Building, Northampton, Mass.

Wanted: Draftsman experienced in residential and institutional work, with some knowledge of steel and fireproof construction. Should be man of personality, responsibility, and initiative as well as ability in order to take a place in small busy office. P.O. architectural young man. See permanent addition to our organization. Owen & Osberg, 53 North Main Street, Concord, New Hampshire.

Position Wanted: Architectural drafter, 14 years’ office and institutional experience, College graduate, capable of handling job from sketches to completion. Versatile experience all types of construction. Box No. 403, care of PENCIL POINTS.

Position Wanted: Draftsman, recent graduate of University of Pennsylvania, experienced on residences, complete working drawings, perspectives, sketches, desires position. Now residing in east but will move to mid-west if necessary. Box No. 402, care of PENCIL POINTS.

Position Wanted: Registered architect, twenty years’ experience on all classes of buildings is desirous of making connection with architect’s superintend-ent. A-1 references. Box No. 403, care of PENCIL POINTS.

Spare Time Work Wanted: Practicing architect who has had unusual experience both European and American seeks work for spare time. Box No. 404, care of PENCIL POINTS.

Position Wanted: Position wanted as junior draftsman or assistant estimator, any trade. Salary $30.00. Two and one-half years’ experience with architect. Box No. 405, care of PENCIL POINTS.

Position Wanted: Young man, 20 years old, desires position in architectural or other drafting office. One year’s experience. V. Mortelho, 54 Goerck Street, New York, N. Y.

Position Wanted: Young man wishes position as draftsman’s assistant. Four years’ experience in construction and detailing. Box No. 408, care of PENCIL POINTS.

Position Wanted: Young man desires connection with architect or contractor. Understands building construction, can lay out work, handle men and assume responsibility for completion from plans to occupancy. Residence and estates. Will travel. Available immediately. Box No. 410, care of PENCIL POINTS.


Position Wanted: Architect, registered New York State, desires position. Experienced on high class residences, cooperative apartments, hospitals, and churches. Interested in being established with recognized firm anywhere in United States. Married. Age 33 years. Box No. 412, care of PENCIL POINTS.

Part Time Work Wanted: Graduate of Pratt Institute, course in architecture. Will do rendering in pencil, pen and ink and color, or ordinary drafting for architectural firm within New York City limits or will leave present position for good permanent offer. Box No. 413, care of PENCIL POINTS.

Specification Specialist desires a few more clients. His work is brief, concise, coherent, and comprehensive without verbosity. He requests an interview. Box No. 415, care of PENCIL POINTS.

Position Wanted: Architectural draftsman, 20 years’ experience on various types of buildings, design, elevations, plans, scale and full-size details, and general practical experience to continue with our firm. Salary moderate. Box No. 414, care of PENCIL POINTS.

Position Wanted: Superintendent and draftsman, 32 years old, fifteen years’ experience with Newark and New York City architects, all classes of buildings. Salary $80.00 per week. Available immediately. Box No. 416, care of PENCIL POINTS.

Part Time Work Wanted: Draftsman, thoroughly experienced on small house plans and renderings. Desires to do larger country house and suburban work, willing to work on hourly basis or moderate price per plan. Box No. 417, care of PENCIL POINTS.

Position Wanted: Young architectural student, 22, wishes to locate in architect’s office or drafting room. At present attending second year in a Central Illinois College. Salary secondary. Box No. 418, care of PENCIL POINTS.

Position Wanted: Capable architectural draftsman. Prefer medium-sized office in Ohio or Indiana. Six years’ experience on board and two years’ actual outside experience. Can handle work from sketches to completion of building. Varied experience, including school building. Salary $50.00 per week. Box No. 419, care of PENCIL POINTS.


Position Wanted: Graduate architect. Desires position as draftsman and checker, architectural-technical, building construction superintendent, designer and detailer, figure steel and reinforced concrete. Salary $80.00 per week. Box No. 423, care of PENCIL POINTS.

