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*Like Water Off a Duck's Back

(*Some Facts About Water Repellency*)

IF YOU watch a duck emerge from a dive beneath the surface of a pond, you will see the water roll instantly from its back, leaving a smooth, dry surface of feathers. That is because each individual feather has been carefully coated with oil—a water-repellent substance which renders the duck's protective feather coating waterproof, non-absorbent and as little subject to capillary attraction as a polished glass surface.

Now, there are millions of tiny pores all through concrete. The walls of these pores must be made water repellent if the concrete is to preserve its strength. It is to coat the surface of these pores with a perfect water-repellent material that Truscon Waterproofing Paste Concentrated has been devised. Concrete so treated is literally packed with water repellency. It can rain, snow, freeze, thaw, grow foggy—let the weather be what it may, the condensed water that forms on the concrete will be repelled from entering the structure of the concrete itself. Water will roll from it as from a duck's back.

Though constantly exposed to water, a duck's feathers do not get wet—that is why water doesn't bother a duck. Nor will water bother concrete which has been waterproofed with Truscon Waterproofing Paste Concentrated.

Furthermore, in concrete used underground where moisture is always present in some quantity and where a water pressure may even be encountered at times, this method of waterproofing makes concrete a dependable waterproof building product.

Truscon Waterproofing Paste Concentrated used in mixing concrete, thoroughly waterproofs the material through and through for all time to come and prohibits the absorption of water. Besides being the only effective method for waterproofing concrete, it is a method involving little labor. The slight cost of such waterproofing is usually offset even in a single year by maintenance costs averted.

★ *This is No. 9 of a series of non-technical explanations prepared by R. A. Plumb, General Director of The Truscon Laboratories, on the necessity for integrally waterproofing all concrete used in building.*

R. A. Plumb

General Director of
THE TRUSCON LABORATORIES

Write for free data on the practical uses of Truscon Waterproofing Paste Concentrated.

THE TRUSCON LABORATORIES ▱ ▱ DETROIT, MICHIGAN
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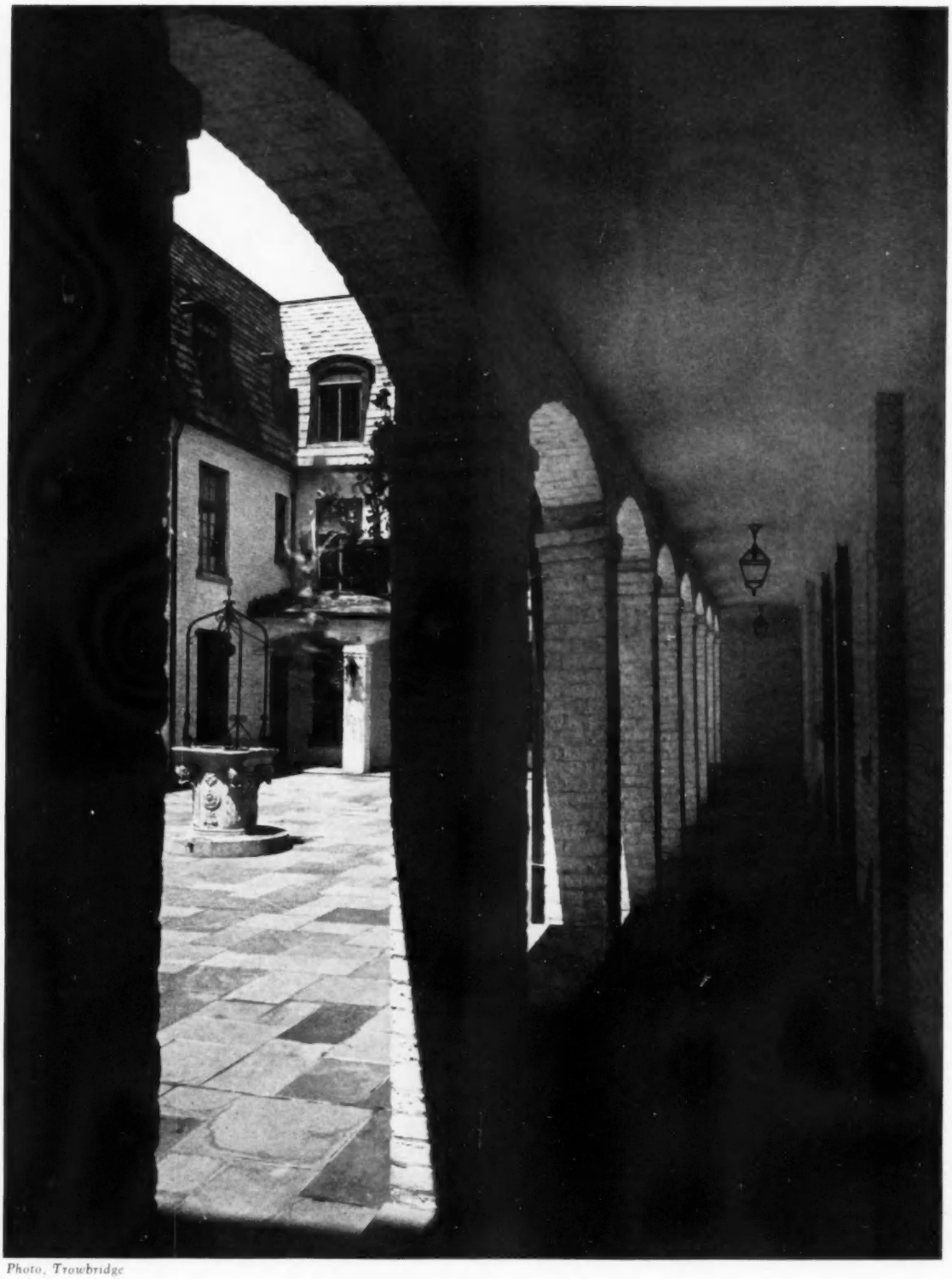
TRUSCON
Waterproofing Paste
CONCENTRATED



Photo, Trowbridge

GALLERY FACING ON SECOND STORY COURT

SHOP AND APARTMENT BUILDING, EVANSTON, ILLINOIS

THIELBAR & FUGARD, ARCHITECTS

THE ARCHITECTURAL RECORD

AN ILLUSTRATED MONTHLY MAGAZINE OF
ARCHITECTURE & THE ALLIED
ARTS & CRAFTS

VOLUME 65 JANUARY·1929 NUMBER 1

A COMBINED SHOP AND APARTMENT BUILDING

THIELBAR & FUGARD, ARCHITECTS

BY ANNE LEE

THE COMBINED business and apartment building illustrated was designed by Thielbar and Fugard, architects, and is located on the edge of the business section of Evanston, Illinois. In order to attract the better class tenant, it was sought to overcome or at least to minimize the usual objection to apartments over stores by creating a design in the spirit of the Paris Directoire façades.

The building occupies the entire plot, 132′-5″ on Chicago Avenue and 70′ on Grove Street, with a narrow light court, 55′-5″ x 10′ at the center-rear, which gives access to the service doors of the shops and to the basement. Ample space is provided for laundry, locker, storage and boiler rooms, in addition to a large storeroom for each shop. Seven stores, the full depth of the building, occupy the ground floor. The architects further minimized the commercial element by having all the shop entrances on the Chicago Avenue side of the building and arranging the apartment entrance at the rear of the Grove Street side.

Variegated buff Bedford stone with a pitched roof of slate in green, red, purple, blue and brown tones; bronze store-fronts; well-spaced windows; dormers of stone and copper, and interesting stone chimneys are important elements of the exterior. There are elliptical windows with ornamental stone carving to relieve the severity of the formal façades.

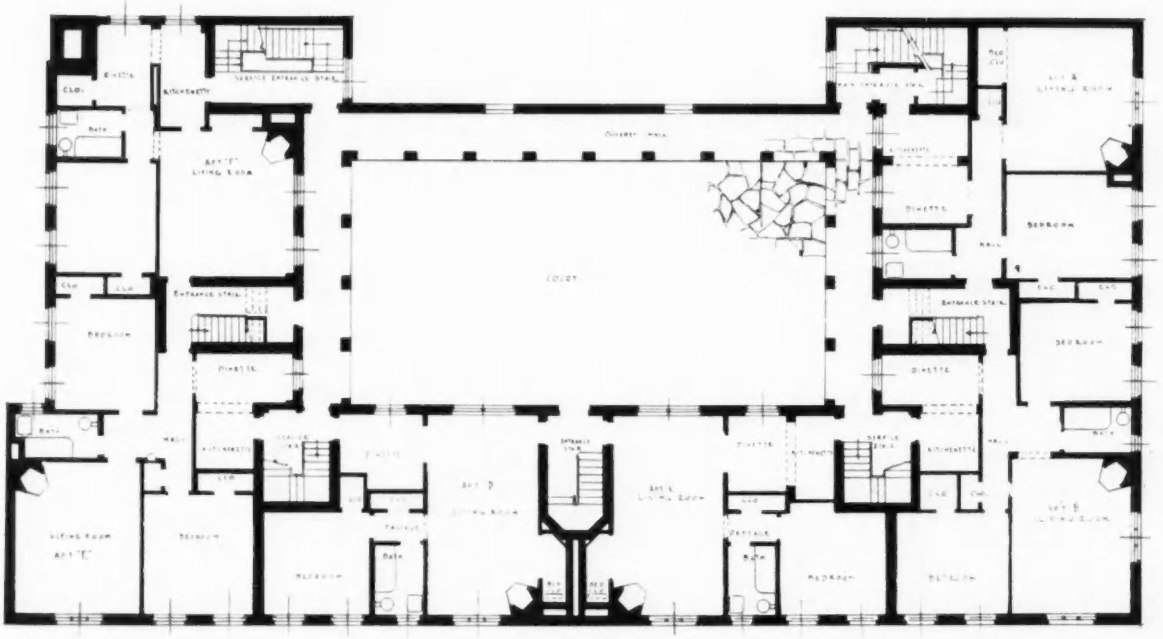
Passing through the vestibule into the lobby and up one flight of stairs, one enters the courtyard which gives access to the apartments. Instead of the usual unsightly light court, the apartments, which occupy the entire second, third and fourth floors, have, in addition to an outlook on the street, an outlook on a courtyard with slate-flagged pavement, with flower boxes, ornamental iron lanterns, flower pot holders and grills, with an interesting stone well-head and an arcaded, slate-roofed walk along the rear wall and at either end. The exterior design is repeated in the court in the use of a slate mansard roof with dormer windows for the top-floor apartments. Common brick, whitewashed, was used for the walls. Doorways are of stone. Dark wooden shutters flank the windows above the doorways.

The courtyard measures 66′-5″ x 33′-6″. It is surrounded on three sides by the build-

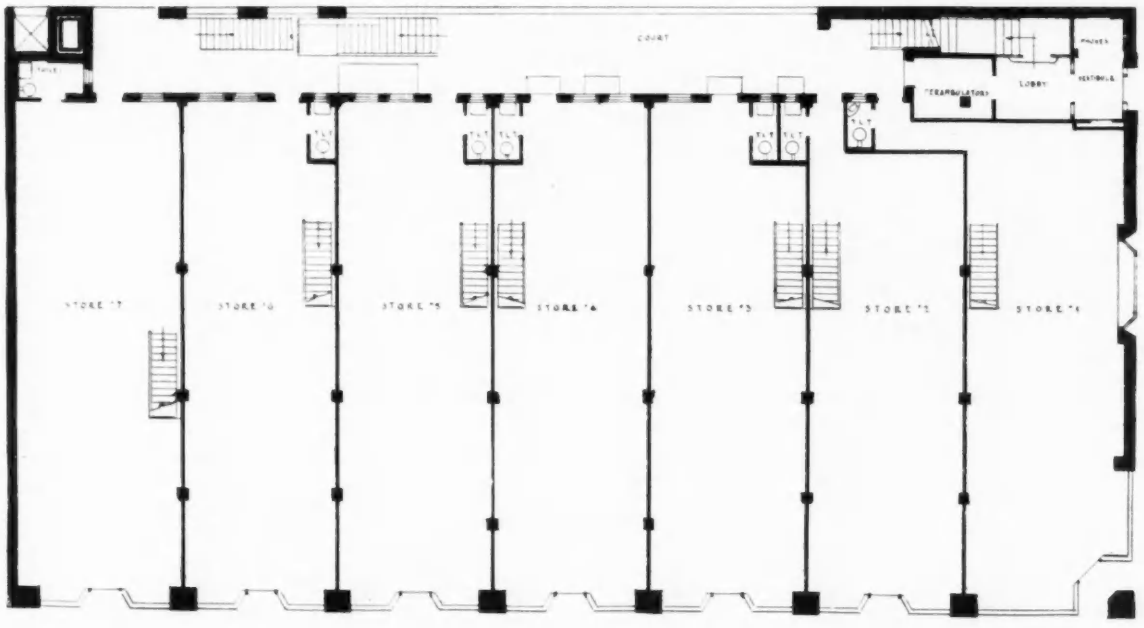
ing and on the fourth by a wall ornamented with iron grills and trellises of wood. An entrance hallway on each of the three sides gives access to two apartments on each floor. There are also four service stairways. Considering the kitchenette and dinette as one room, each floor provides two four-room and four three-room apartments. Corner hearths with stone trim, ample sized rooms, and appointments which include extra bed closets, metal kitchen cabinets, exhaust fans and steel casement windows—the latter equipped with all-metal sliding screens—add to the attractiveness of the apartments. By increasing the thickness of the fourth floor outer walls from 12½″ to 20½″, the slant of the mansard roof was overcome almost entirely, and deep window-seats were made possible.

In referring to the use of common brick for the courtyard walls, Mr. Fugard explained that he not only prefers this building material for such architectural treatments, but finds it an important economic measure. The price of face brick ranges from twenty-six dollars to fifty dollars per thousand as compared with twelve dollars for common brick. The only objection to the latter, he says, is the presence of ground salts which may come through and stain the whitewash, but this danger can be eliminated by chemical treatment to neutralize the salts.

PERSPECTIVE DRAWING SHOWING SECOND FLOOR
SHOP AND APARTMENT BUILDING, EVANSTON, ILLINOIS
THIELBAR & FUGARD, ARCHITECTS



SECOND FLOOR PLAN

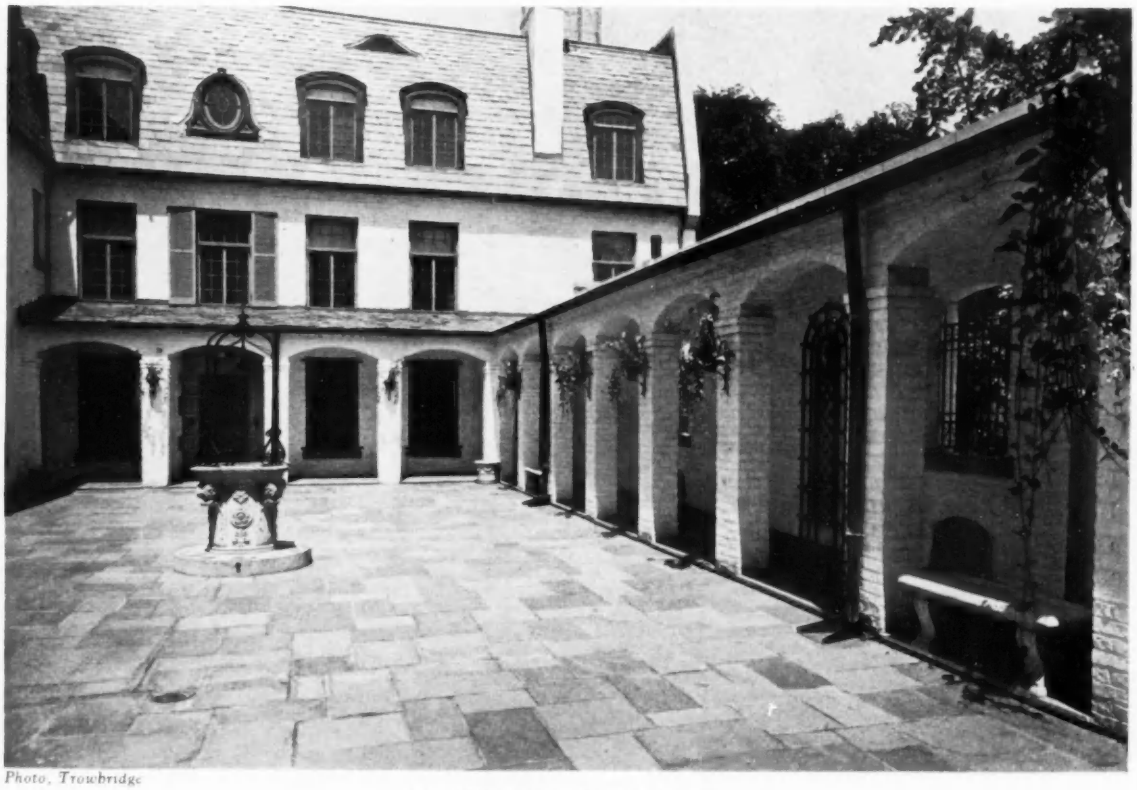


FIRST FLOOR PLAN

SHOP AND APARTMENT BUILDING, EVANSTON, ILLINOIS

THIELBAR & FUGARD, ARCHITECTS

GENERAL VIEW



Photo, Trowbridge

COURTYARD ON SECOND FLOOR

SHOP AND APARTMENT BUILDING, EVANSTON, ILLINOIS

THIELBAR & FUGARD, ARCHITECTS

A RESIDENCE IN LOS ANGELES, CALIFORNIA

R. M. SCHINDLER, ARCHITECT

THE LOCATION: A growth of old eucalyptus trees straddles the ridge of a range of low hills. The ridge overlooks the Los Angeles River valley at the foot of the Sierras toward the south and Silver Lake toward the north. The road follows the ridge. The slope on the south side is very steep.

THE PROGRAM: The client wanted a home for his small family. Individual studies for the parents were to be provided, the owner's study to have direct connection with main entrance.

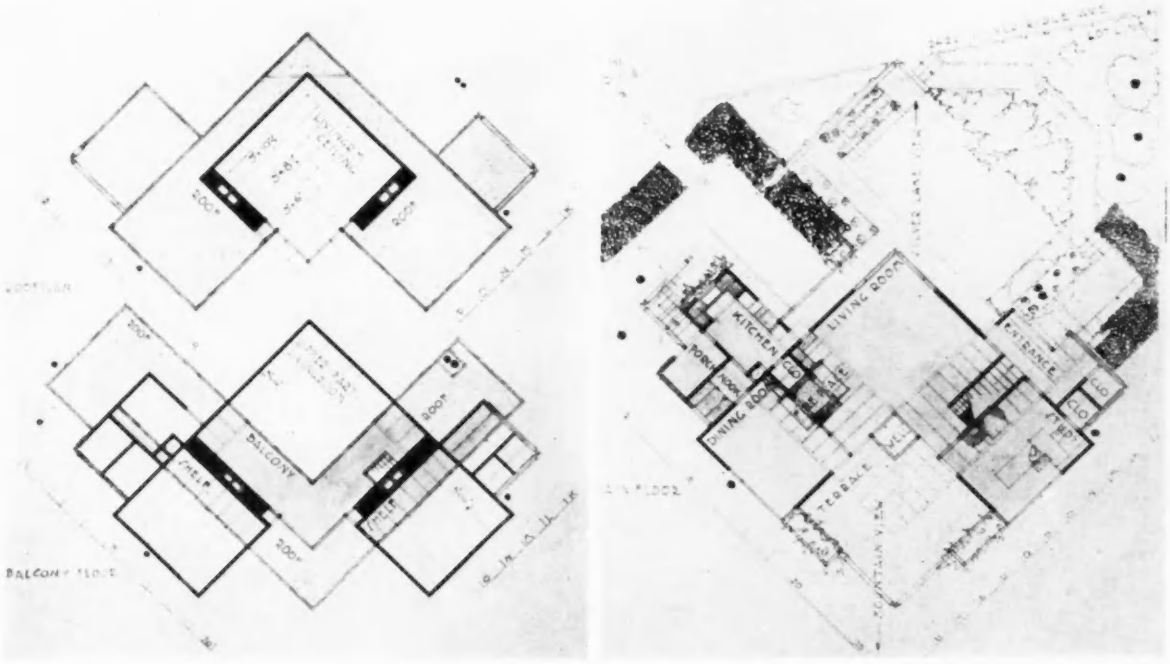
THE LAYOUT: The arrangement of the rooms features the two outlooks which the location offered. The rooms form a series of right angles placed above each other and facing alternately north and south. This scheme provides sufficient terraces necessary for outdoor life. The angles are placed so as to frame an open shaft between them. This shaft illuminates the hall downstairs, affording a direct view from the lowest floor to the highest ceiling of the living room, and thus emphasizes the spacial unity of the structure.

The slope of the hill requires a high understructure. In order to reduce its dimensions the upper stories were allowed to project over it.