Position Wanted: Architectural draftsman desires position with firm of architectural-technical, building construction superintendent, designer and detailer, figure steel and reinforced concrete. Salary $80.00 per week. Peter Schmece, 298 Montauk Ave., Brooklyn, N. Y.


Position Wanted: Draftsman, good residential work. Can carry job through from start to finish. Good knowledge of construction. Box No. 426, care of PENCIL POINTS.

Position Wanted: Architects-Builders construction superintendent or owners representative. Years of experience. Knowledge of all trades. First class references and experience in detail furnished on request. Location immaterial. Reply Room 304, Temple Building, 71 Monroe Ave., Detroit, Michigan.

Representative Position Wanted: Would like to represent progressive organization in Milwaukee and surrounding territory. Will consider part time work. Will do survey and thoroughly versed in all phases of architectural work. Age 39 and married. Detailed information on request. 1810 Capitol Drive, Milwaukee, Wisconsin.

Position Wanted: Secretary and assistant estimator to architect or general contractor. Young lady with tact and personality desires full or part time during evenings and Saturday afternoons. Eight years’ experience, bookkeeping and stenography. Can also read plans and takes, if qualified for estimating. Goodwin. 3400 Wayne Avenue, New York, N. Y.

(Other items on pages 94, 95, and 96, Advertising Section)
This pigeon-clustered tower... one of the most picturesque sights on the estate of Leonard C. Hanna, Jr., Esquire, Mentor, Ohio... is roofed with IMPERIAL Hand Made Shingle Tiles reproduced from 16th century tiles. Robert O. Derrick, Inc., were the architects.

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(Other items on pages 90, 95, and 96, Advertising Section)

Position Wanted: Young man, four years' architectural experience on all types of buildings desires position in architect's or contractor's office. $40.00 a week. Jules Cohn, 1332 Park Avenue, New York, N. Y.


Position Wanted: A young man, ambitious and industrious, desires position. Two years' experience with well known architect. Salary desired $30.00. Box No. 457, care of PENCIL POINTS.

Position Wanted: Intelligent young woman desires position as secretary in small architect's office. Willing to start at low salary. Box No. 459, care of PENCIL POINTS.

Position Wanted: Registered architect, New York State. Seventeen years' experience all classes of buildings as draftsman, designer, specification writer superintendent and in executive capacity with New York and Boston firms. Thoroughly versed in all phases of architectural practice. Connection with reputable architectural firm where experience might lead to association that would be mutually satisfactory. Box No. 460, care of PENCIL POINTS.

Position Wanted: Draftsman, seven years' experience, plans and elevations, all details; Beaux Arts student. Desires permanent position. Box No. 461, care of Pencil Points.

Position Wanted: Permanent connection with southern or mid-western architect. Senior draftsman and designer thoroughly familiar with every phase of practical working drawings. Wide general experience. Four years in fourteen in Chicago and New York. Box No. 462, care of PENCIL POINTS.

Position Wanted: Registered architect, fifteen years' private practice and office manager New York City and Middle West wishes to connect with architectural office as office manager or executive. University graduate. Member A.I.A. Widely traveled abroad and in America. Broad experience. Young man of culture. Highest references. Box No. 463, care of PENCIL POINTS.

Position Wanted: Draftsman, nine years' experience on residential and commercial work. Thorough training and knowledge of inspection work. Can handle job complete. Age 29. Married. New York or New Jersey. Box No. 464, care of PENCIL POINTS.

Position Wanted: Architectural draftsman, thorough experience in all phases of building construction (over sixteen years' practical experience). First class in layouts (original sketch) and in fully developing working drawings for apartment houses, fireproof and non-fireproof. Hotels, apartment hotels, lofts, offices and other business buildings, also figure steel. Available immediately. Box No. 465, care of PENCIL POINTS.

Position Wanted: All-round draftsman, twenty years' experience. Available at once. Box No. 466, care of PENCIL POINTS.

Position Wanted: All-round man, superintendent and checker, well versed in mechanical work for buildings. Twenty years' experience. Box No. 467, care of PENCIL POINTS.


Position Wanted: Designer. Architectural man with wide experience desires position offering good future possibilities. Box No. 468, care of PENCIL POINTS.

Position Wanted: Young lady, 22 years of age, five years' experience in architect's and builder's office. Familiar with contracting, bookkeeping and interior decorating. Three years High School education. Salary $30.00. Box No. 469, care of PENCIL POINTS.

Wanted: First class marble draftsman. State age, experience and salary desired. Box No. 482, care of PENCIL POINTS.

Architectural Perspectives and Renderings made by expert young architect in pencil or pen and ink, charcoal and water color in the most modern techniques. Ample experience abroad and in America. Box No. 483, care of PENCIL POINTS.
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(Other items on pages 90, 94, and 96, Advertising Section)

Position Wanted: Position with architect or landscape architect, by young woman, graduate landscape architect. Experienced in drafting, stenography and bookkeeping. Capable, intelligent, with pleasing personality and ability to make successful contact with clients. Experienced in supervision of workmen. West of Mississippi, preferably central states. Box No. 470, care of PENCIL POINTS.

Position Wanted: Young man desires position in drafting room. Experience has been mechanical drafting, pattern drawings, water color drawings for sale. Terra cotta model making. Worked in water colors, pen and ink, pencil and oil colors. Desire employment that will give me a chance to advance in experience and wage. Box No. 471, care of PENCIL POINTS.

Position Wanted: Secretary-stenographer (Christian), neat, accurate. Prefers technical work. Seven years' usual experience. One year with architect, eight months with builder. Knowledge of general office work, filing and operation of any type switchboard. Salary $30.00 to $35.00. Address L. J., 737 Warren Street, Jackson Heights, L. I., N. Y.

Position Wanted: Stenographer-secretary desires position in architect's office. Six years' architectural, seven years' engineering and contracting experience. Competent. Mildred Bogdan, 1220 University Avenue, New York City.

Position Wanted: Secretary with knowledge of bookkeeping, payroll, cost accounting and estimating, desires position with contractor or architect. Can use comptometer and Monroe Calculator and operation switchboard in emergency. Accustomed to meeting people and handling correspondence. Two years' experience with painting and decorating contractor. Box No. 472, care of PENCIL POINTS.

Position Wanted: Young woman, twenty-five, interested in architecture, desires position with architectural firm. Has had good business experience and some art training. Could interview clients or do general office work. Will start at nominal salary. Box No. 473, care of PENCIL POINTS.

Position Wanted: Stenographer-secretary, who has had extensive experience in architects' offices, desires position in New York City. Box No. 474, care of PENCIL POINTS.

Position Wanted: Specification typist and stenographer. Three years' experience with architectural concern and three years' experience with a publishing house. Salary $35.00. Box No. 475, care of PENCIL POINTS.

Position Wanted: Architectural draftsman, 37 years of age, married. Fourteen years' experience in all classes of buildings. Work from sketches to finished plans and details. Best references. Salary open. Box No. 476, care of PENCIL POINTS.

Position Wanted: Architectural draftsman, eleven years' experience, desires to connect with small established office. Able to carry a project through to completion including both architectural and structural design. Age thirty. Hard worker. Box No. 477, care of PENCIL POINTS.

Position Wanted: Architectural draftsman or specification writer. Twenty years' architectural experience, Pratt Institute graduate. Familiar with all phases of architectural practice. Experienced in all classes of buildings, architect's superintendent and executive capacity. Box No. 478, care of PENCIL POINTS.

Part Time Work Wanted: Registered architect, New Jersey, will go anywhere within twenty-five miles of New York City or Newark, N. J. Twenty years' experience all phases of architectural practice and can take job through from sketches, specifications and superintendent. Box No. 479, care of PENCIL POINTS.