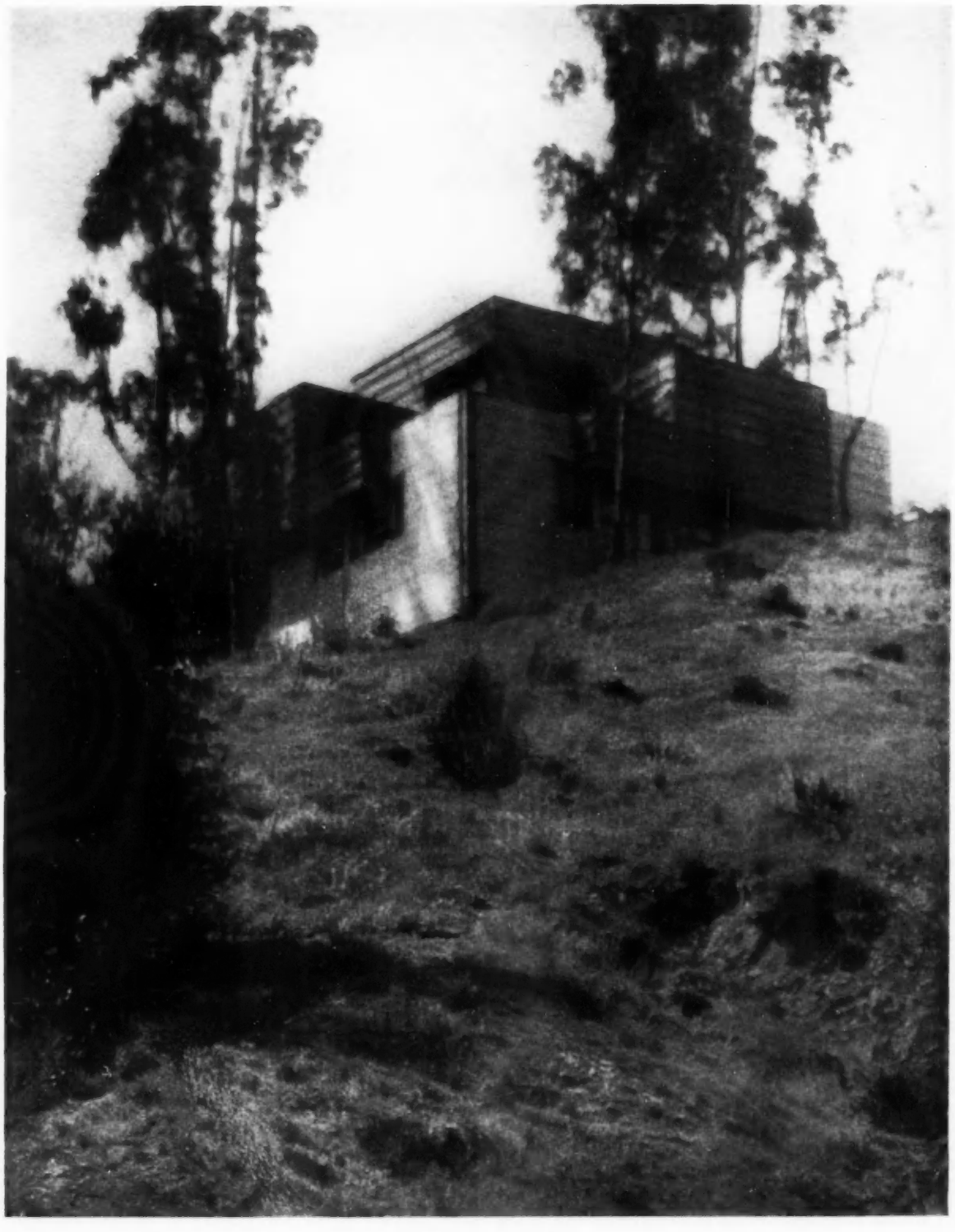
STRUCTURAL SCHEME: The upper part of the house is a light wooden structure. A skeleton of wooden studs is covered with wide horizontal boards, separated and held in place by specially moulded drip strips. They shed the water and allow the boards to shrink and expand. Floors and ceilings are carried by wood joists.

The lower part is of solid concrete executed with "Slab-Cast" system.

The "Slab-Cast" form work is made of



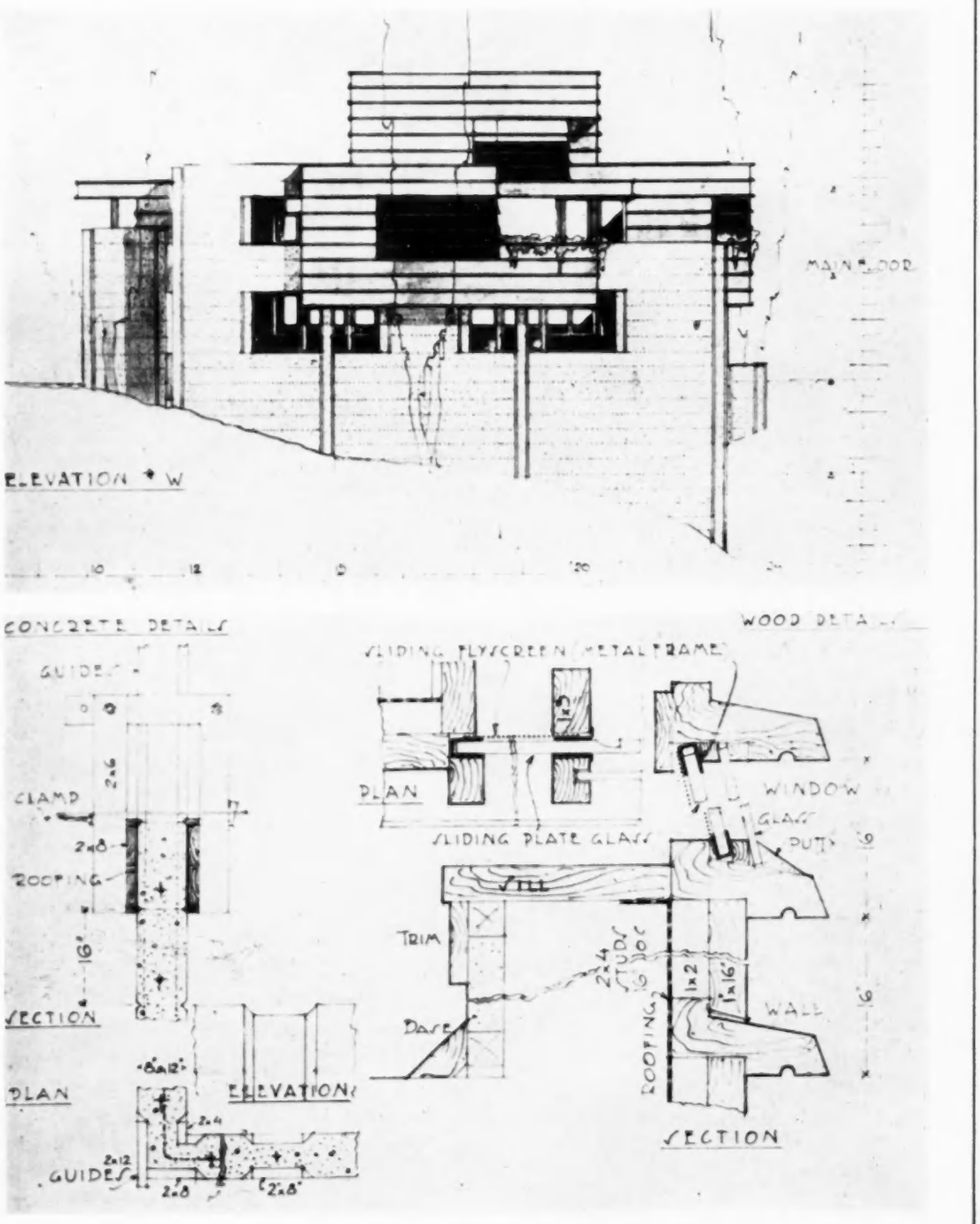
PLAN OF MAIN FLOOR AND BALCONY FLOOR
RESIDENCE OF MR. AND MRS. E. HOW, LOS ANGELES
R. M. SCHINDLER, ARCHITECT



SOUTH ELEVATION

RESIDENCE OF MR. AND MRS. E. HOW, LOS ANGELES

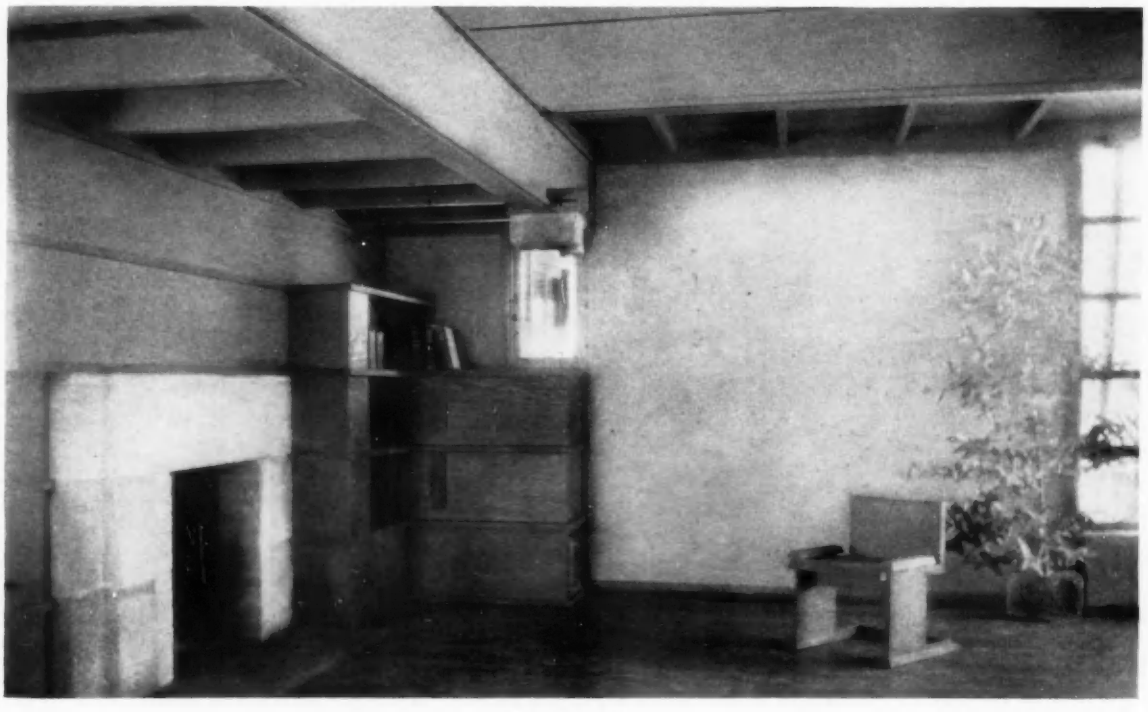
R. M. SCHINDLER, ARCHITECT



EAST ELEVATION AND CONCRETE DETAILS

RESIDENCE OF MR. AND MRS. E. HOW, LOS ANGELES

R. M. SCHINDLER, ARCHITECT



LIVING ROOM
RESIDENCE OF MR. AND MRS. E. HOW, LOS ANGELES
R. M. SCHINDLER, ARCHITECT

wood and consists of a skeleton of vertical guides with a single continuous course of horizontal wall forms. The guides are two inches thick and have bevelled edges to help the stripping. The wall forms slide on the outside of the guides. They are made of two inch boards held together by cleats. The inside of them is covered by roofing paper in order to insure a good concrete surface. A small triangular strip holds the paper in place and gives a clean cut seam for each course. The forms are pressed against the guides by means of cleats and iron clamps.

The guides are erected first. The window and door frames, anchors, reinforcing rods, (including special ties at corners), plumbing pipes, etc., are placed as the building advances. No cutting of formwork is necessary. One course of concrete is poured each day. The pouring is done during the afternoon, allowing the concrete to set over night. The forms are raised the next morning. They are loosened by opening the clamps and raised to the next course. Long heavy form units are handled by means of blocks and tackles fastened to the cross braces on top of the guides.

The concrete used is only of low strength. Suitable aggregate for such concrete is often found on the premises.

The form lumber being two inches thick is not damaged and is available for structural purposes. After forms are once made unskilled labor is well able to handle them. No plastering is done on the finished concrete surfaces.

Fireplaces and chimneys are made of concrete as part of the walls and extend up through the wooden part of the house. They serve to interlock the two materials of the structure.

ARCHITECTURAL DESIGN: A uniform scale is maintained by the use of a system of unit lines both in plan and elevation. The horizontal stratification caused by the con-

STREET FRONT
RESIDENCE OF MR. AND MRS. E. HOW, LOS ANGELES
R. M. SCHINDLER, ARCHITECT

crete courses and the drip strips is used as a contrast to the high eucalyptus trees.

The windows have been made an integral part of the structural scheme. They are formed by simply substituting sliding plate glass panels for boards between the drip strips. For the sake of articulation the glass is placed sloping out slightly. All floor constructions have exposed joists (2"x8") arranged to emphasize the angle scheme of the layout.

The concrete walls are apparently a series of upright slab units. These units are joined by recessed links, which result from the use of the vertical form guides. The small horizontal grooves between the courses are interrupted by the links and do not contradict the monolithic character of the wall. Architecturally the recessed links are as characteristic of the modern slab wall as the pilaster was of the traditional masonry structure.

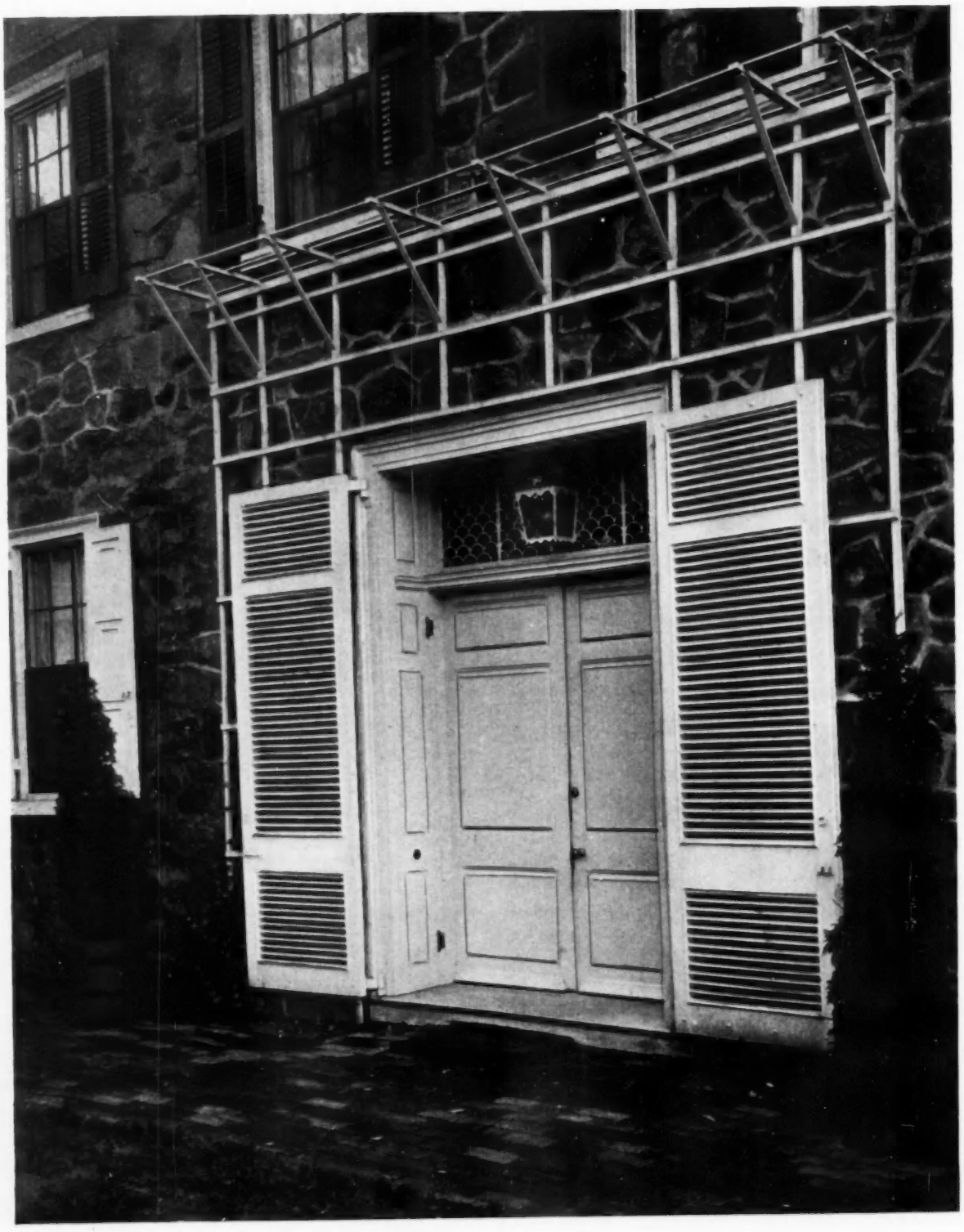
MATERIALS: Concrete for lower walls and floors. California redwood for exposed wood including exposed joists and studs.
Plaster on woodlath for secondary partitions in lower floor and kitchen since it is slightly cheaper than concrete.
Hardwood floor upstairs.
Composition roofing. Glass.

TEXTURES: Concrete medium rough.
Plaster same texture.
Wood surfaced. Glass.

COLOR: Natural concrete outside: gray.
Stained concrete and plaster inside: tan to yellow.
Stained redwood: Transparent gray green.
All colors taken from foliage and bark of eucalyptus trees.

LANDSCAPING: By utilizing the slope of the hill and a suitable planting scheme the front lawn was given complete seclusion from the road and neighbors.
Eucalyptus, pines, junipers.

COST: Similar to usual wood and stucco construction.



MAIN DOORWAY IN NORTH WING
"GOODSTAY", WILMINGTON, DELAWARE
EDMUND B. GILCHRIST, ARCHITECT

A REMODELLED AND ENLARGED FARMHOUSE

EDMUND B. GILCHRIST, ARCHITECT

BY HAROLD DONALDSON EBERLEIN

GOODSTAY, on the outskirts of Wilmington, Delaware, represents successive stages of growth. The north wing, in the middle of which is the present entrance, apparently dates from the late eighteenth century. All the stone portion of the south front was built early in the nineteenth century, as numerous details both inside and out plainly bear evidence. Both the earlier and the more recent parts of the stone structure follow pretty closely the traditional Pennsylvania and Delaware stone farmhouse type which can be traced to Wales and the Western Midlands of England. The weather-boarded additions came at a subsequent period of enlargement and indicate a building usage not native to the region, but they are none the less agreeable on that account and they fall easily into place in the total composition with becoming consistency.

The rubble masonry of the wall displays considerable variation of color, some of the stones affording strong accents of tawny buff and burnt orange; the prevailing hue, however, is a very dark, sombre gray, characteristic of the local stone and quite different in tone from the warmer and lighter gray stonework of southern and eastern Pennsylvania. The woodwork is painted a slightly creamy white, while the shutters on the weather-boarded parts of the house are painted black.