Position Wanted: Young man, nineteen years old, would like opportunity in architect's office as beginner. Three years of drafting at Mechanics Institute. Very good letterer, also can make drawings, tracings and blueprints. Edward Paul Jaeger, 200—40th Street, Union City, N. J.

WANTED: Architect doing ecclesiastical work needs able designer as associate who can produce some new business. Box No. 480, care of PENCIL POINTS.

For Rent: Very desirable office space in architects' suite in Grand Central Zone. For further information Telephone, Ashland 0140 or see Mrs. Scott at Room 1018, 247 Park Avenue, New York, N. Y.

Office Space Wanted: Small private office with stenographic and telephone services wanted by consulting engineer in the Grand Central Zone. References exchanged. Box No. 481, care of PENCIL POINTS.

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Position Wanted: Junior draftsman, architectural and structural, desires position with architect or construction engineer. One year's experience as tracer. Student at Colorado University. Salary secondary. Box No. 429, care of PENCIL POINTS.

For Rent: Private room, drafting room and desk room suitable for architect, commercial artist or decorator. Well furnished, and all electrical equipment, including phone and equipment, Location, Grand Central Zone. For further particulars address Box No. 484, care of PENCIL POINTS.

Position Wanted: Architect's superintendent open for position with engineer with fifteen years' practical experience on all types. Last seven years employed as architect's superintendent on banks, office and hotel buildings for well known New York architect. Box No. 481, care of PENCIL POINTS.

Position Wanted: Architectural designer and draftsman, detailing, perspectives and renderings. All types of architecture, old and modern. Eight years' actual office experience. Five years in New York City and three years abroad. Box No. 485, care of PENCIL POINTS.

Position Wanted: Architectural draftsman, fifteen years' practical, all types of buildings. Can handle work from sketches to completion. Also well versed on scale and full size details. Salary $75.00. Box No. 430, care of PENCIL POINTS.

Position Wanted: Architectural draftsman and designer. Nine years' office experience on high class school, residence and commercial work. University training and considerable experience in design, rendering and detail work. Can submit photograph and samples of completed work. Married. Age 30. Box No. 452, care of PENCIL POINTS.

Position Wanted: Architectural draftsman with training in design, three years' office experience desires position in New York City or vicinity. Graduate of a school of architecture. Box No. 443, care of PENCIL POINTS.

Partnership Wanted: Architectural draftsman, designer of twelve years' experience in school, church and residential work. Eastern schooling, desires partnership with established engineer or architect. Box No. 444, care of PENCIL POINTS.

Position Wanted: Architectural draftsman. Nine years drafting experience. Can carry job through from sketches to finish. Box No. 454, care of PENCIL POINTS.

Position Wanted: Young man, twenty-one years old, with three months' experience in lettering in school of architecture. Desires position in architect's office. Box No. 445, care of PENCIL POINTS.

Position Wanted: Junior draftsman, three years at Mechanics Institute and one year estimating. Moderate salary. Box No. 436, care of PENCIL POINTS.

Position Wanted: Draftsman, good residential work. Capable of carrying job through from sketches to finish. Good knowledge of construction. Box No. 437, care of PENCIL POINTS.

Position Wanted: Young man, twenty-one years old, desires position in architect's or contractor's office. Five years' experience on all types of buildings. Capable of drawing complete plans from sketches. References. Box No. 438, care of PENCIL POINTS.

Position Wanted: Architectural draftsman, age twenty-eight, seven years experience. Last three years with one of largest firms in the middle west. Experienced on commercial and industrial work. Can give place. References. Box No. 439, care of PENCIL POINTS.

A Thoroughly Competent Draftsman and Designer of wide experience, both in this and foreign countries, desires a position in architect's office of good reputation. Location immaterial. Has had experience in advertising, with American Bridge Company. Thoroughly familiar with heavy work, also writing of specifications. H. Dunlap Morrison, Villa Belle Aire, Stamford, N. Y. Telephone, Stamford, 16.

Position Wanted: Architectural draftsman with ten years' experience on all types of buildings, mostly residential and commercial hotels. Good plan layout man, detailer, etc. Can furnish list of references. Box No. 440, care of PENCIL POINTS.

Position Wanted: Architectural draftsman, eight years' experience on all types of buildings—lofts, offices, apartment houses, also alterations and planning. Can handle all work from sketches to completion. Also part time work. Box No. 441, care of PENCIL POINTS.

Position Wanted: Young man, high school graduate, desires position in architect's office. One and one-half years experience. Good letterer and tracer. Personal references. Salary secondary. Roland Johansson, 2415 Davidson Avenue, New York, N. Y.

Position Wanted: Draftsman with long experience in New York City office as chief draftsman, squad leader, specification writer, checker and superintendent of construction, seeks connection with New York City architect. Box No. 443, care of PENCIL POINTS.

Position Wanted: Architectural draftsman with five years' experience on residential, business, church and Y. M. C. A. work desires position with reputable firm. Box No. 444, care of PENCIL POINTS.

Partner Wanted: Architect practicing in Philadelphia and registra in Pennsylvania and New Jersey seeks partner who mainly has the ability to bring or influence work and has good connections. Experience in running an office not necessary. Box No. 445, care of PENCIL POINTS.

Position Wanted: Architectural draftsman-designer, ten years' experience, four years abroad in modern architecture, good at rendering in wash and pencil. Would like position in office doing modern work. Box No. 448, care of PENCIL POINTS.

Position Wanted: Draftsman, thirty years of age, single, University graduate in architecture, varied experience with reputable firm. Now in New York City. Desires position in drafting and superintending. Speak French and Spanish. Will represent reliable firm in any foreign country. Box No. 449, care of PENCIL POINTS.

Position Wanted: Junior architectural draftsman, two years' experience, neat and accurate, experienced in monumental and building work. Can furnish suitable references. Twenty-three years of age. Would like position in vicinity of New York City. Frank Ferri, 456 East 116th Street, New York, N. Y.

Position Wanted: Capable and industrious young man wishes to locate in architectural or other drafting office in New York City or vicinity as junior draftsman. Student of Pratt Institute. Salary secondary. Jos. Bratling, 602-61st Street, Brooklyn, N. Y.

Position Wanted: Architectural draftsman, twenty years' experience on banks, office buildings, hotels, theatres and hospitals. Can handle job from start to finish, also sketches and design. College training. Past salary $75—$80 per week. Class A-1 references. Mostly Chicago. Box No. 452, care of PENCIL POINTS.

Position Wanted: A competent architectural draftsman with University training, capable of working up sketches and carry same to completion scale and full size details, or an original design from a program and present same in an attractive manner, rapid, neat and accurate. Salary commensurate with ability. Box No. 453, care of PENCIL POINTS.

Position or Partnership Wanted: Designer-draftsman, forty-two years old, twenty years' experience on all classes of work. Can take charge of office. Location Texas or Western states desirable. Several years' experience with architects. Consider partnership. Established. C. H. Evers, 4085 So. Broadway, Denver, Colo.

(Other items on pages 90, 94, and 95, Advertising Section)
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On every hand, sorrowful philosophers are shaking their fingers—or fists—at the Machine. “This evil monster is turning us into a nation of Robots,” they sob. “It is killing Beauty.”

We wish these tearful gentlemen could see the new Karnean Marbled patterns in Sealex Inlaid Linoleum.

In these strangely beautiful designs, the machine has finally overcome its worst fault—monotonous repetition. Each marbled tile has spontaneity—individuality—delightful little details in coloring and marking that will not be duplicated no matter how long the machine runs.