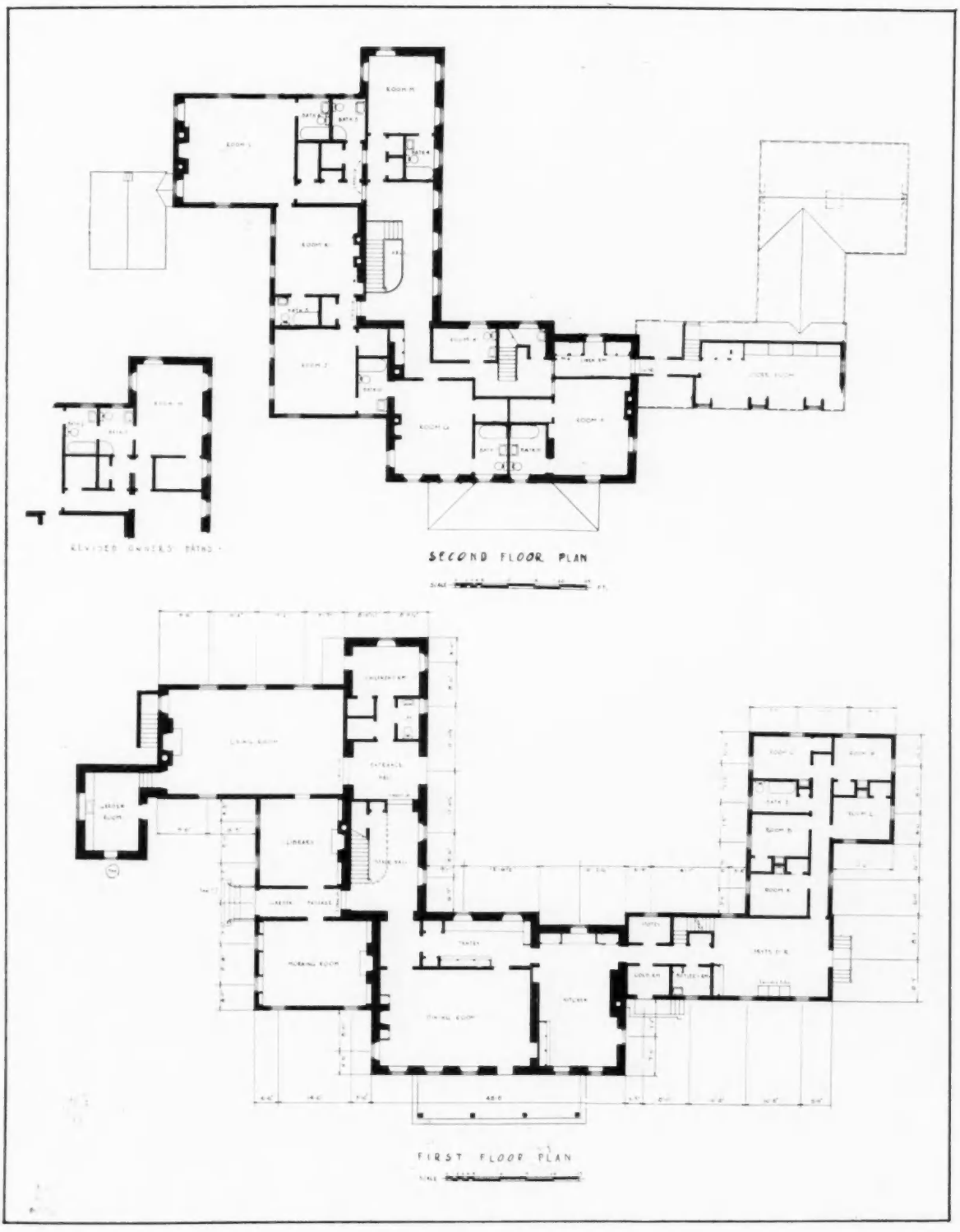
Goodstay was at one time the home of Howard Pyle and both the house and its environment are full of subtle qualities that would peculiarly appeal to a man of his tastes and disposition. The old box garden, to the west of the house, is an invaluable asset contributory to the elusive atmosphere of fascination that invests the whole place. The boxwood, fortunately, has always been kept in admirable condition and still defines the form and structure of the garden with vigorous decision, marking off in due order the straight pathways and the several parts allotted to grass, to flowers and to vegetables.

The most recent architectural task at Goodstay was to effect a closer reconciliation between all the parts of the building, to add touches of refinement and more accentuated interest where they could appropriately be made, and to remodel much of the interior. One of the most pleasant of these supplementary touches is to be seen in the doorway of the north wing which affords the main entrance to the house and opens into a broad vestibule, on one side of which is the stair hall, while immediately beyond is the great living room whose interior is altogether of new creation.

Another equally agreeable feature is the west doorway opening towards the box garden and appropriately flanked by ancient box bushes. The fireplaces and other interior details are designed for definite spaces, with an understanding of local prototypes.

Goodstay, in its final architectural effect, is totally free from that disturbing newness that we associate with the house designed and carried to completion at one time. In the century-old planting, in the informal manner in which the house has grown into its setting, there is an inevitable and satisfying charm and fitness.

(ABOVE) WEST SIDE, FROM GARDEN. (BELOW) WEST DOORWAY
"GOODSTAY", WILMINGTON, DELAWARE
EDMUND B. GILCHRIST, ARCHITECT



FIRST AND SECOND FLOOR PLANS
"GOODSTAY", WILMINGTON, DELAWARE
EDMUND B. GILCHRIST, ARCHITECT

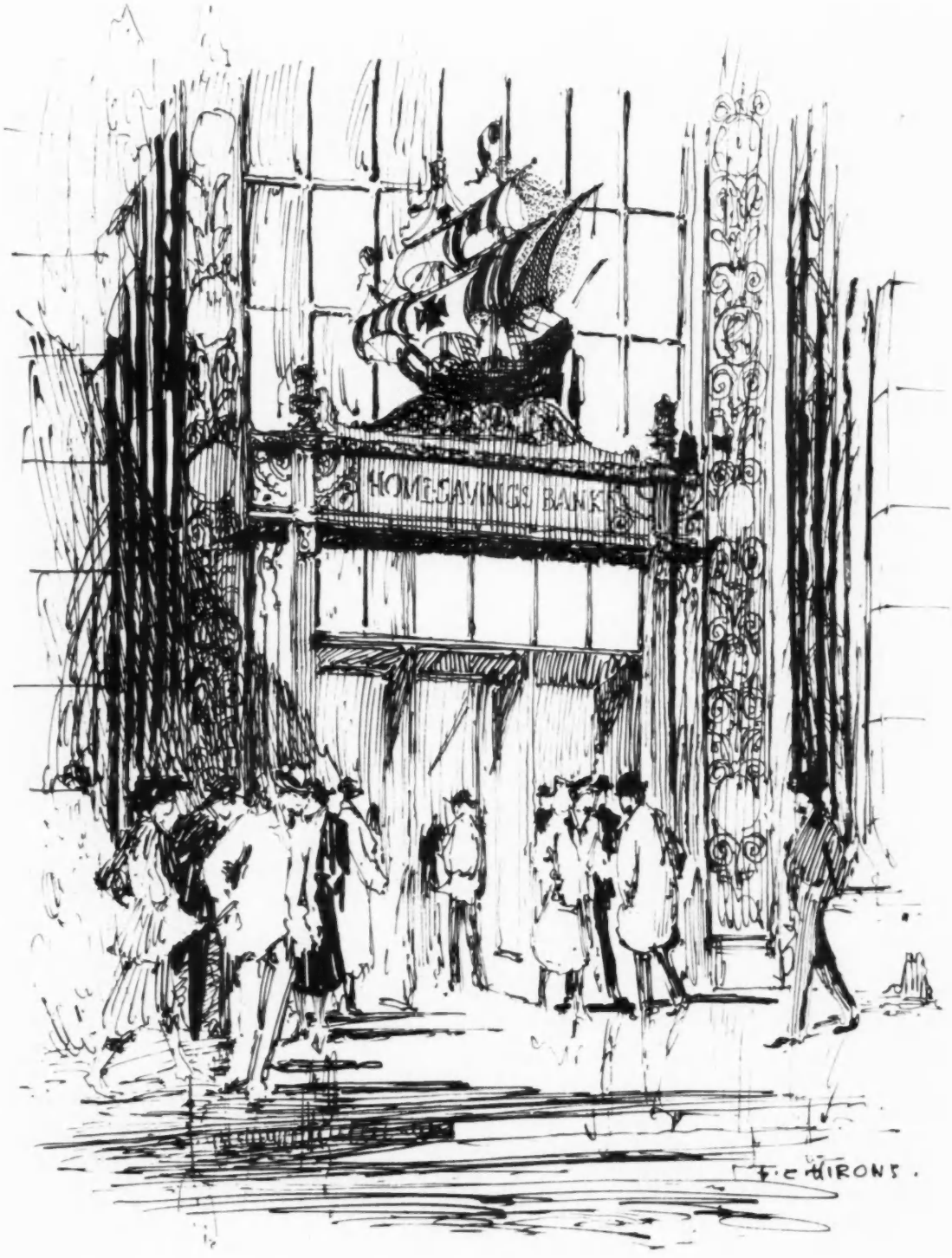
WEST END OF LIVING ROOM
"GOODSTAY", WILMINGTON, DELAWARE
EDMUND B. GILCHRIST, ARCHITECT

WEST STUDY
"GOODSTAY", WILMINGTON, DELAWARE
EDMUND B. GILCHRIST, ARCHITECT

WEST DOORWAY
"GOODSTAY", WILMINGTON, DELAWARE
EDMUND B. GILCHRIST, ARCHITECT

PORTFOLIO
OF
CURRENT ARCHITECTURE

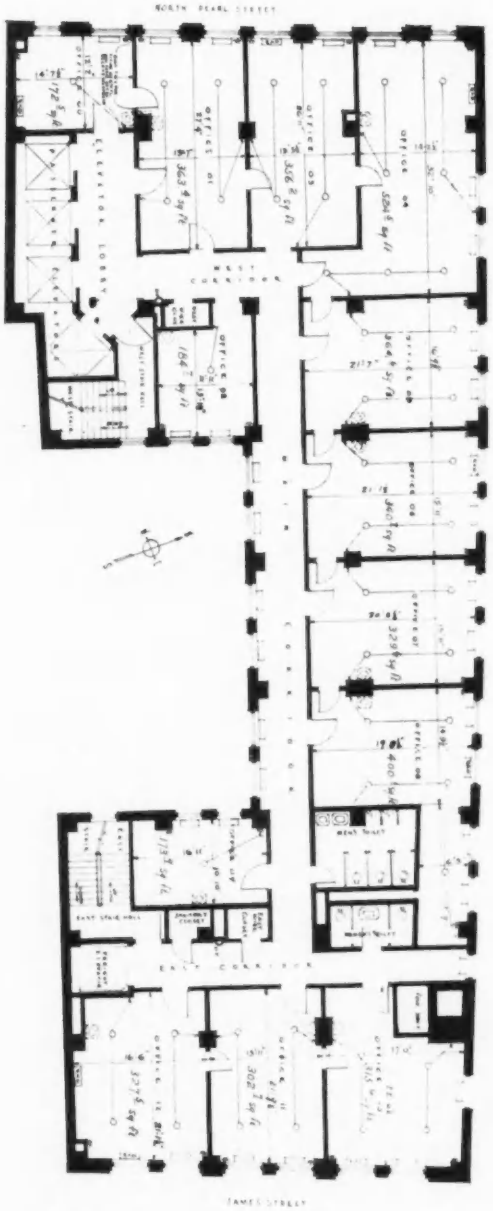
Home Savings Bank, Albany, N. Y.
DENNISON & HIRONS, ARCHITECTS



Perspective Drawing of Entrance
Home Savings Bank, Albany, N. Y.
DENNISON & HIRONS, ARCHITECTS

Photo. Gilbert, Inc.

Detail of Banking Floor
Home Savings Bank, Albany, N. Y.
DENNISON & HIRONS, ARCHITECTS



TYPICAL FLOOR PLAN

HOME SAVINGS BANK
OF THE CITY OF ALBANY, N.Y.

DENNISON & HOBART ARCHTS
40 E. 49TH STREET
NEW YORK CITY

Photo. Gillies, Inc.

Banking Room
Home Savings Bank, Albany, N. Y.
DENNISON & HIRONS, ARCHITECTS

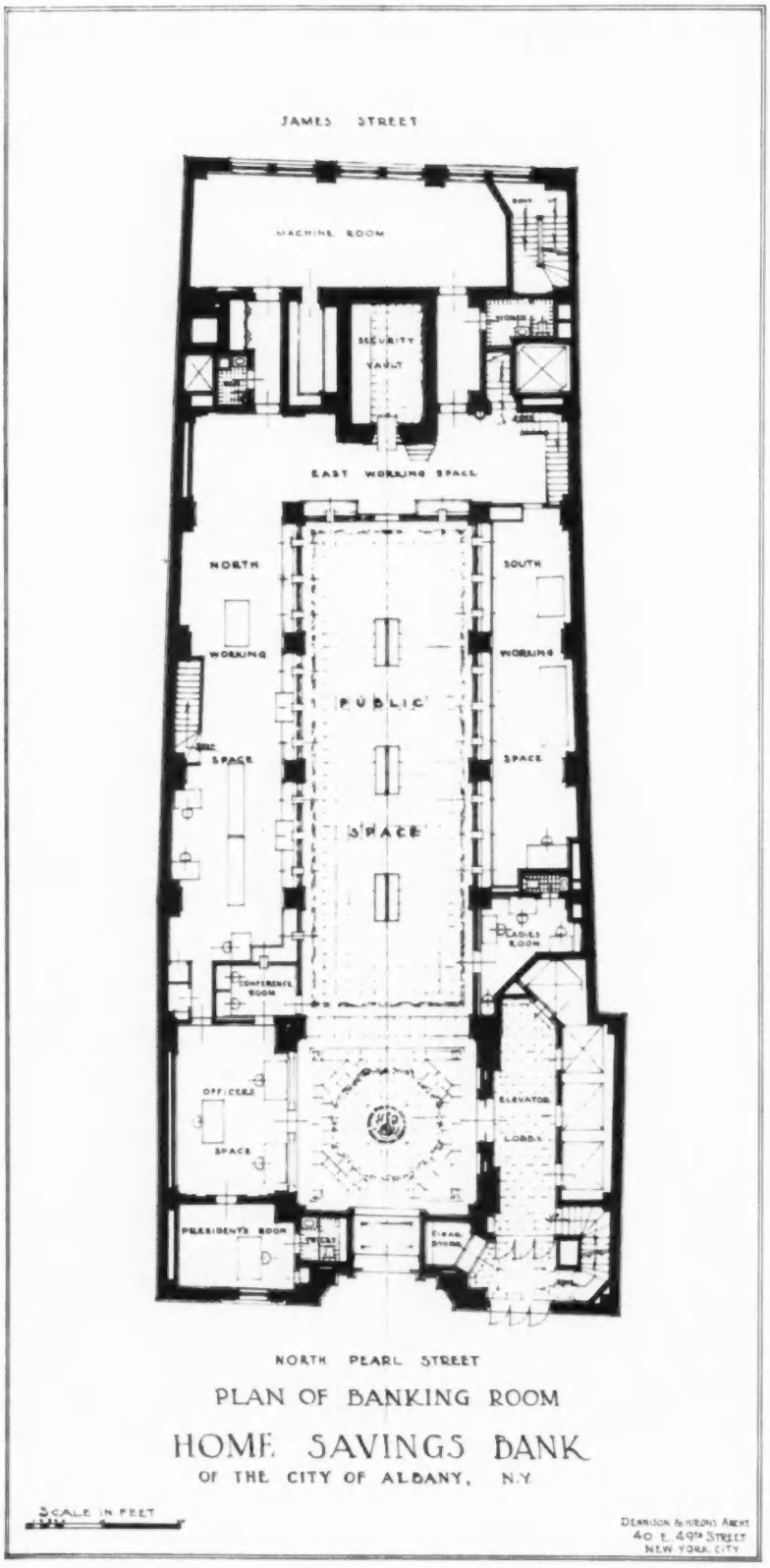

JAMES STREET
MACHINE ROOM
SECURITY VAULT
EAST WORKING SPACE
NORTH
WORKING
SPACE
SOUTH
WORKING
SPACE
PUBLIC
SPACE
LADIES ROOM
CONFERENCE ROOM
OFFICERS
SPACE
ELEVATOR
LOBBY
PRESIDENT'S ROOM
CIGAR STORE
NORTH PEARL STREET
PLAN OF BANKING ROOM
HOME SAVINGS BANK
OF THE CITY OF ALBANY, N.Y.
SCALE IN FEET
DENNISON & HIRONS ARCHT
40 E. 49th STREET
NEW YORK CITY

Photo. Gillies, Inc.

Detail of Interior, near Entrance
Home Savings Bank, Albany, N. Y.
DENNISON & HIRONS, ARCHITECTS

Photo. L. Dreyer

Detail of Ornament
Home Savings Bank, Albany, N. Y.
DENNISON & HIRONS, ARCHITECTS

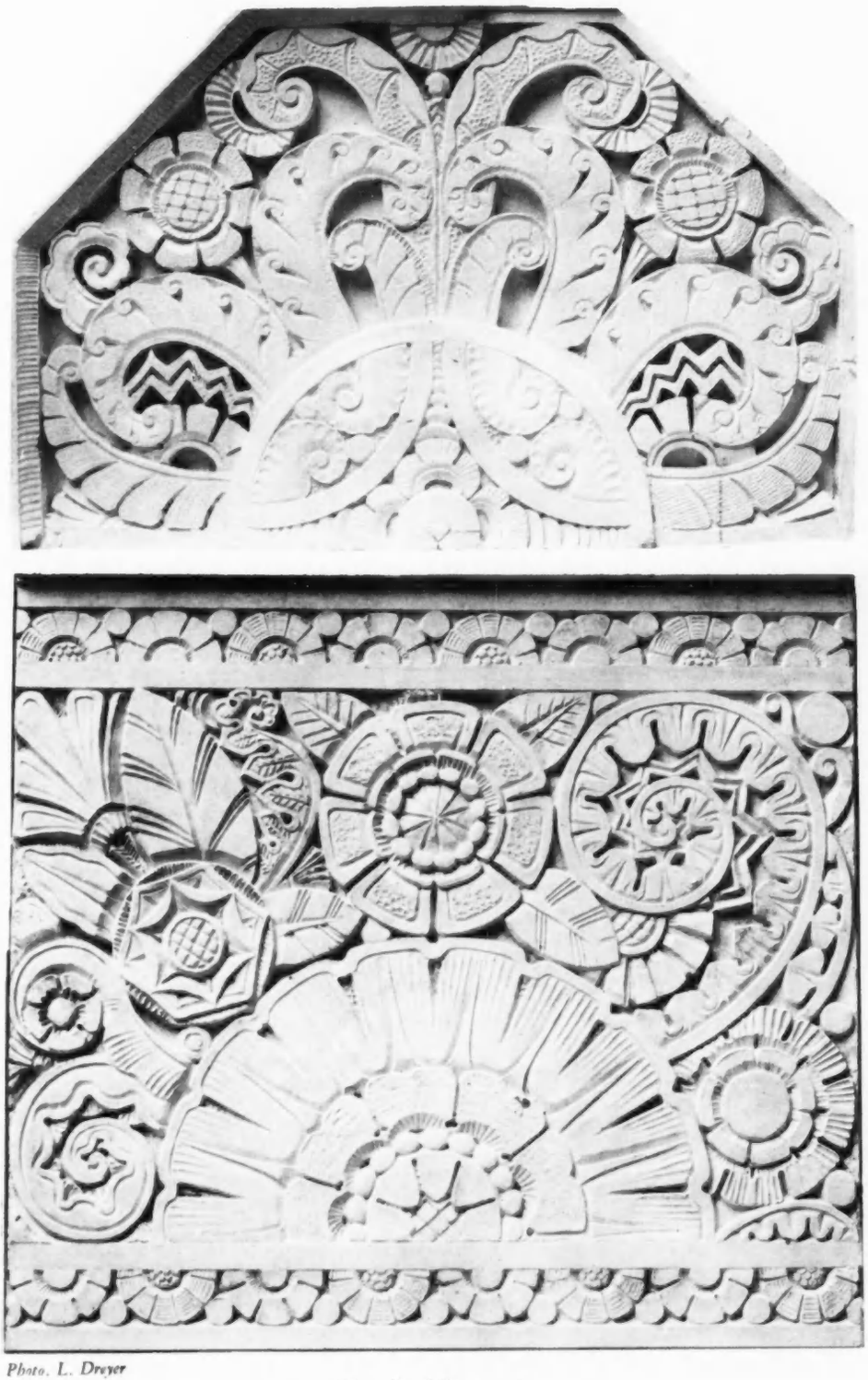
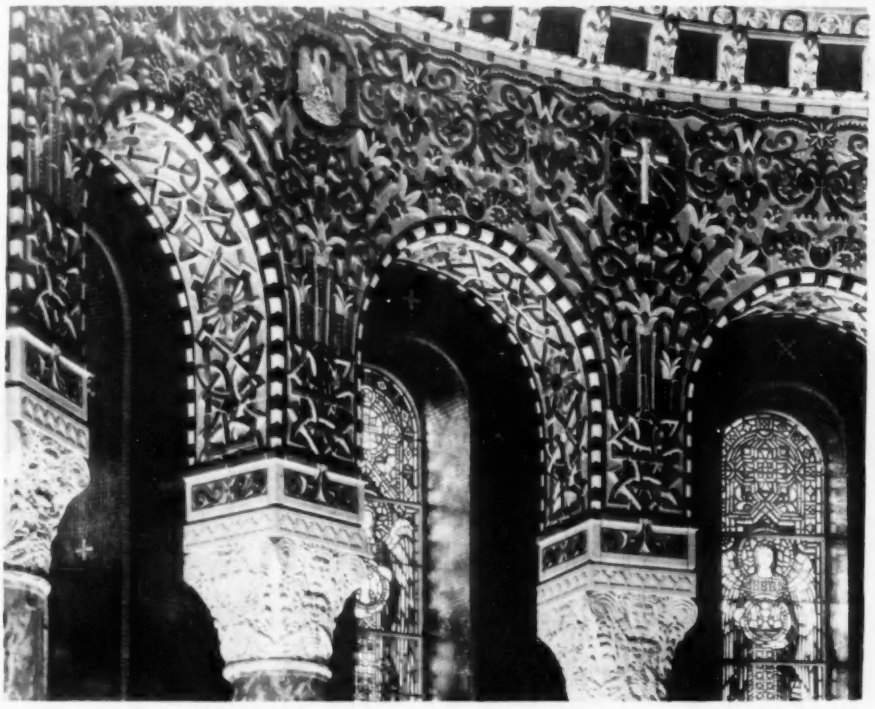


Photo. L. Dreyer

Detail of Ornament
Home Savings Bank, Albany, N. Y.
DENNISON & HIRONS, ARCHITECTS

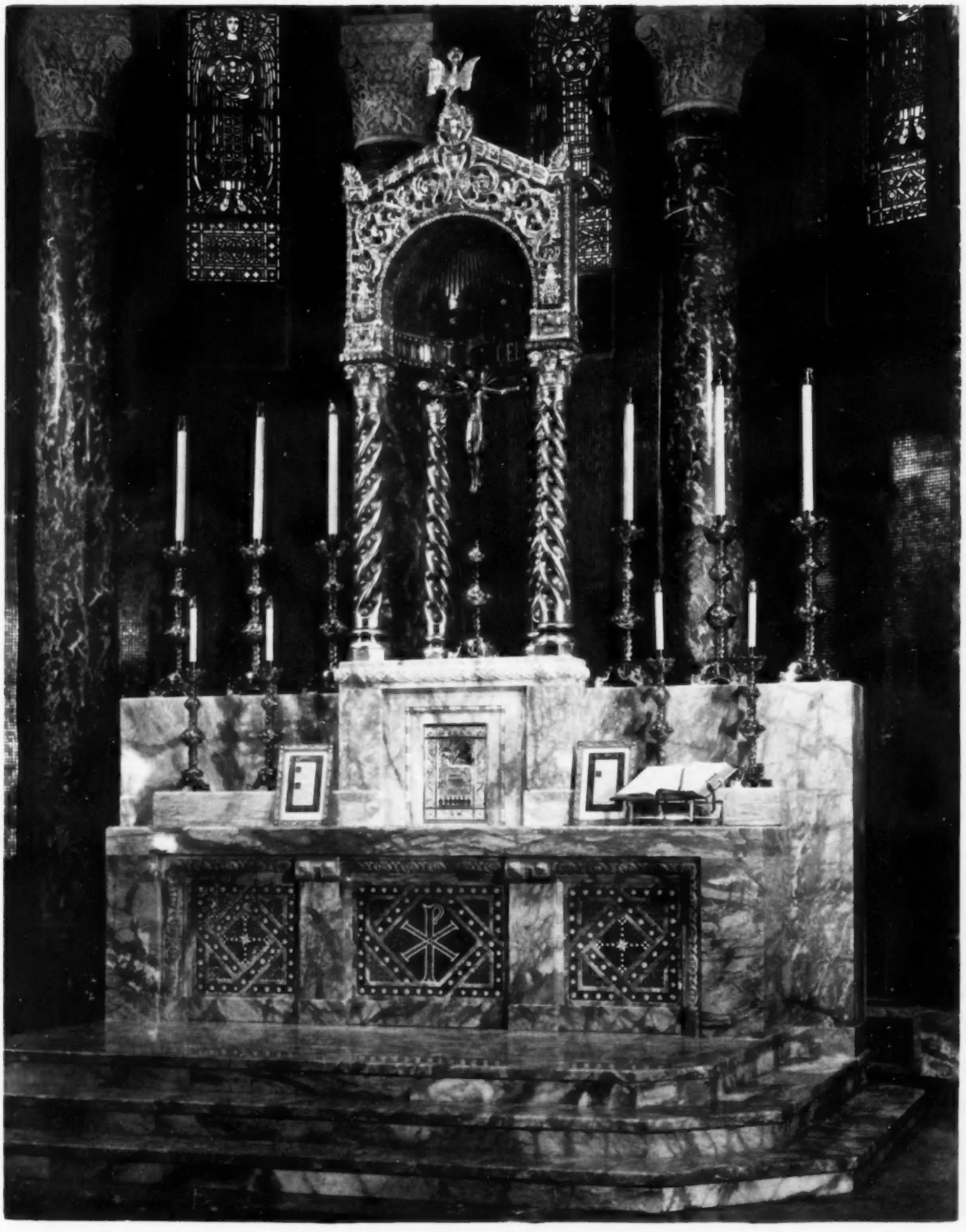


(Above) Detail of Side Entrance (Below) Detail of Arches of the Apse
The Church of the Transfiguration of Our Lord, Philadelphia, Pa.
HENRY D. DAGIT & SONS, ARCHITECTS

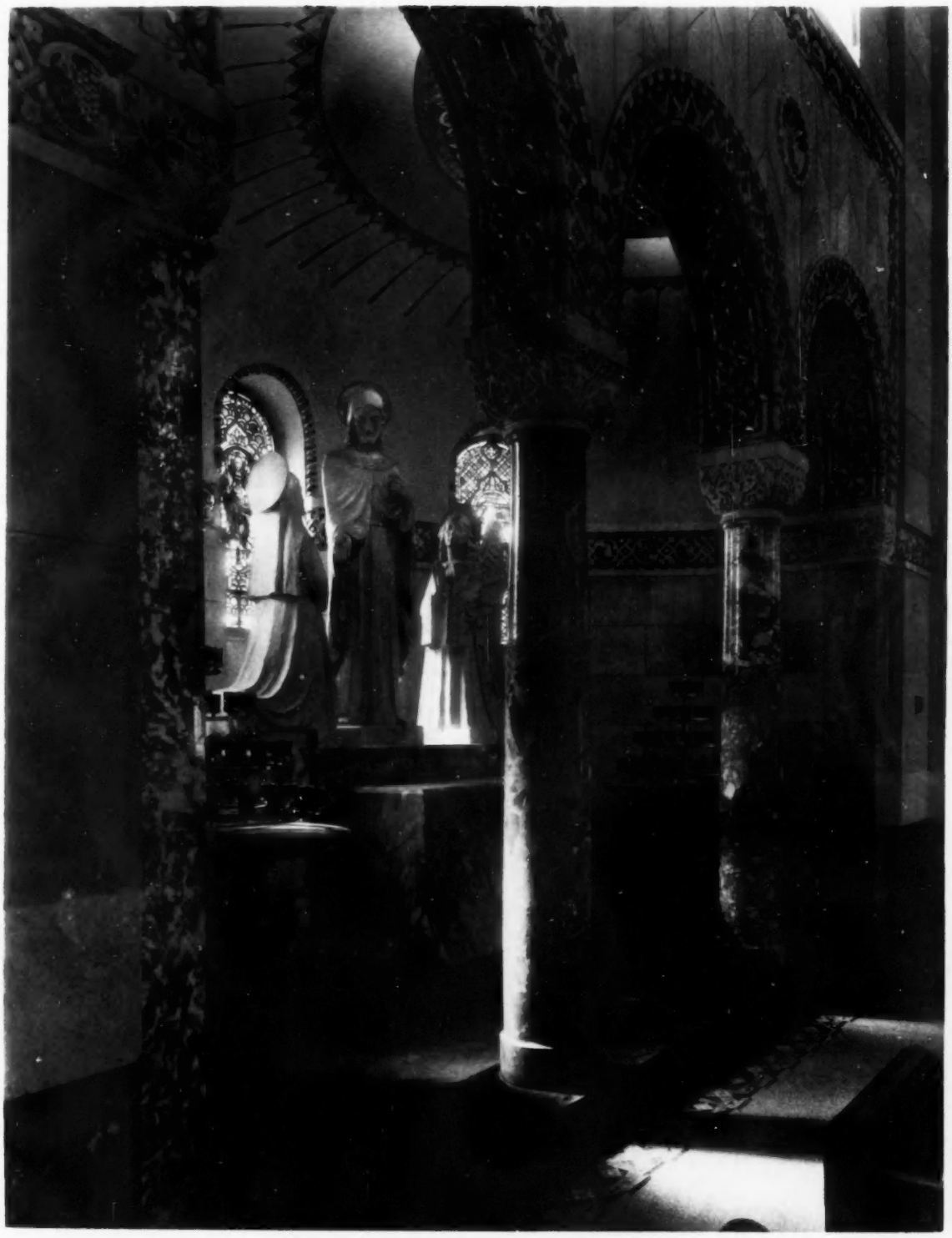
Color has been employed in various media in the interior of the Church of the Transfiguration—in marble, faience tile, terra-cotta, etc. The columns of the nave arcades are of Italian marbles of various colors though the same general tone prevails. Each of the fifty marble-and-limestone capitals in the nave is of different design. Solid *Languedoc* marble columns support the apse arcade; arches are of brick covered with colored dull-glazed faience tile. Polychrome faience tile is used for the walls of the Sanctuary and for the figures above the carved-oak organ screen; the cornice is of polychrome terra-cotta. Yellow Sienna marble in solid slabs 6″ to 12″ thick has been used for the altar and 6″ slabs of yellow Mori marble for the pulpit. The Sacred Heart Shrine is carved in Botticini marble.

Looking Toward Sanctuary from the Crossing of the Nave
The Church of the Transfiguration of Our Lord, Philadelphia, Pa.
HENRY D. DAGIT & SONS, ARCHITECTS

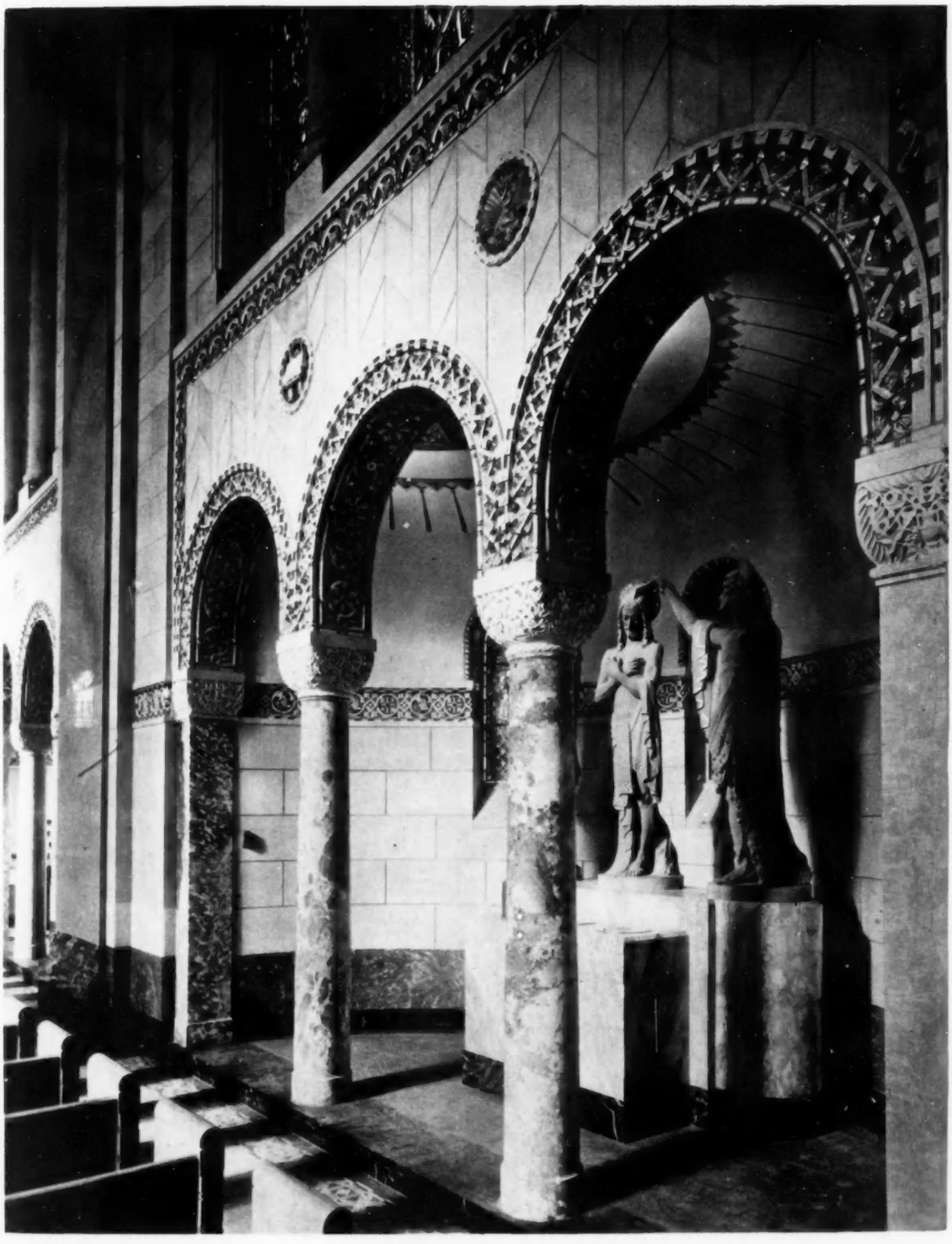
Pulpit
The Church of the Transfiguration of Our Lord, Philadelphia, Pa.
HENRY D. DAGIT & SONS, ARCHITECTS



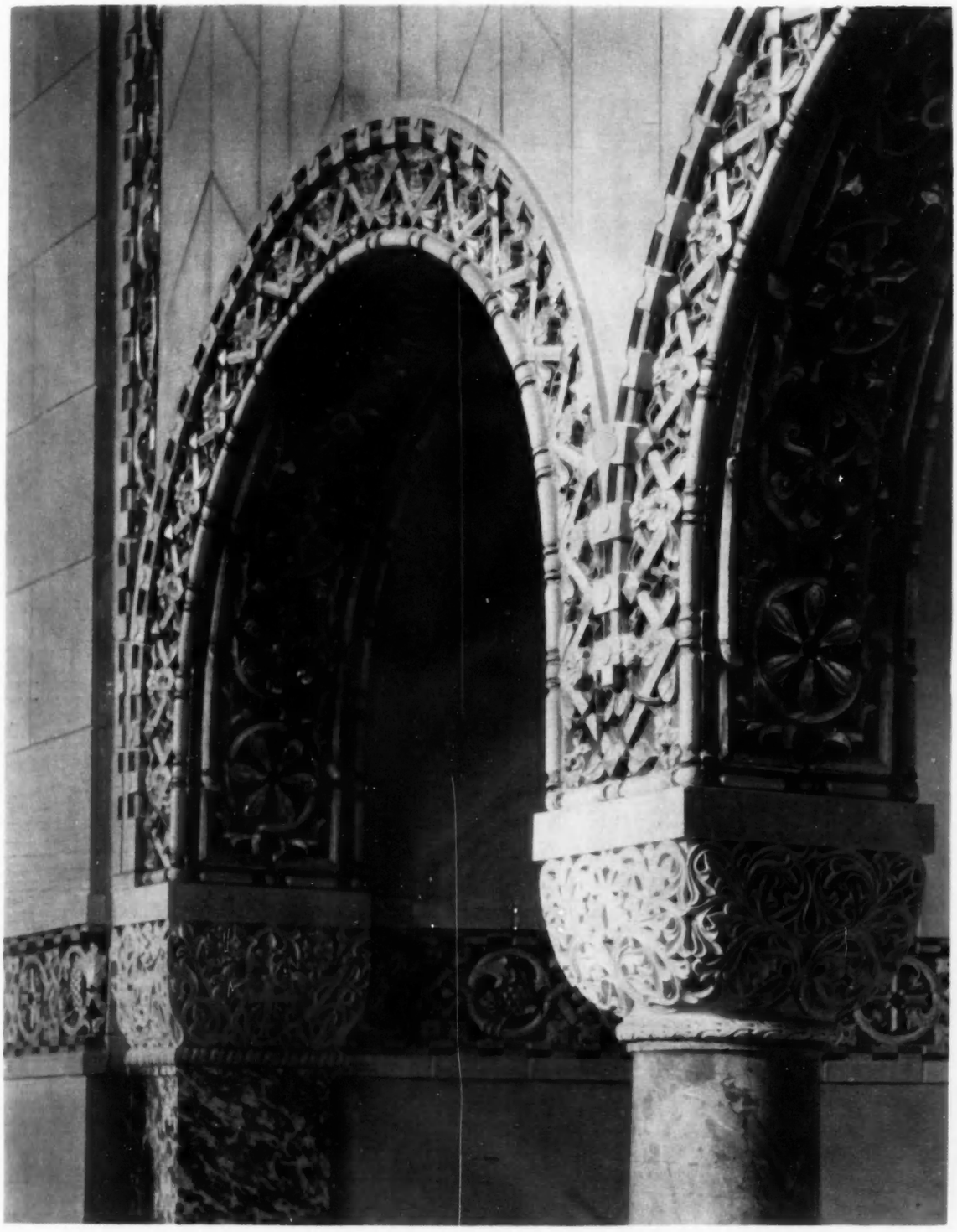
Detail of High Altar
The Church of the Transfiguration of Our Lord, Philadelphia, Pa.
HENRY D. DAGIT & SONS, ARCHITECTS



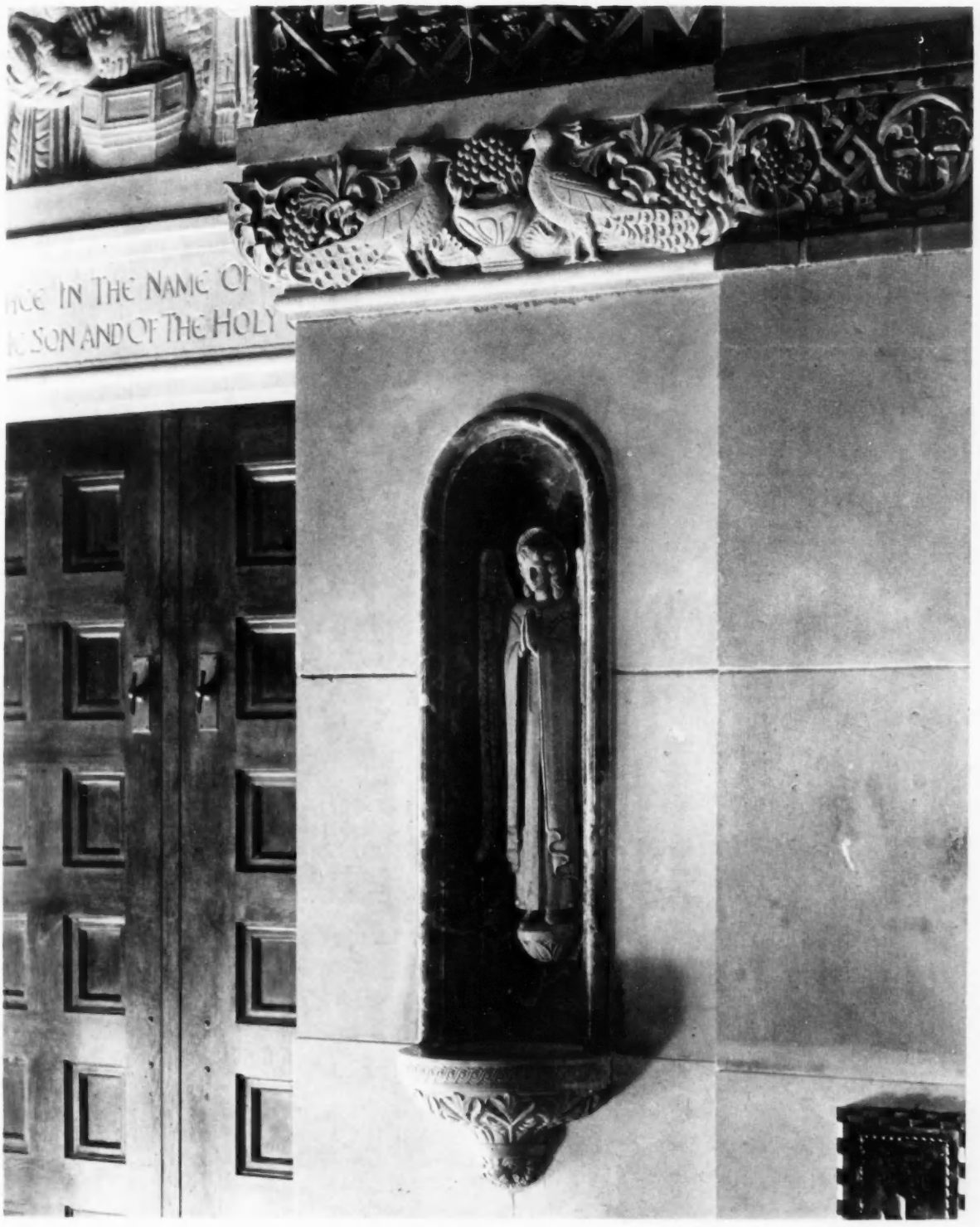
Shrine of the Sacred Heart
The Church of the Transfiguration of Our Lord, Philadelphia, Pa.
HENRY D. DAGIT & SONS, ARCHITECTS