In one tile, one subordinate color appears only in brief glimpses; in another, it strikes out as boldly as a jagged streak of lightning.

Please do not expect to find this “unpremeditated beauty”—this wonderful marble realism—in any other type of linoleum. Karnean Marbled effects are obtainable only in Sealex Linoleum, manufactured by Congoleum-Nairn Inc.

This is the “Barcelona” pattern (No. 3213) in Sealex Inlaid Linoleum. Tiles extraordinarily rich in color and unusual in shape give a very modern look to this distinctive design.

At the top of the page is reproduced a section (actual size) of this design. Observe the delicacy of the marbled effects—the pleasingly irregular veining—the little touches of orange sparkling out amid the darker greens and blues.

See next page
These new Sealex floors are practical as well as handsome

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In pre-Sealex days, spots on linoleum floors must have been responsible for floods of bad language. When grease or ink or what-have-you fell on old-fashioned linoleum, millions of microscopic pores in the material would invite the liquid to step inside and make itself at home. This hospitality to spots and stains was the only drawback to an otherwise perfect floor.

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Above is shown the "Virginian" (Sealex Linoleum No. 3927). Browns, golds and tans mingle delightfully in this lovely pattern, inspired by the beautiful walnut brown marble quarried in Virginia. Each tile in this pattern is 9 by 9 inches. Obviously, this small illustration cannot do full justice to the beauty of the veining and coloring.

Left: The warm red jasper colorings of "Camelot" (Sealex Embossed Inlaid Linoleum No. 2002) bespeak the old-fashioned hospitality and cheer.

Lower left: Light gray and verde antique blend beautifully with the excellent reproductions of serpentine marble found in "Cavalier" (Sealex Linoleum No. 3003).

When Sealex floor materials are installed by an Authorized Contractor for Bonded Floors and according to Bonded Floors specifications, the completed floor carries a Guaranty Bond issued by U. S. Fidelity and Guaranty Co. Write for complete information about this expert installation service.

—See preceding page
It provides the greatest house insulation value possible in one application

Balsam-Wool
A Full Inch Thick

In the judgment of architects who have observed its effectiveness, one-inch Balsam-Wool is an important advance in house insulation.

It permits a more thoroughly adequate job than has ever heretofore been practical in one application. Workmen apply it in the same time required for thinner materials. Per dollar of material cost it offers increased insulating value.

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In Balsam-Wool one-inch thickness does not impair the important advantage of flexibility. It tucks in even more tightly. Around dormers, window frames and door jambs, it caulks every crevice. It does what you expect of true insulation.

For all outside walls and top story ceilings many architects now specify one-inch Balsam-Wool. Others are specifying it in combination with the half-inch, using the one-inch for the places of greatest heat loss.

Upon request a complete data file, including specification material, will be forwarded with sample. As an added convenience, full descriptive matter and specifications have been printed in Sweet's Architectural Catalogue.

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Also makers of Nu-Wood—the All Wood Insulating Wall Board and Lath. Sold only through retail lumber dealers


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Note the new creped Kraft liners, tough, heavy, flexible. These liners are waterproof, wind-proof and practically puncture-proof. Balsam-Wool itself is fire-resistant, vermin-proof and permanent

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The plastering of the entire seven-story structure is the work of Jacobson & Company. In the private office of Mr. David pictured above, the geometric ceiling faithfully reproduced from the Bromley Palace design is unusually attractive.

On the main floor, pictured at the right, walls are finished to simulate rough-cut limestone. On the ceiling are Woodkast beams with antique plaster between.

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The Dual Thermostat (Night and Day) Control. Fuel Saving 25 to 40 Per Cent. The All Metal System. The All Perfect Graduated Control Of Valves and Dampers.
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No. 631
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Architects will value its beauty and flexibility for offices and similar rooms...its subdued tones for stately interiors—its brighter hues for colorful work, moderne in feeling and unique in form.