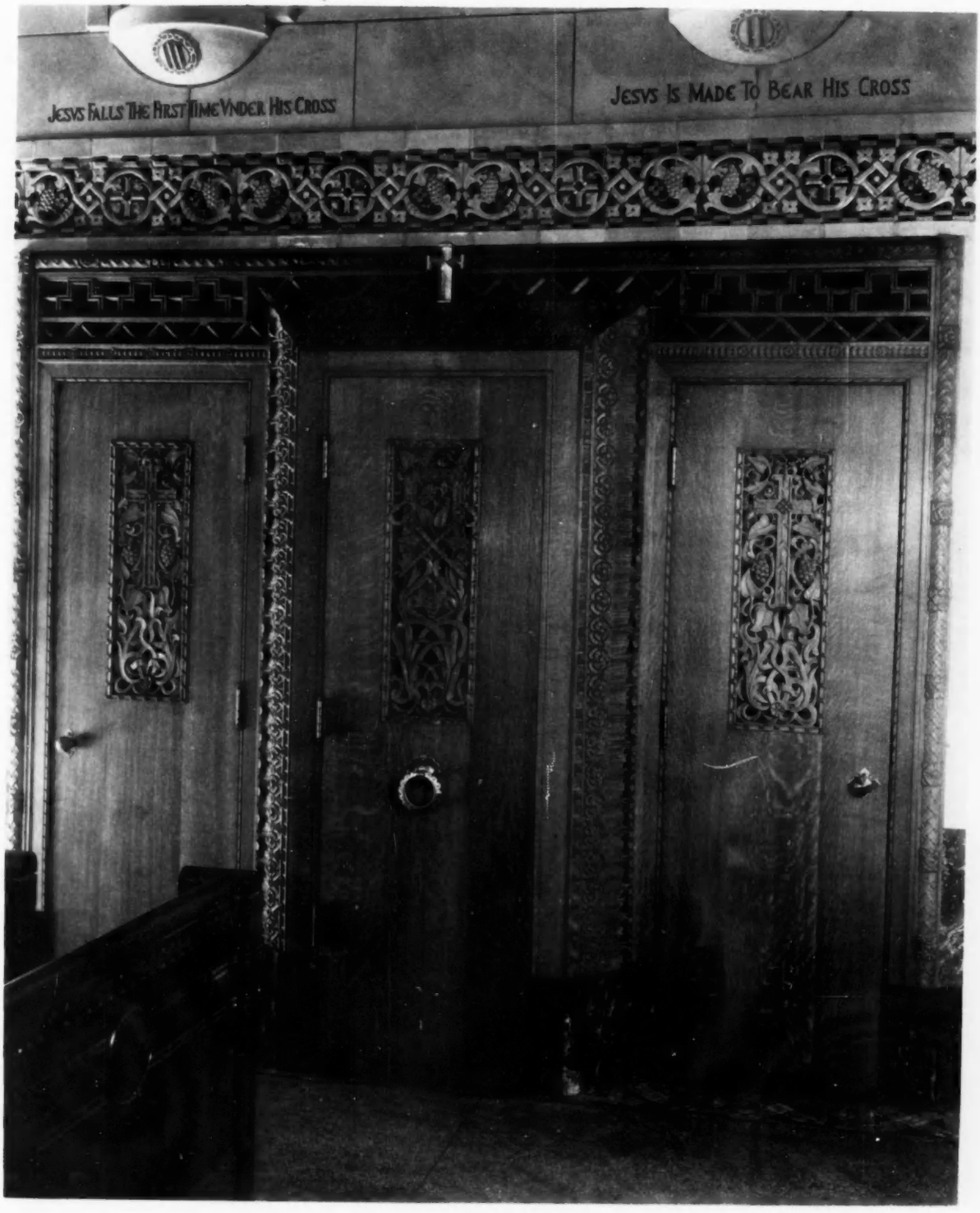
The Baptistry
The Church of the Transfiguration of Our Lord, Philadelphia, Pa.
HENRY D. DAGIT & SONS, ARCHITECTS



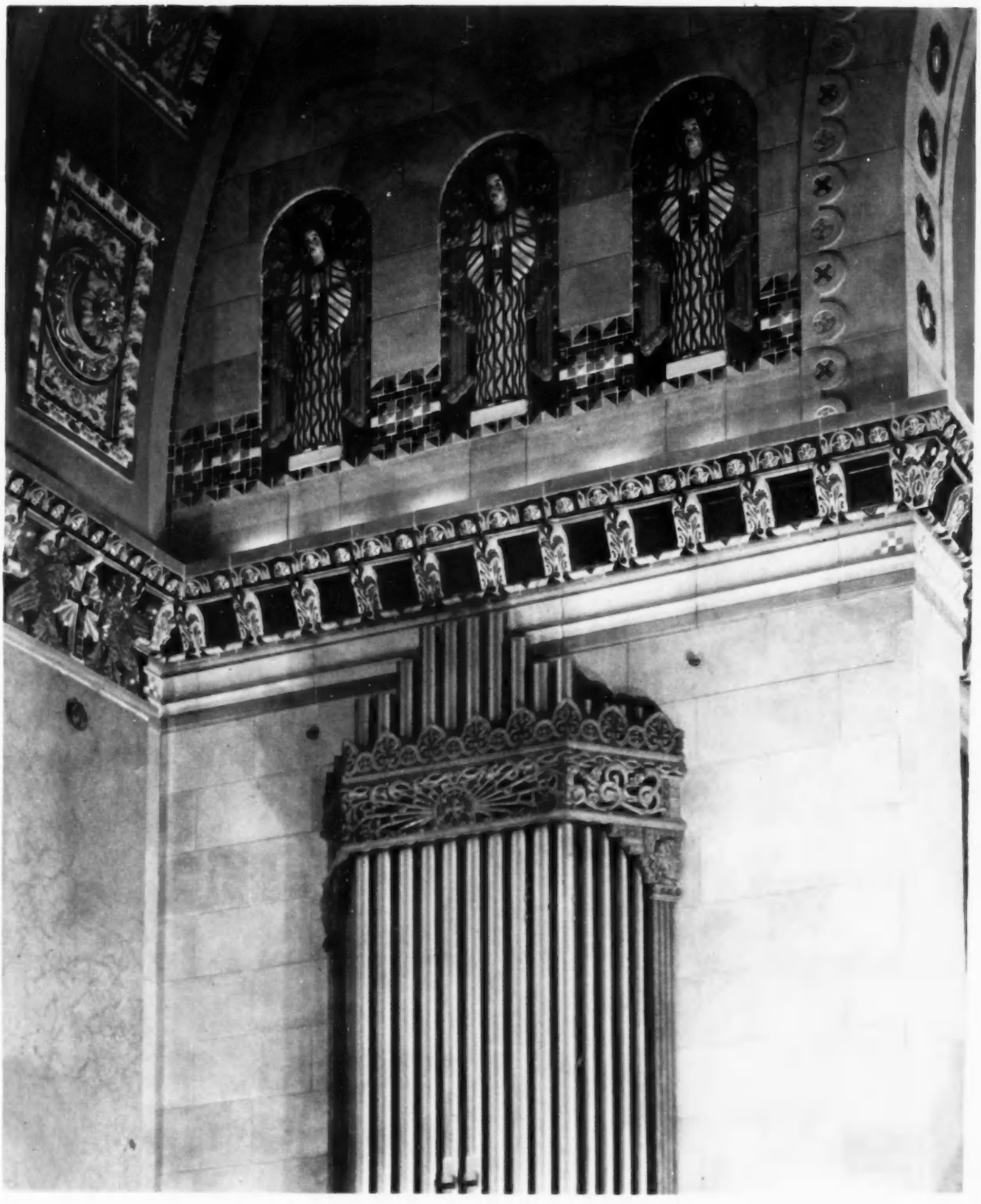
Detail of Capital and Arch
The Church of the Transfiguration of Our Lord, Philadelphia, Pa.
HENRY D. DAGIT & SONS, ARCHITECTS



Holy Water Font
The Church of the Transfiguration of Our Lord, Philadelphia, Pa.
HENRY D. DAGIT & SONS, ARCHITECTS



Pew Screen and Confessional
The Church of the Transfiguration of Our Lord, Philadelphia, Pa.
HENRY D. DAGIT & SONS, ARCHITECTS



Detail of Organ Screen
The Church of the Transfiguration of Our Lord, Philadelphia, Pa.
HENRY D. DAGIT & SONS, ARCHITECTS

ITALIAN STONEWORK

BY MYRON BEMENT SMITH

PART IV

At the beginning of the sixteenth century, when the center of Renaissance activity moved from Florence to Rome, the re-born Fine Arts had already been given their most vigorous and youthful presentation. Repetition alone remained, with such changes of detail as the invention of the artist might suggest.

One detail in particular claimed architects' attention, namely, surface treatment of the stonework. It is well known that Roman *travertine*, a limestone of interesting texture, works easily under the chisel and may be given a surface which few stones can equal. Ancient Rome possessed many monuments faced with this material—monuments which remain to-day as witness to the permanence and elegance of *travertine*. The color range includes cold and warm tints of ochre, pink and brown.

Another building stone native to the Roman Dintorni is *tufa*, a rock of volcanic ash origin and of several qualities. One of the best is *peperino*, so called from the "pepper-corn" lumps that occur in its structure. It is dark brown in color, weathers well in some instances, takes coarse tooling and is hard. But with the superior *travertine* at hand it is not to be wondered that both the Roman and the Renaissance builders found few uses for *tufa* as a surfacing material.

THE ROMAN PALACES

Pal. Lofari, Via del Pianto, built about 1485. (Fig. 101.) The Roman acceptance of diamond rustication that swept over Italy in the sixteenth century left traces particularly in Venice, Ferrara and Bologna. The diamond bosses project straight for ¾″ and then bring their points out 4¼″ farther. The flats between the bosses are 1⅛″ wide. Courses are 16½″ high with bosses 19″ long.

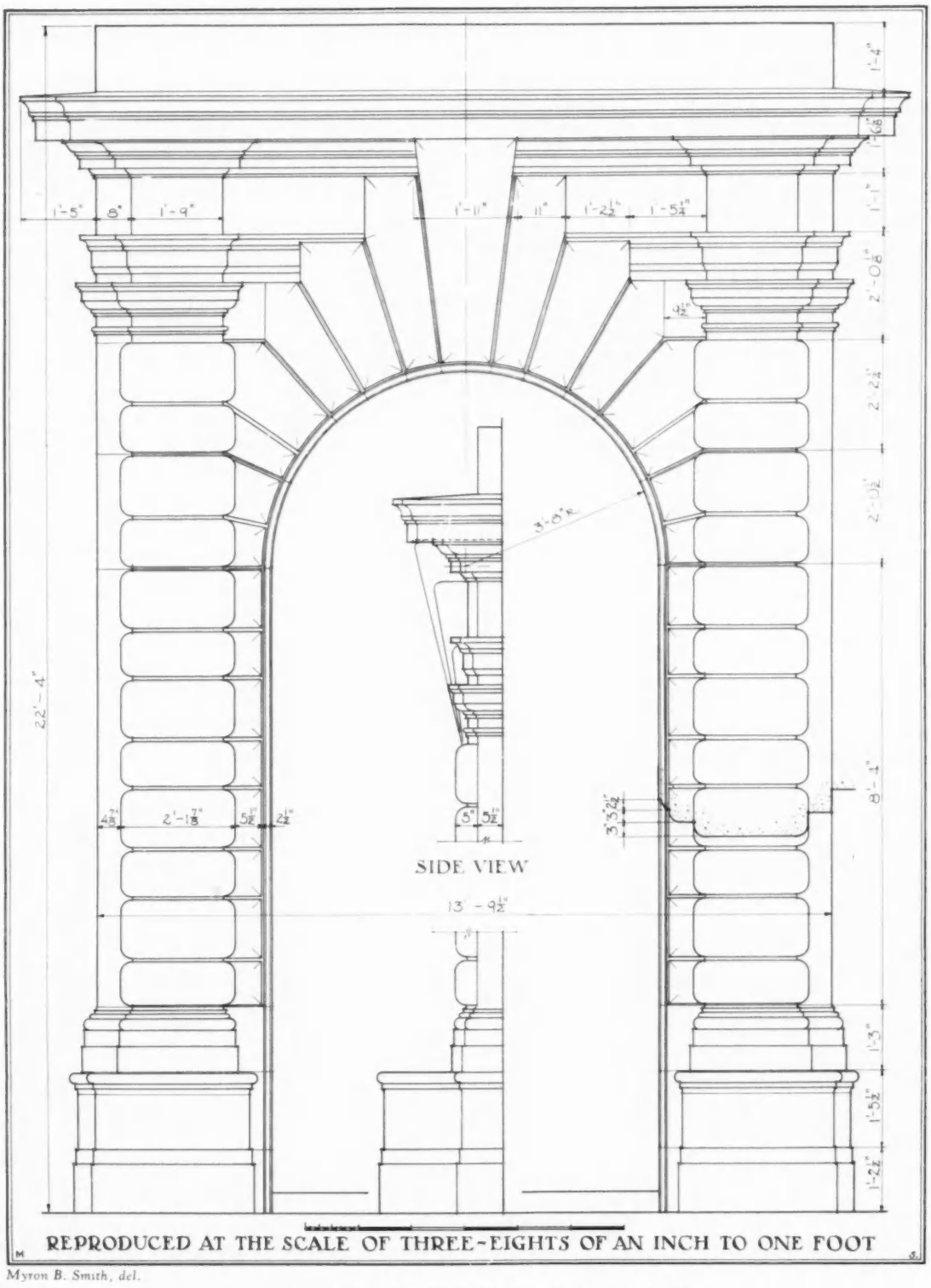
Pal. Giraud, (Adriano di Corneto), by Bramante, 1503-1506. (Fig. 98.) Of *travertine* from the Basilica Julia in the Forum, possibly left with its original rustication in parts, as there are many false channels and blind joints. The basement plinth is channeled vertically on the left half of the façade but not on the right, a detail that Letarouilly did not note in his measured drawings. The courses are 14¼″ and 14½″ high, channels 1¼″ to 1⅜″ wide; bosses project 7/16″. A ⅝″ draft sets off the angles.

Pal. Cicciaporci, by Giulio Romano and Raphael, 1521. (Figs. 91 and 99.) Course heights are 17½″, 8¾″, 17½″, 9″ etc. Channels 1″ wide and ⅞″ deep. Adaptation of old material is evident, as there are many blind joints and false channels.

Pal. Linotta, 1525, attributed to both Bald. Peruzzi and Ant. San Gallo. (Figs. 97 and 104.) An entire façade with a loggia was freely restored in 1901. Fig. 97 shows original twin openings with stonework rough tooled vertically in courses 13″, 9″, 12″, 9″, 13″, etc., high and with a boss projection of 2¾″. Fig. 104 shows an original detail of what was formerly the main portal with three interesting surface treatments of the *travertine*.

Pal. Stoppani-Vidoni, central portion with vertical channels was designed by Raphael c. 1525. (Figs. 92, 93 and 108.) This palace was possibly constructed under the supervision of Giulio Romano.

Pal. Spada Minor, attributed to Vignola, c. 1550. (Fig. 86 and Plate III.) Of *peperino* tufa with the body of the design in brick. One of the most attractive portal designs in Rome. The stonework is broached on the bosses, the grooves carrying across the voussoirs of the arch at an angle vertical to the radii.



Myron B. Smith, del.

PORTAL OF THE LITTLE SPADA PALACE, ROME

PLATE III. ITALIAN STONEWORK

FIG. 86. LITTLE SPADA PALACE, ROME
CIRCA 1550

FIG. 87. PALACE MACCARANI, ROME
GIULIO ROMANO, ARCHITECT

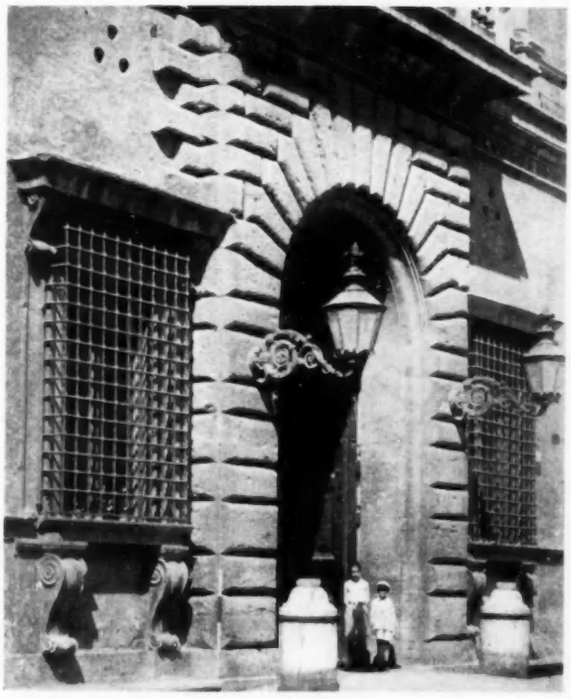


FIG. 88. PALACE FARNESE, ROME
ANT. SAN GALLO, ARCHITECT. CIRCA 1530

FIG. 89. PALACE ON CORSO VITTORIO, ROME

ITALIAN STONEWORK. PART IV

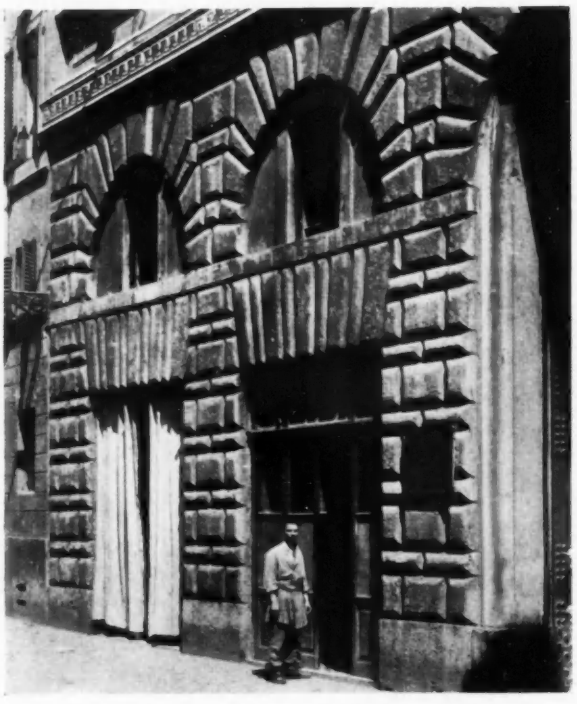


FIG. 90. PALACE RONDANINI, ROME
CIRCA 1856

FIG. 91. PALACE CICCIAPORCI, ROME
G. ROMANO AND RAPHAEL, ARCHITECTS, 1521

FIG. 92. PALACE STOPPANI-VIDONI, ROME
G. ROMANO AND RAPHAEL, ARCHITECTS

FIG. 93. PALACE STOPPANI-VIDONI, ROME
G. ROMANO AND RAPHAEL, ARCHITECTS

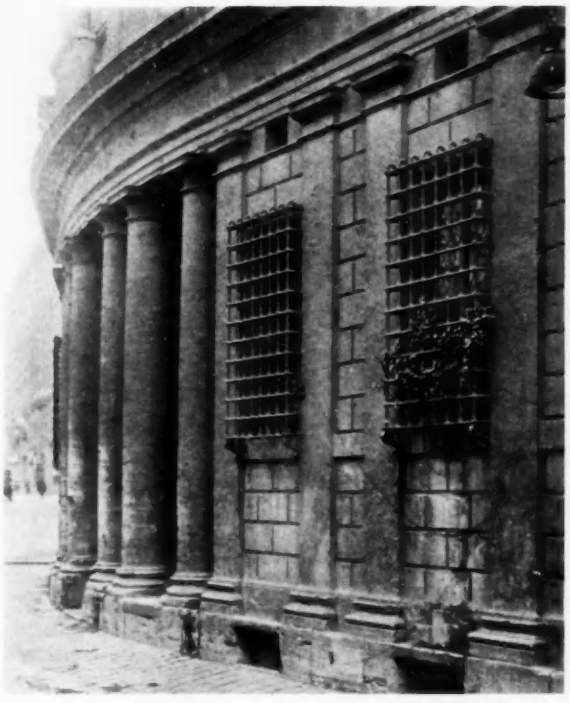


FIG. 94. PALACE PIETRO MASSIMI, ROME
BALD. PERUZZI, ARCHITECT, 1532

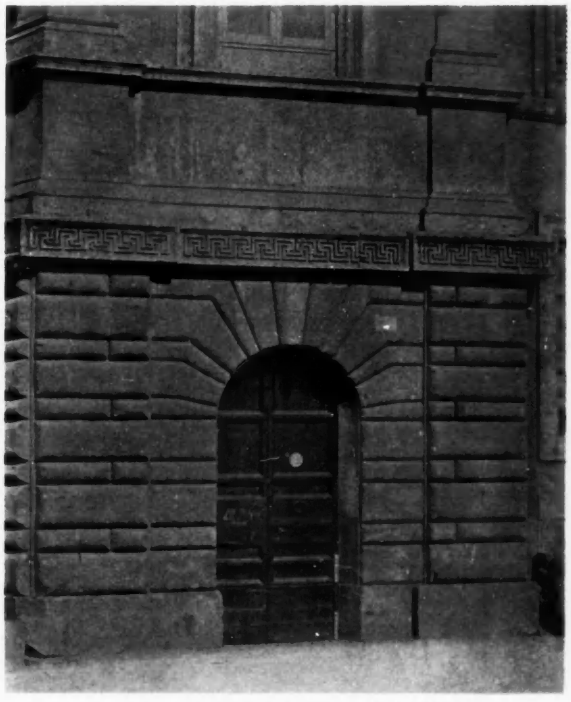


FIG. 95. SIDE, BANCO SAN SPIRITO
ANT. SAN GALLO, 1532

FIG. 96. SMALL DOOR, PALACE CARPEGNA, ROME

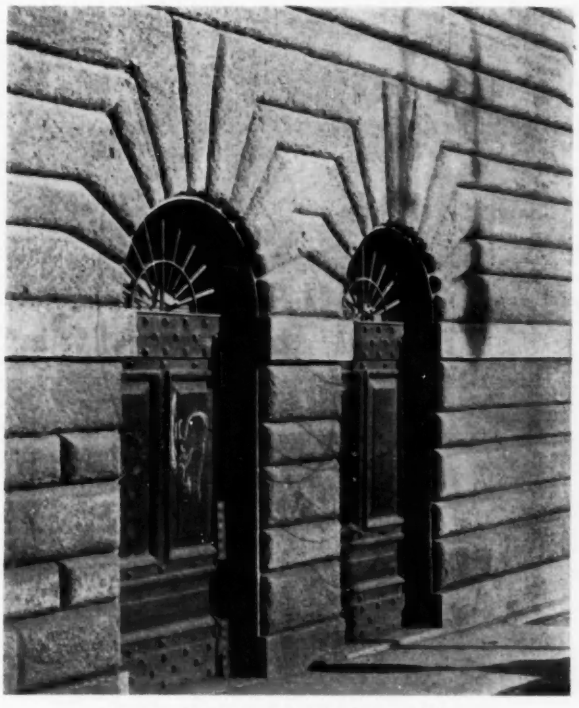


FIG. 97. PALACE LINOTTA, ROME
BALD. PERUZZI, ARCHITECT, 1525

FIG. 98. DETAIL OF BASEMENT PLINTH, PALACE CORNETO-GIRAUD, ROME

FIG. 99. DETAIL OF PORTAL AND WALL, PALACE CICCIAPORCI, ROME

FIG. 100. DETAIL OF BASEMENT WALL, PALACE PIETRO MASSIMI, ROME

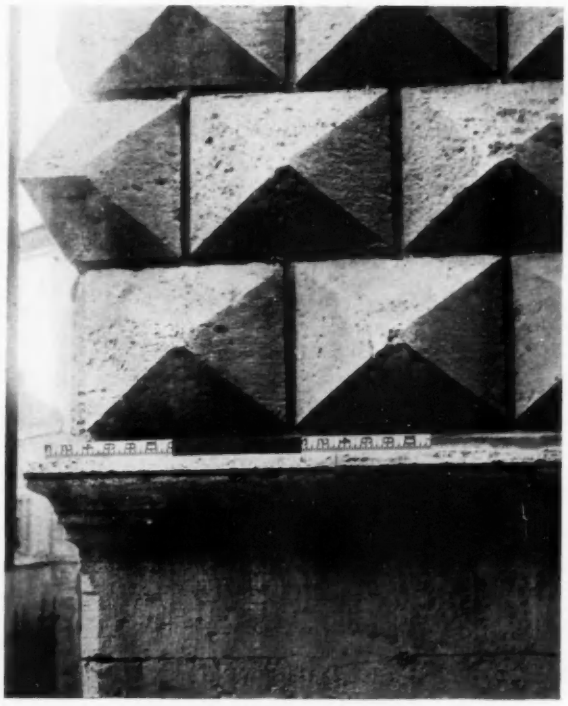


FIG. 101. WALL DETAIL, PALACE LOFARI CIRCA 1485

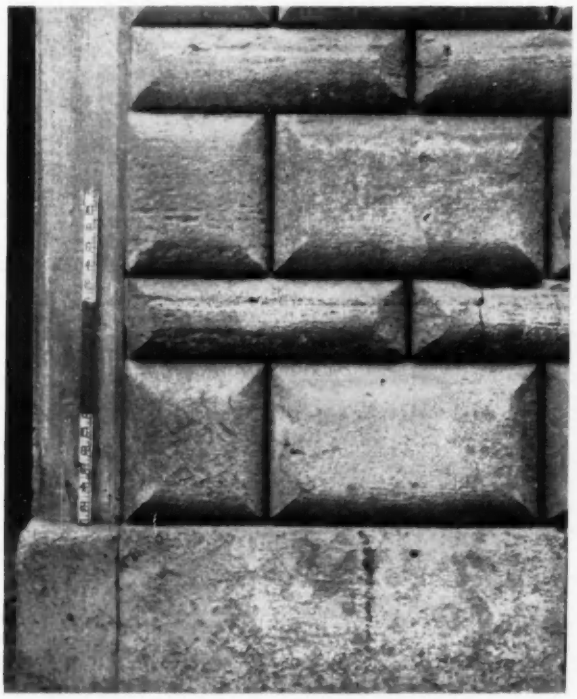


FIG. 102. DETAIL OF WALL,
PALACE RONDANINI, ROME

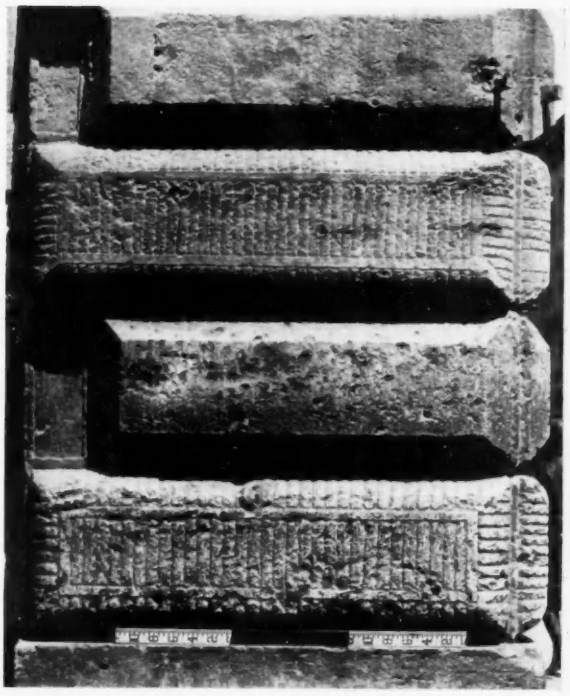


FIG. 103. ANGLE DETAIL,
PALACE IN PIAZZA COLONNA, ROME

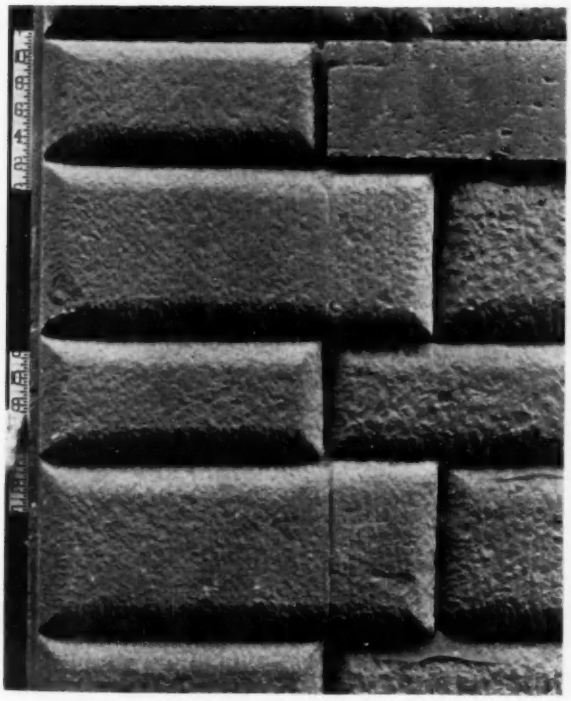


FIG. 104. RUSTICATION AT PORTAL,
PALACE LINOTTA, ROME

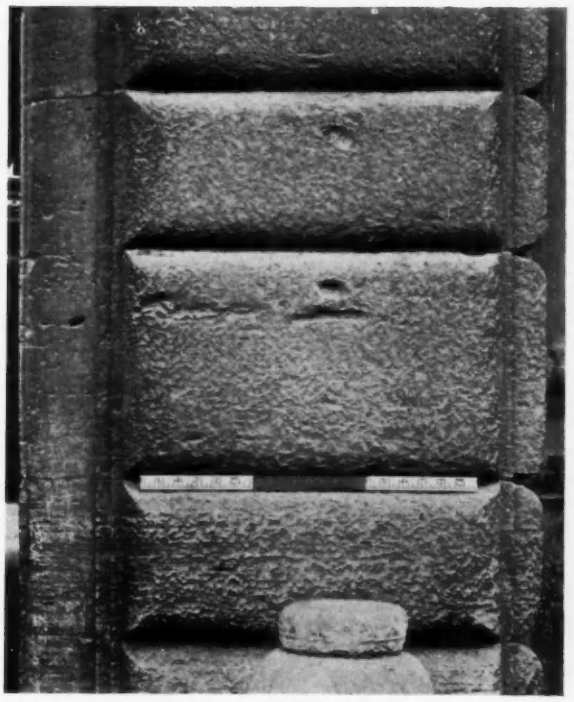


FIG. 105. JAMB OF PORTAL,
PALACE FARNESE, ROME

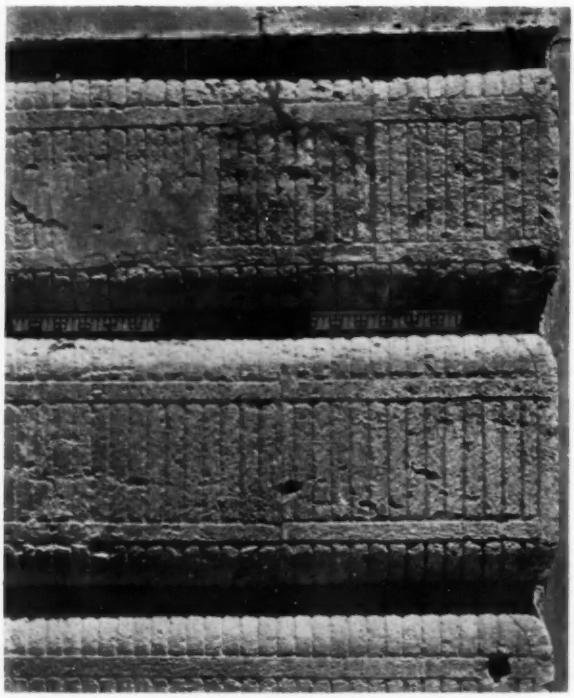


FIG. 106. DETAIL OF RUSTICATION, PALACE BORGHESE, ROME

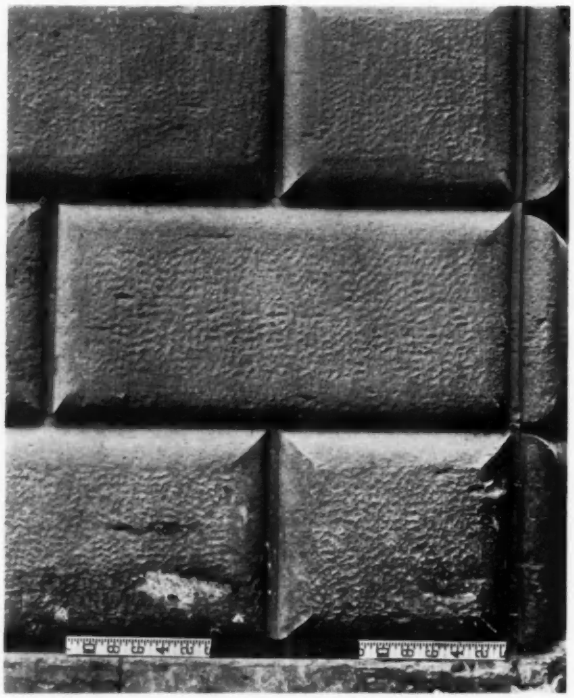


FIG. 107. ANGLE DETAIL, PALACE BRASCHI, ROME

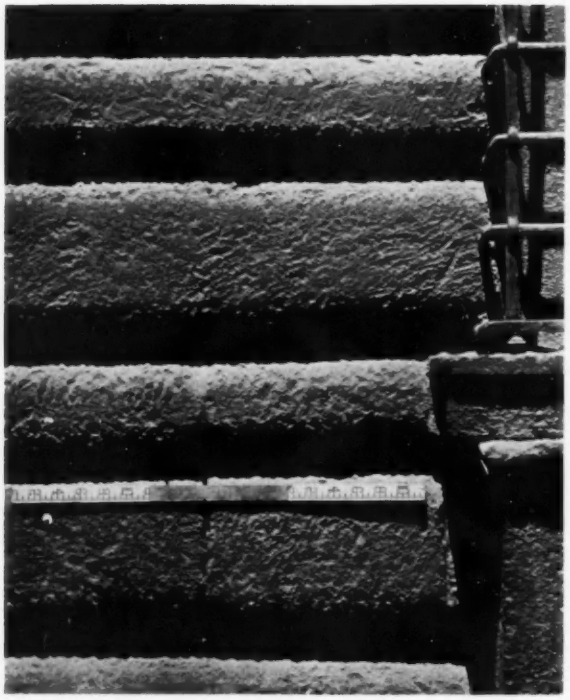


FIG. 108. WALL DETAIL, PALACE STOPPANI-VIDONI, ROME

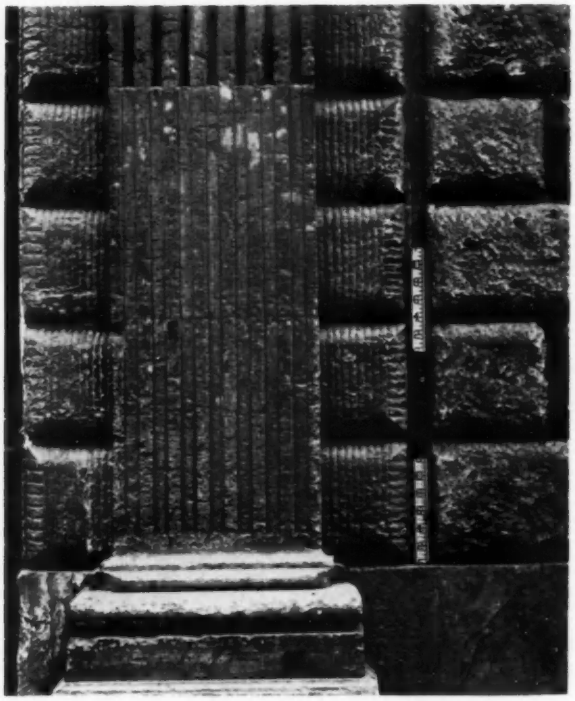


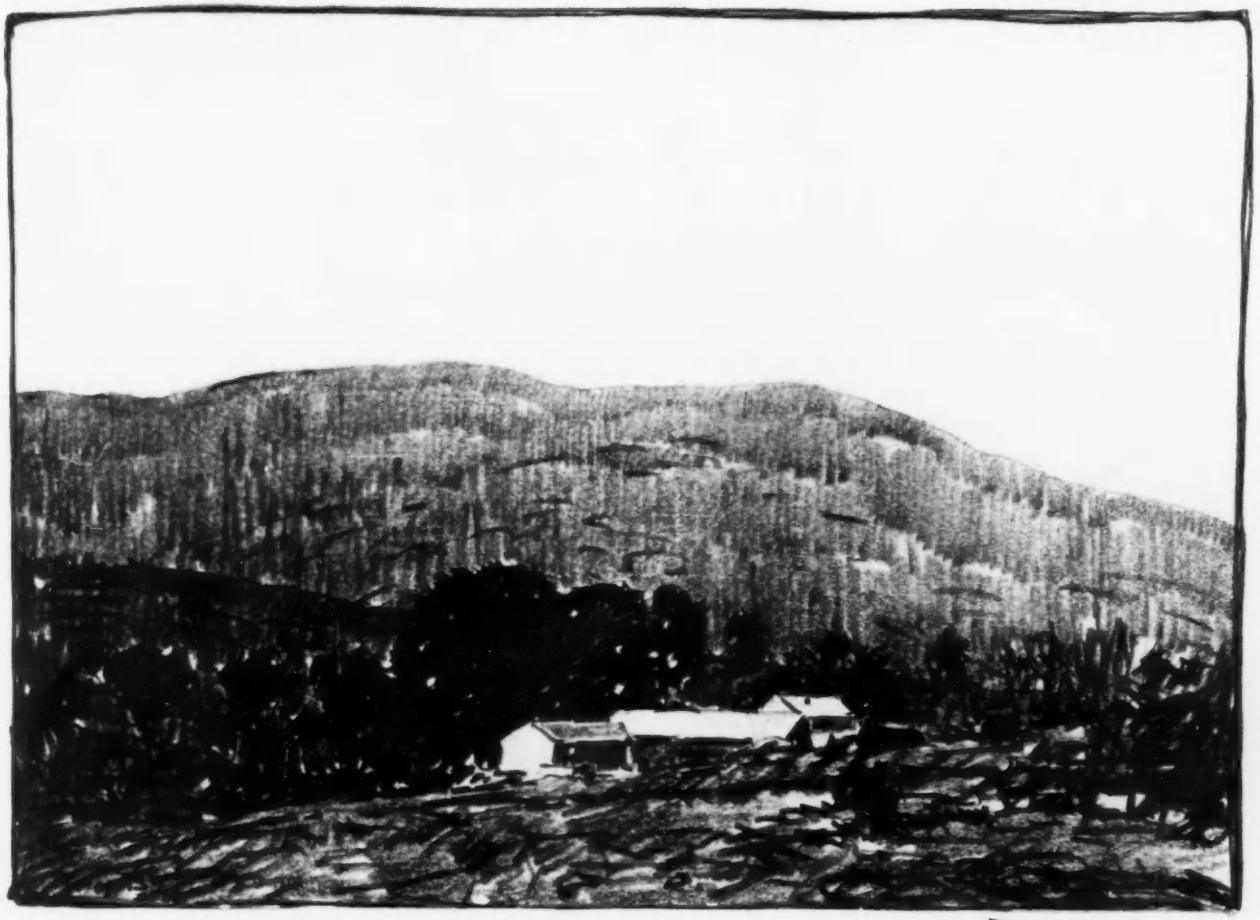
FIG. 109. DETAIL OF PORTAL, COLLEGE SALV. ROMANO, ROME

PENCIL SKETCHES

ANTRIM, NEW HAMPSHIRE

By

ROY BROWN



SKETCH ONE

SKETCH TWO

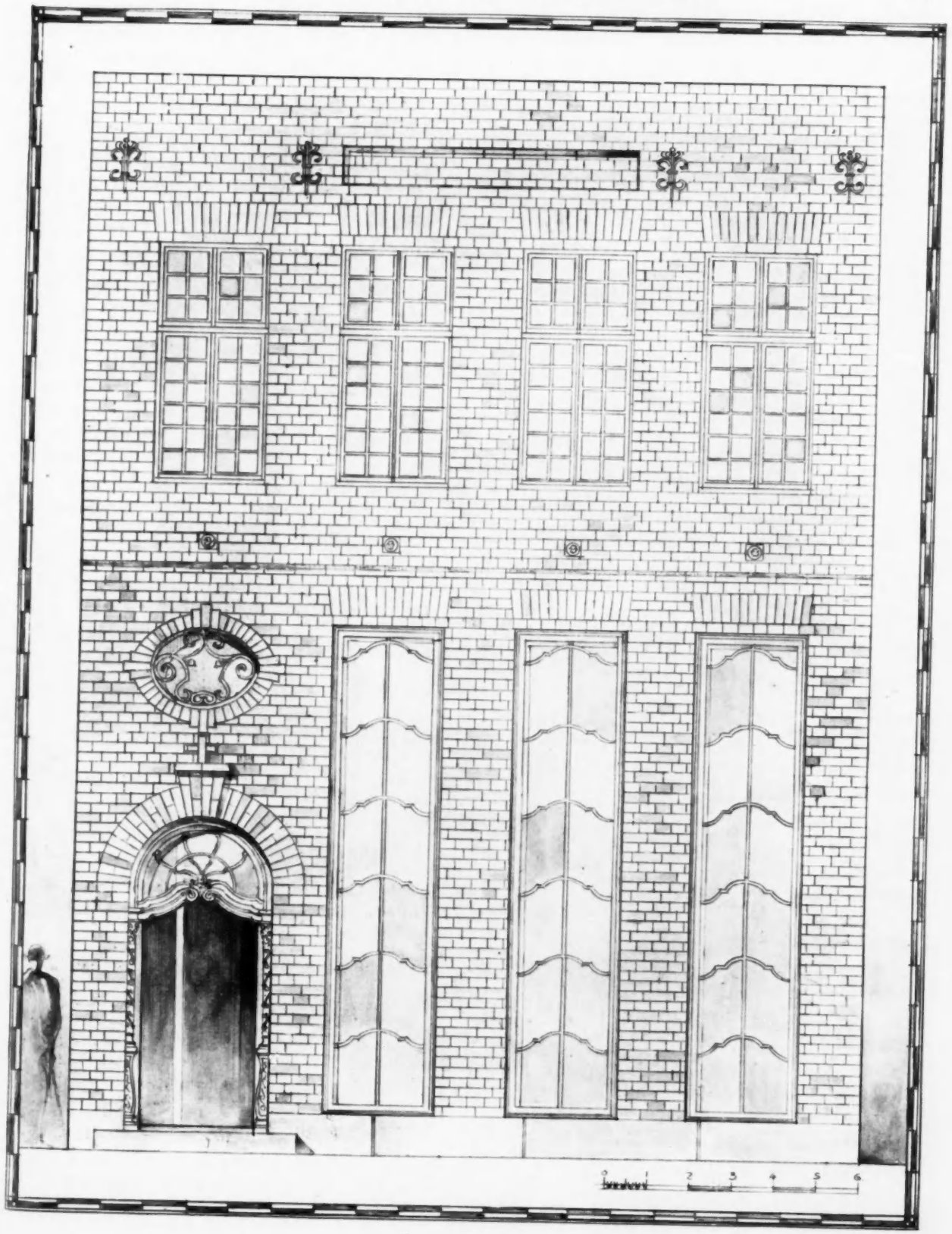
SKETCH THREE

SKETCH FOUR

SKETCH FIVE

Photo by Robert W. McLaughlin, Jr.