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USG Acoustical Tile is not expensive. Its beauty, cleanliness and sound absorption are easily maintained by simple vacuum cleaning.

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The Cowing Joint at each story height compresses when stresses accumulate and protects the facade.

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Merchandise Mart, Chicago
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Rand Tower, Minneapolis
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See "SWEETS" PAGES A185-183

Cowing Pressure Relieving Joint Co.
160 NORTH WELLS STREET
CHICAGO, ILL.
**PENCIL POINTS FOR APRIL, 1930**

DETAILS

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and the Last
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Being Brick Tale Telling
Number XXX

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PLATE 24

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ROOFS AND ROOFING MATERIALS
(Continued from page 86, Advertising Section)

walls and counterflash with metal. After laying plain canvas should be well soaked with boiled linsed oil and then given two or three coats of white lead and boiled linsed oil paint. Prepared canvas should be given two coats of white lead and oil paint. In addition to the various roofings already described there are a number of “ready roofings” and “roll roofings” on the market. These materials are all very good in their place, that is on temporary buildings, low cost country houses, cattle sheds, chicken coops and buildings of that type, but I could not consistently advise their use on the class of buildings which an architect is called upon to build.

The object of this article is to give a general summary of the various roofing materials in use at the present time with no desire on my part to advocate the use of any particular roof, nor to show the superiority of any one material over another, but to give the young specification writer some idea of what he has to choose from, and leave it to his own judgment to make that choice.

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   Architect: W. S. Maxwell, Montreal
   Electrical Contractors: Canadian Comstock Co., Montreal

4. Architect: Ross & McDonald, Montreal
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   Architect: Ross & McDonald, Montreal
   Electrical Contractors: Canadian Comstock Co., Toronto

6. Bell Telephone Building, Montreal
   Architects: Simler & Blackader, Montreal
   Cons. Engr., McDougall & Friedman, Montreal
   Electrical Contractors: Canadian Comstock Company, Montreal

7. Sun Life Assurance Building, Montreal
   Architects: Darling & Pearson, Toronto
   Assoc. Architects: A. J. C. Pollock, Montreal
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The Rome Brass Radiator Corporation, New York, New York, has engaged the services of a distinguished firm of consulting engineers for the past several years to develop its market and expand its facilities. The company also announces the opening of a new branch office at 1st Jackson Place, N. W., Washington, D. C., under the management of Clyde E. Miller.

The Johns-Manville Corporation, New York, New York, announces that another new product, asbestos wall tile, will be distributed in the Southeastern territory after more than two years of research and development. This product offers a combination of fireproofing, insulating and ventilating properties that is new to the market.

The Kewanee Boiler Corporation, Kewanee, Ill., has opened its own office at 2217 Madison Avenue, New York, with W. L. Charlet, long associated with the engineering department. Effective March 1st relations were discontinued with the Youngstown Pressed Steel Metal Lath Division of the United States Gypsum Co. Only the metal lath division will continue under the same sales and operating personnel as the Youngstown Pressed Steel Co., with Youngs Cool Hanging and ventilating professions mourn the passing on Mar. 11 of Louis G. Forman, president of Gillis & Geoghegan, Inc., and vice president of G & G Atlas Systems, Inc., New York. Mr. Forman joined Gillis & Geoghegan, Inc., and filled various positions finally becoming president.

Acquisition of the metal lath division is a significant development for the Youngstown Pressed Steel Co. Warren, Ohio. It is announced that four additional metal lath plants of the United States Gypsum Co. will continue under the same sales and operating personnel as the Youngstown Pressed Steel Metal Lath Division of the United States Gypsum Co. Only the metal lath division was acquired by the new company.

The Portland Cement Association, Chicago, Ill., announces the appointment of Walter R. Macatee as district engineer in charge of association work in Virginia and North Carolina. Mr. Macatee will be headquartered at 15 E. Main St., Richmond, Va. William G. Hudson, has been named district engineer for Louisiana and Mississippi.

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