A SHOP IN COPENHAGEN, DENMARK



A SHOP IN COPENHAGEN, DENMARK

Photo by Robert W. McLaughlin, Jr.

A SHOP IN COPENHAGEN, DENMARK

TWO PROBLEMS OF ARCHITECTURE

THE OUTSTANDING problems in the practice of architecture are (1) how to adjust design to the conditions created by mass production and (2) how to adjust the general practice of architecture to the conditions created by modern technics in the useful arts, including commerce and industry, which tend to segregate architects into groups of specialists—hospital architects, school architects, bank architects, and so on.

Both problems derive from the same cause, which is the distinguishing and governing fact of modern life, namely, the extension of the research method of science—observation, hypothesis, deduction, experimental verification—to the useful arts, from education and medicine to commerce and industry.

The research method of science is a procedure for the discovery of principles. That it is applicable in the useful arts has been sufficiently demonstrated. Whether it is applicable in the fine arts is often questioned. But if, as modern scientific thought postulates, science is a faceted whole concerned with all natural phenomena because these are reciprocal, if geology, for example, is one such facet or branch of science using the data of physics, chemistry and biology, if psychology cannot be divorced from anatomy, chemistry and electricity, if esthetics, being inseparable from psychology, deals exclusively with natural phenomena, what reason is there to think that the research method valid in science and in the useful arts is not equally valid in the fine arts?

Indeed, considering the reciprocity of natural phenomena, what objective cleavage is there between art and science or between the useful arts and the fine arts?

MODERN DESIGN

Presumably, then, the problem of how to adjust design to mass production is capable of solution through discovery of principles by scientific procedure—observation, hypothesis, deduction and experimental verification. A hypothesis in this connection is any supposition made in order to deduce from it principles of design that will accord with the facts of standardized fabricated materials and manufactured equipment and with the trade operations of assembling and putting them together in the construction of buildings. Experimental verification of the principles deduced consists in applying them to designs for buildings. If the buildings receive general approbation from informed critics, say, architects, the principles have been practically verified, and you have modern design or modern architecture.

Obviously, hypotheses formed upon a limited knowledge of the facts of mass production and of construction methods, or in semi-ignorance of the facts of design in generally admired buildings of earlier periods, are not likely to yield principles worth putting to the test of experiment.

Capricious hypotheses account for a large share of illogical design. They originate mainly in failure to eliminate mythological elements from the concept of art. The most common, perhaps, is a survival from Platonic philosophy, which predicated an immaterial world of archetypes. These have been rationalized into abstract ideas, and the search for abstract beauty or the archetype of beauty persists.

If hypotheses were based exclusively upon observed facts—upon phenomena evident to the senses—progress in adjusting design to mass production would be far more rapid. This increasingly is being done by those architects, here and abroad, who are the recognized leaders of the modernist movement. Their hypotheses have the appeal of scientific thinking and their design, always interesting as experiment, is often beautiful. One can appreciate the logic

of a hypothesis which runs something like this: The purpose of mass production is economy; hence, design, in order not to defeat this purpose, should achieve beauty through mass, grouping, proportion, and other fundamentals of composition. Or, fabricated materials have beauty of color and texture; therefore, adapt design to the decorative qualities of materials.

Modernism, in so far as it is vital, is an attitude of mind—the scientific attitude, which declines to accept as facts statements that cannot be verified by the senses and which uses a certain method of investigation—observation, hypothesis, deduction, experimental verification. This method is neither more nor less than the trial-and-error method used in every drafting room. The trial-and-error method is scientific because it is the way the normal mind works, although generations of learned debate were expended to reach agreement upon this everyday fact.

SPECIALIZATION IN PRACTICE

The general acceptance of scientific concepts and procedure has created a desire for accurate observation and precise experiment in all professions and occupations. Thus, a modern hospital uses a great variety of mechanical devices in diagnosis, therapeutics and surgery; also, there is a great variety of departments and activities. The data bearing on equipment and operation which an architect must gather to plan a hospital have mounted in number, and this is of course true with respect to other classes of building.

The complexity of functional planning seems to invite, perhaps to demand, specialization in practice. On the other hand, the data for such planning, which develop outside the profession of architecture, are being compiled and systematized in the professions and occupations that produce them. The lack of authoritative books of reference is being remedied, and specialists are available for consultation.

Probably the need to specialize in the practice of architecture is less today than it was ten years ago, when functional data had to be gathered more extensively by word of mouth from clients, mostly corporate executives, whose knowledge was confined to a narrow personal experience.

TECHNICAL NEWS AND RESEARCH

The foregoing paragraphs explain the attitude of this magazine towards two problems in its field of service which have come to engage the practical interest of many architects, and which therefore demand systematic editorial attention.

We will try to learn whether specialization in practice is increasing and what its advantages and disadvantages are. Whatever the results of this investigation, we recognize the universal need for specialized information in planning and will publish the new developments—not yet available through books of reference—connected with the planning of buildings.

How to adjust design to machine technics, in our opinion, is not a problem of disembodied, abstract art, but a problem inseparable from and conditioned by modern planning and construction. In publishing examples of design, we will therefore select those which seem logical and promising from this point of view. Acting upon the supposition (hypothesis) that progress in architecture depends upon a more extensive and accurate knowledge of modern planning and construction, we will publish new data— not text book data—related to construction as well as data related to planning.

In order to symbolize this enlargement of the scope of the editorial service, the present issue contains a department entitled Technical News and Research.

MICHAEL A. MIKKELSEN

TECHNICAL NEWS AND RESEARCH

SCULPTURE AT END OF SWIMMING POOL
ESTATE OF F. M. POTTER, ESQ., ROME, N. Y.
HARRY STERNFELD, ARCHITECT
GAETANO CECERE, SCULPTOR

Featuring
SWIMMING POOLS

SWIMMING POOLS

(Standards for Design and Construction)

BY A. LAWRENCE KOCHER AND ROBERT L. DAVISON

At this time, there is a distinct opportunity for creative thinking by architects who, in the design of swimming pools, have followed precedent too closely. This study attempts to approach an architectural problem by the determination of what is desirable practice in contrast with what is common practice. It also points out some of the special pool problems which have not been completely solved and indicates the need in certain directions for further experiment by architects and engineers. It would appear that thought should be directed so as to combine artistic merit, suitability of materials and arrangement. Our findings and recommendations have been checked by designers and swimming instructors.

Other studies, similar in approach, will follow in subsequent issues of The Record.

1. SIZE

(A). WIDTH and LENGTH.

The minimum size of swimming pools is determined by rules of the National Collegiate Athletic Association, as follows:

"Pools for championship meets shall be at least 60 feet in length, 20 feet in width and have a water depth of at least 7 feet in the deep and not less than 3 feet in the shallow end, and the maximum height of take-off for all races shall be not more than 18 inches above the surface of the water." [1(a)]

In pools of larger size the width should be a multiple of 5 feet. (The minimum width of lane required.) It is accepted practice to have the length three times the width. Sixty, seventy-five, ninety, one hundred and five and one hundred and twenty feet are standard lengths.

Mr. E. T. Kennedy of Columbia University, a member of the Rules Committee for Swimming of the National Collegiate Athletic Association, expressed the opinion that a 35 x 75 foot pool is ideal for racing. This width makes possible a 7 foot lane which, he felt, was more satisfactory than the usual 5 foot lane.

(B). CAPACITY.

"In the design of an artificial pool due allowance must be made for the number of bathers who may be expected at the time of maximum use. In computing the area which must be provided, it is recommended that the pool be divided into three zones, and the area of each computed separately."

"From the data collected by the committee for its fifth report it was the consensus of opinion that an area extending 10 feet from the extremity of a diving board or a tower should be considered as reserved for divers, and that not more than two or three persons should be permitted in the water in this area at one time while diving is in progress. About three times that number will be on the shore or diving platform awaiting their turn to dive. Twelve persons is, therefore, the maximum number which may be permitted for the area within a ten foot radius of each diving board or platform."

"It was the consensus of opinion of swimming pool operators that the space required by a swimmer might fairly be expressed as five-fourths the square of his height and that on an average two-thirds of the swimmers present would be in the pool at the time. On this basis the average space requirement of the adult swimmer is 36 square feet, and allowing for one-third of the swimmers on shore, an average of 27 square feet should be provided for each swimmer who may be expected to be present at the time of maximum load."

"In computing the area to be provided for persons who do not swim, we must take into consideration the character of the pool. At indoor pools and small outdoor pools this area should probably be included with the swimming area and the crowding limit should be computed as such. . . . The average space allowance for each non-swimmer in the water is approximately one-half that of the swimmer in deep water. Combining these factors an allowance of 10 square feet per bather should be allowed for this portion of the pool." [2(a)]

(C). DEPTH.

Minimum depths as covered by various athletic association rules may be summarized as follows:

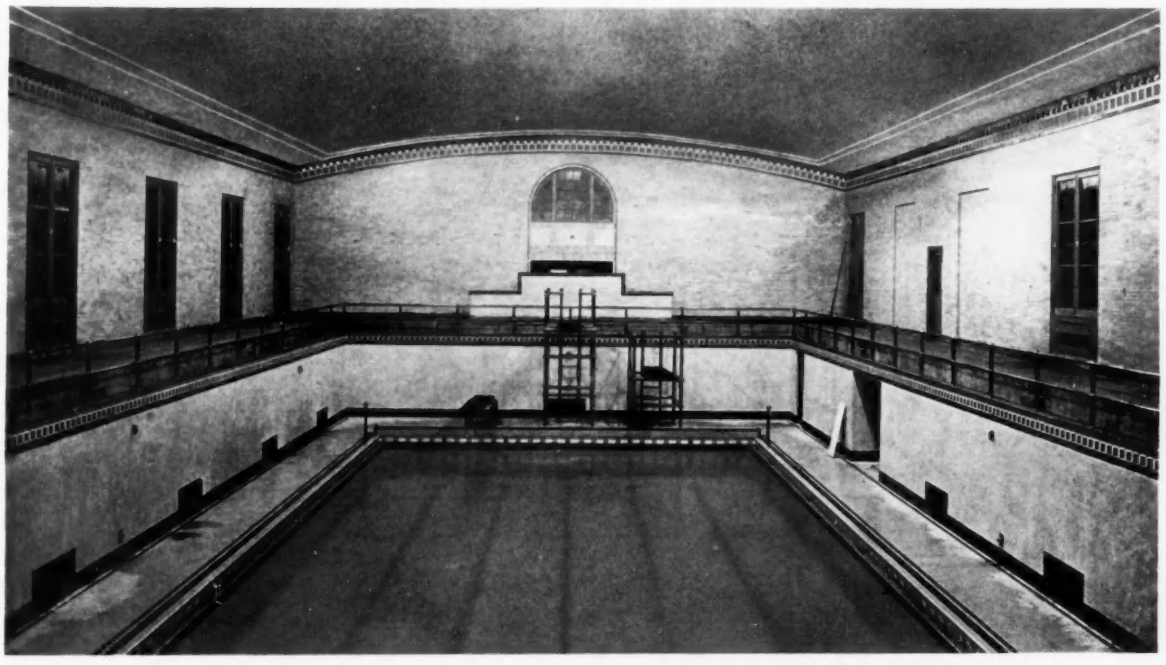
For racing, seven feet at deep end and three feet at shallow end.

For water polo, a minimum depth of six feet.

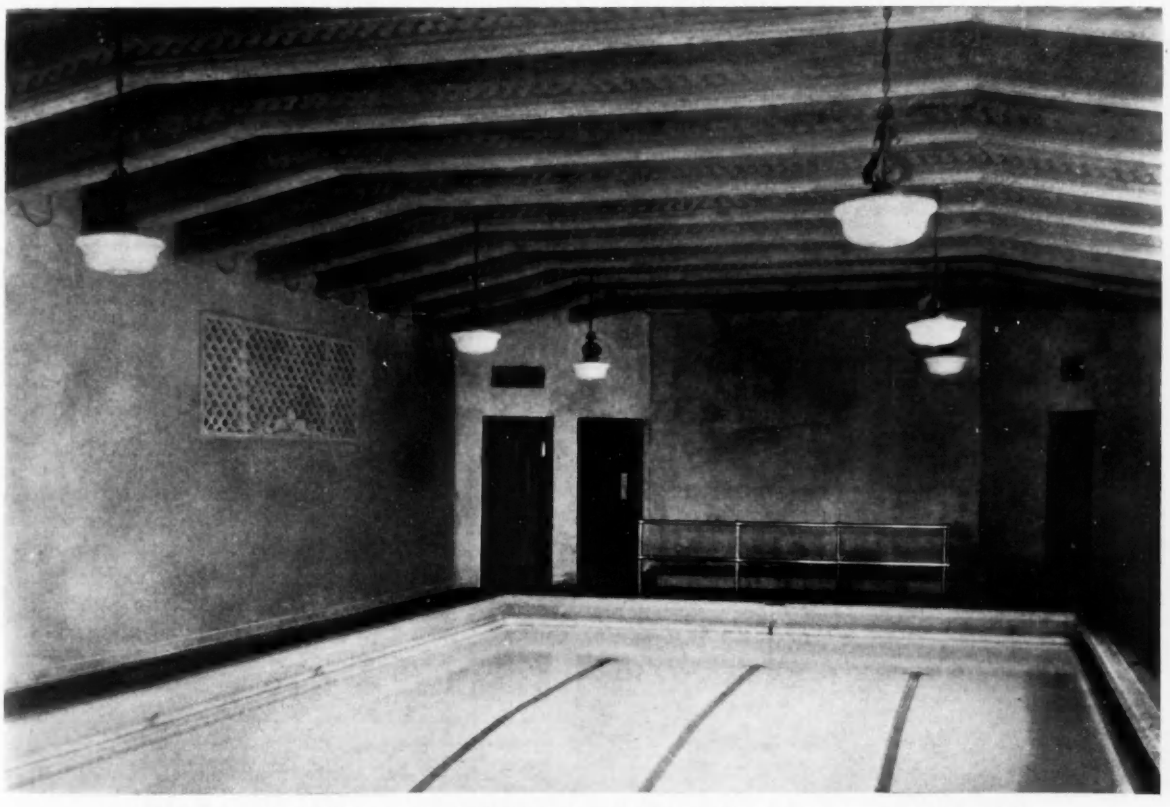
For soccer water polo, a minimum depth of three feet at shallow end.

For grade schools, a minimum depth of six feet for deep water area is considered satisfactory. A Phila-

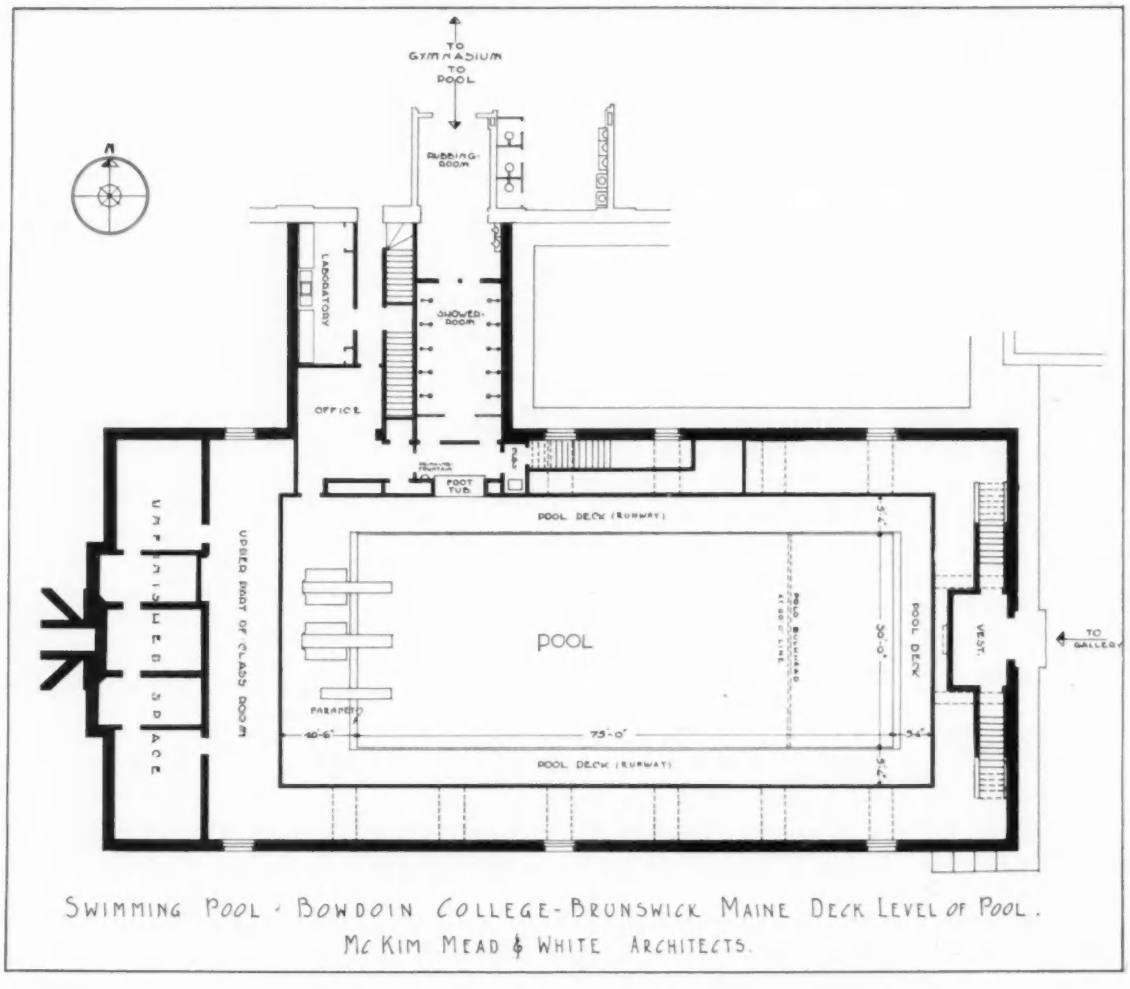
[1(a)] References given on page 86.



SWIMMING POOL, BOWDOIN COLLEGE, BRUNSWICK, MAINE
McKIM, MEAD & WHITE, ARCHITECTS



SWIMMING POOL, 28TH STREET BRANCH, Y. M. C. A., LOS ANGELES
PAUL R. WILLIAMS, ARCHITECT



SWIMMING POOL - BOWDOIN COLLEGE - BRUNSWICK MAINE DECK LEVEL OF POOL.
MC KIM MEAD & WHITE ARCHITECTS.

delphia Survey recommended that "depth range from three to eight and one-half feet. The depth should be governed to some extent by the height of diving boards or platforms provided." [3(a)]

"The consensus of opinion of swimming instructors, etc., as summarized in the Fifth Report of the Committee (Am. Pub. Health Assoc.) apparently establishes the following as the minimum depth for diving from various elevations." [2(b)]

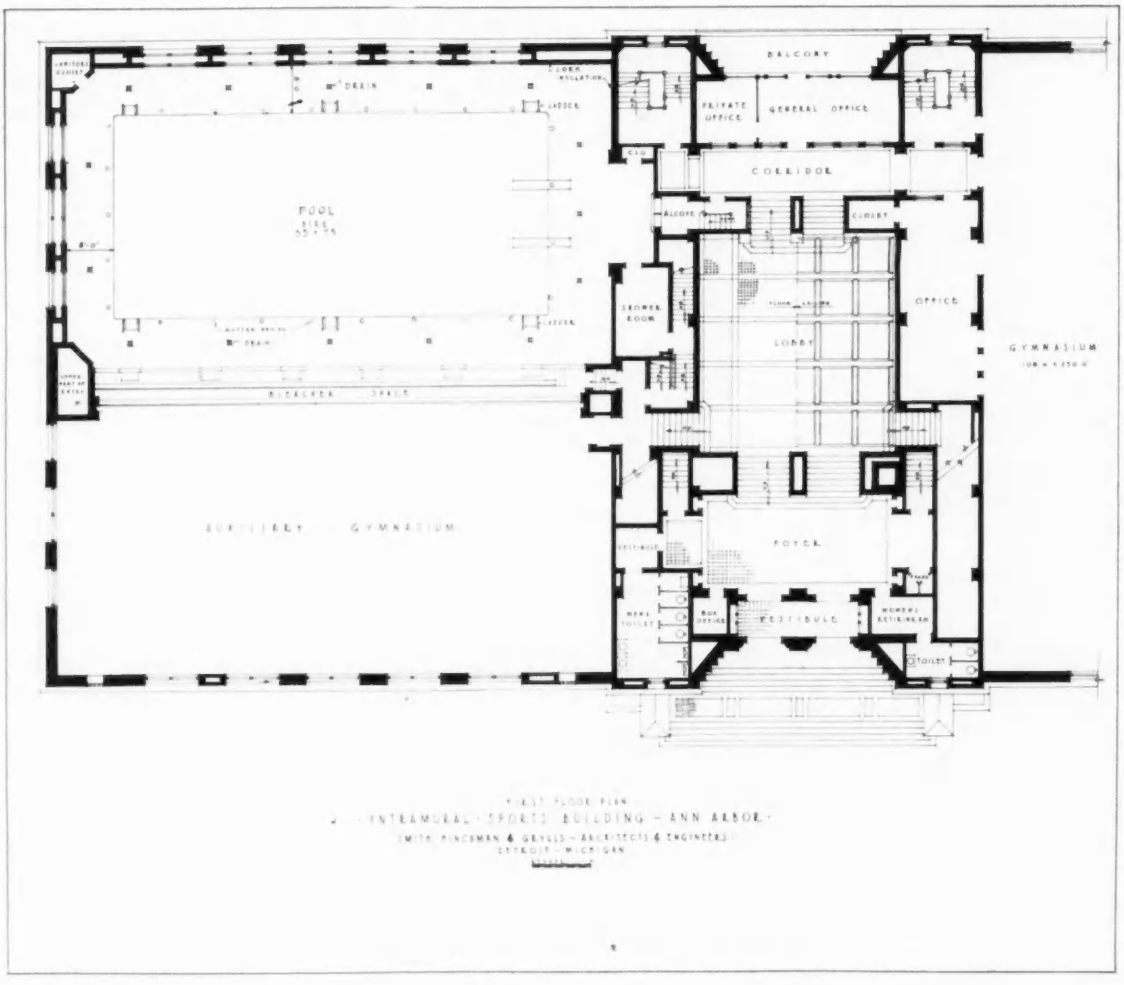
Elevation of Diving Platform	Minimum Safe Depth of Water
1 foot	5 feet
3 feet	6 feet
5 feet	7 feet
7 feet	8 feet
10 feet	9 feet

"The slope of the bottom of the pool where the water is less than six feet should be gradual. A common standard for this slope is not greater than one foot elevation for fifteen feet horizontal distance." [4(a)]

Swimming pools generally have a shallow end with water three or four feet deep where beginners may learn to swim.

Most pools have reinforced concrete walls eight to twelve inches thick depending on height. With some recent indoor pools the tank is of welded steel frame with one-quarter inch lap-welded plates and a two inch lining of "Gunite" cement with reinforcing mesh spot-welded to the steel plates. This method is strongly recommended where the pool is on an upper floor. It might also be used for a basement pool if proper ventilation is provided to reduce danger of rusting. Nevertheless a reinforced concrete pool will probably continue to be preferred for basement use. (See cost data sheet, page 86.)

If a pool is to be used for water polo the required depth of at least six feet may be obtained in one of several ways. For the pool more than 60 feet long, a bulkhead may be placed across the shallow end, at the 60 foot point, to obtain the required depth. In the 60 foot pool the scum gutter overflow may be



shut off and the water level in the pool raised as necessary. In some pools two scum gutters are provided with a two or three foot interval making it possible to obtain additional depth when required.

2. POOL LINING

The greatest single source of failure in swimming pool construction arises from the breakdown of the inner lining due to hydrostatic pressure when the pool is emptied. The tile or brick lining must be securely attached to the wall of the pool, as even a small amount of water at the back of the lining will exert an inward pressure of from four hundred to seven hundred pounds per square foot at the deep end of the pool.

In order to get a better mechanical key for the cement in which the tile is bonded the inner forms for the concrete wall of the pool should be lined with a coarse burlap of ¼ inch mesh. This burlap lining should be removed when the forms are stripped. (See illustration on page 80.)

3. SCUM GUTTERS

(A). RECESSED TYPE SCUM GUTTER.

Some modification of this type is used in most of the present day swimming pools. It has the combined function of removing scum from the surface of the water, serving as a cuspidor and furnishing a hand hold or life rail. It should be made deep enough so that water splashing into it will not splash out and also that when used as a hand hold the fingers will not come in contact with any foul water which may be in the bottom. The gutter should have drain outlets approximately every ten feet. If the runways drain direct to the scum gutter the upper edge of the gutter should be set back sufficiently so that there is no possibility of water from the runway draining into the pool. With an improved type of gutter, (see fig. 2, page 72) water from the runway enters the gutter through separate drains or "weepers" provided for this purpose. With still another type of gutter the upper edge has a slight pitch away from

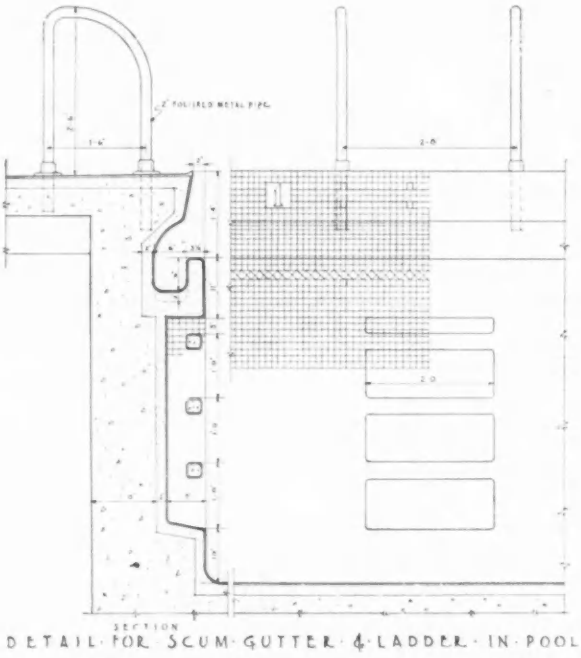
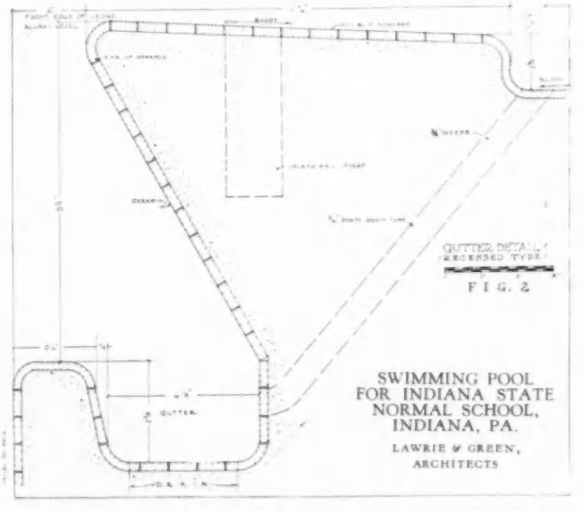


FIG. 1. RECESSED TYPE. INTRA-MURAL SPORTS BUILDING, ANN ARBOR, MICH.
SMITH, HINCHMAN & GRYLLS, ARCHITECTS



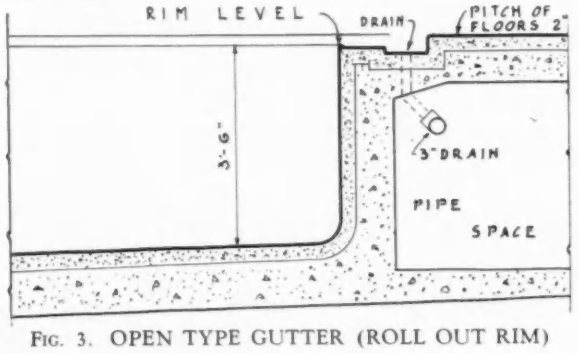


FIG. 3. OPEN TYPE GUTTER (ROLL OUT RIM)

the pool to the floor drains. When the recessed type is adopted the gutter should be omitted at the ends of the pool as its use here is a source of possible injury to swimmers who are racing.

(B). OPEN TYPE GUTTER.

The open type, illustrated in fig. 3, has found general favor with some swimming instructors and the Architectural Bureau of the Y. M. C. A. The latter uses it in about 50 per cent of their pools. It is the claim of the Bureau that it is sanitary and practical with the additional advantage of costing about five hundred to seven hundred dollars less for the average size pool than the recessed type. With the open type gutter it is easier for a swimmer to get out of the pool and there is less danger of injury. Some of the swimming experts consulted claim that the open type is the fastest pool because there is no back wash from the gutter.

4. COPING AND PARAPETS

Coping should be of non-slip tile with oatmeal finish or other rough surface. Marble or smooth tile for coping is sometimes used for decorative effect but it is dangerous and therefore undesirable. Marble is also subject to discoloration.

It is recommended that parapet walls be erected at each end of the pool, as in illustration on page 73. These walls should not be less than twelve inches nor more than eighteen inches above the water level as used for racing. (See rules for Sports.) In some cases the parapet is carried around all sides of the pool, but this is not in general favor owing to the danger of tripping over it.

5. SCUM BAND

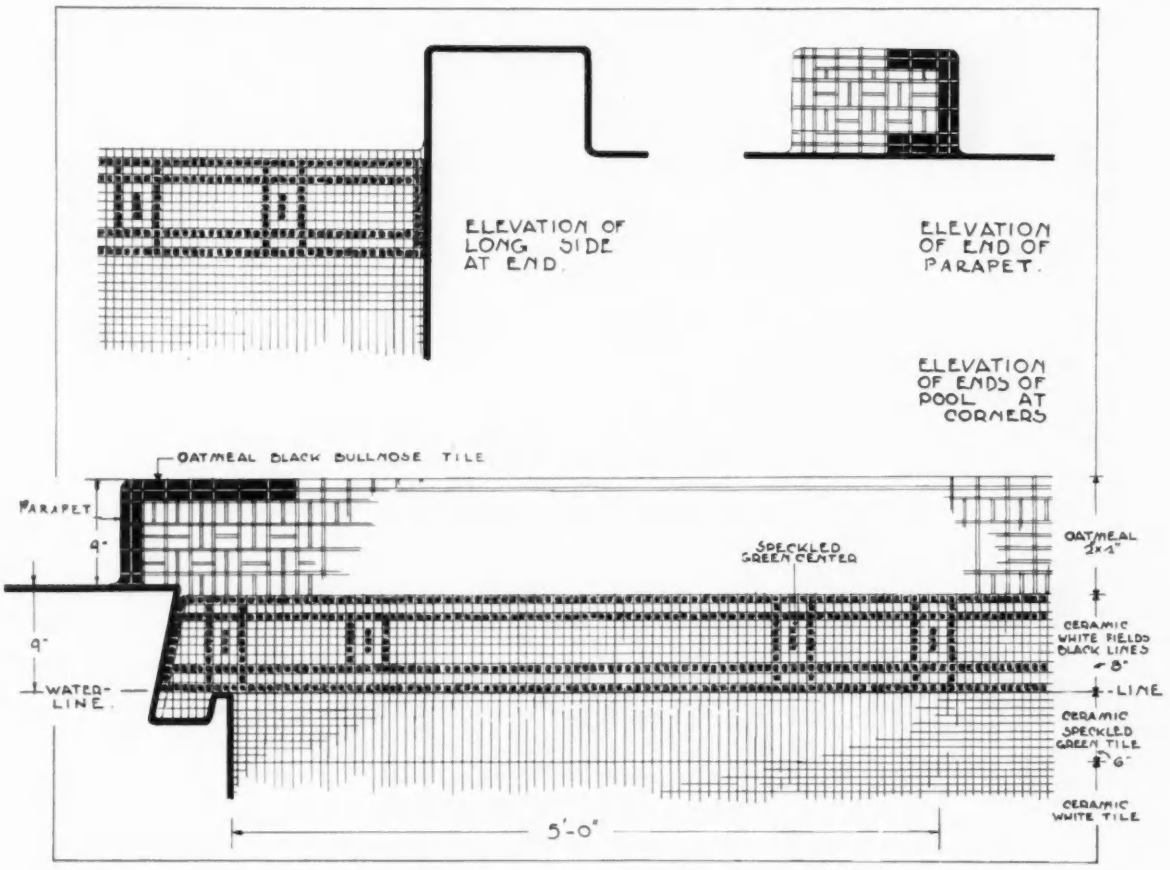
Many pools have, at the water line, a band from six inches to one foot wide of colored tile to disguise the scum which adheres to the wall.

6. NON-SLIP BAND FOR RACING

Where the pool is to be used for racing it is desirable to provide at both ends of the pool on the wall surface just below the glazed scum band, a two foot wide band of non-slip tile as an aid to swimmers in turning.

7. DISTANCE AND DEPTH MARKINGS

Distance from deep end should be indicated by numerals in the tile every five feet, and intermediate foot units are usually indicated by short vertical lines in the tile, as in the illustration on page 74. Depth of water should be given in foot units along the upper edge of the pool.



DETAIL OF PARAPETS AT ENDS OF POOL
BOWDOIN COLLEGE, BRUNSWICK, MAINE
McKIM, MEAD & WHITE, ARCHITECTS

8. SWIMMING LANES

The pool floor should be divided by lines of dark material of the same kind as the pool lining. These swimming lines should be at least five feet on centers, terminating four feet from each end—the length of a swimmer's stroke. In pools twenty feet wide the first line is two and a half feet from the side walls while the others are spaced five feet apart. In wider pools the spacing is uniformly five feet or more. The trend in pool design is toward a lane in excess of five feet. In racing, the swimmer is guided by swimming over and not between the guide lines.

9. MARKING FOR WATER POLO

It is not advisable to insert colored tile markings for polo or other sports as games rules are subject to frequent changes. Painted markings are, therefore, preferable.

10. RUNWAYS

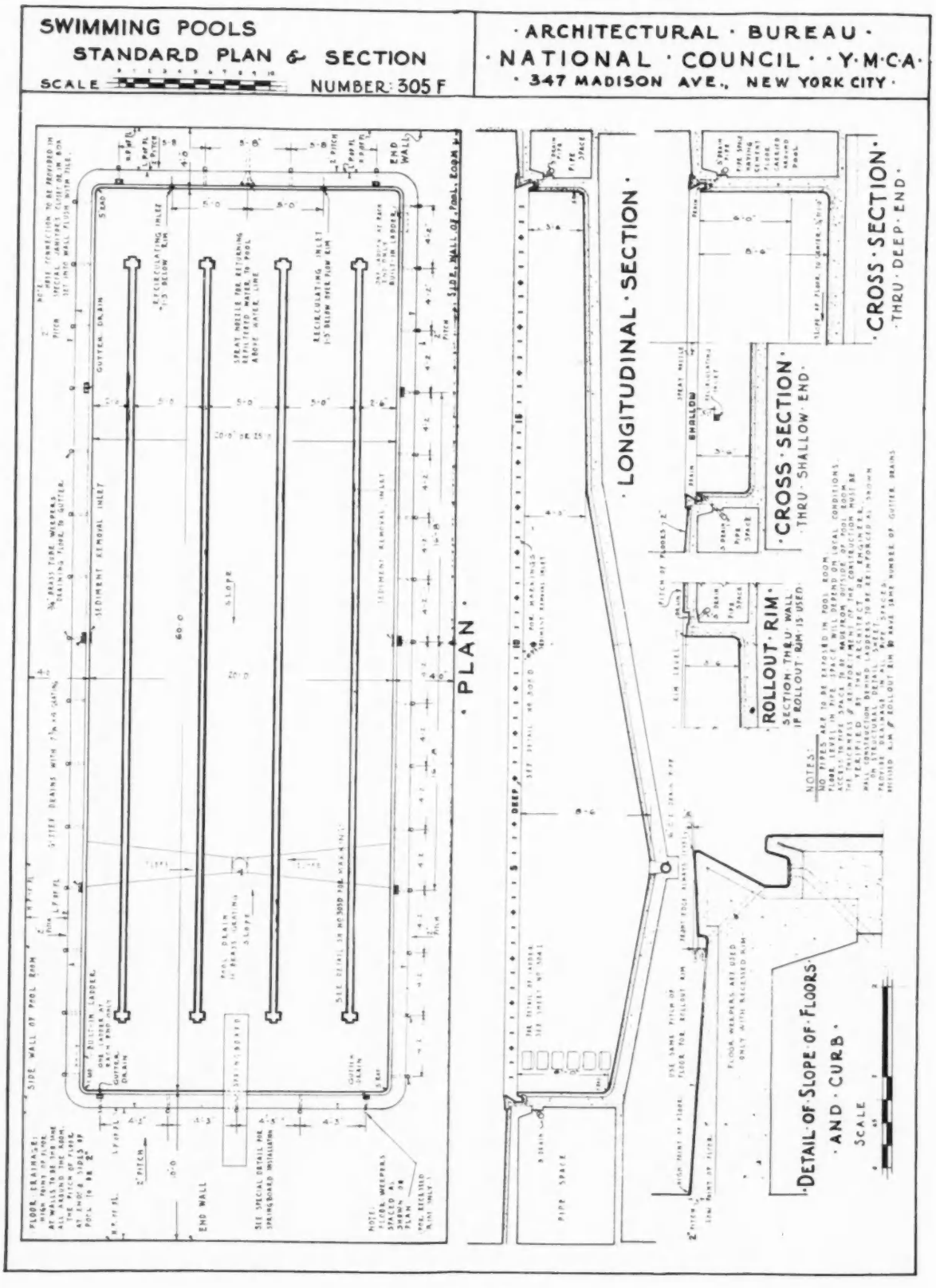
Runways at both sides of the pool should be at least four feet wide and ten to twelve feet wide at ends, and should have a slope towards the drain of a quarter of an inch to the foot. The width may be increased on one side to provide space for temporary bleachers. Runways should be surfaced with small non-slip tile. Alundum tile gives one of the safest footings and costs fifty to sixty cents a square foot for material. This is twice the cost of ordinary ceramic tile.

(*Note.* While the need of using non-slip tile might be considered self-evident, one of the most expensive pools completed this year by a prominent architectural firm has the runway floor covered with smooth glazed tile, over which it was found necessary to place mats to prevent slipping.)

For runways, the general tendency seems to favor an oatmeal or other non-slip surface in variegated light shades.

11. WALLS

Walls in the pool room should be faced at least five feet high with oatmeal surfaced tile, or with vitreous


SWIMMING POOLS
STANDARD PLAN & SECTION
SCALE
NUMBER: 305 F
· ARCHITECTURAL · BUREAU ·
· NATIONAL · COUNCIL · · Y·M·C·A ·
· 347 MADISON AVE., NEW YORK CITY ·
· PLAN ·
· LONGITUDINAL · SECTION ·
· CROSS · SECTION ·
· THRU · DEEP · END ·
· CROSS · SECTION ·
· THRU · SHALLOW · END ·
· ROLLOUT · RIM ·
SECTION THRU WALL
IF ROLLOUT RIM IS USED
· DETAIL · OF · SLOPE · OF · FLOORS
· AND · CURB ·
SCALE
SIDE WALL OF POOL ROOM
END WALL
SEDIMENT REMOVAL INLET
GUTTER DRAIN
SLOPE
RECIRCULATING INLET
SPRAY NOZZLE FOR RETURNING REFILTERED WATER TO POOL
ONE LADDER AT EACH END ONLY
POOL DRAIN
SPRINGBOARD
SHALLOW
DEEP
PIPE SPACE
NOTES:

or glazed brick. White biscuit tile is undesirable since it crazes and white ceramic discolors from contact with the bodies of swimmers.

The wall above the tile or brick base may be surfaced with Portland cement plaster or some acoustical material. (See Acoustics, page 78.)

INSULATION.

If the pool room has an outside wall, attention must be given to insulation, not so much from a standpoint of preventing loss of heat, but rather to prevent inevitable condensation. (See Insulation Tables on page 79.)

12. COLOR SCHEMES

In working out a color scheme for swimming pools certain facts should be kept in mind. The water in the pool may be one of many shades of blue or green and even yellow, depending on the nature of the water used, method of sterilization, amount and direction of sunlight in pool, reflection from ceiling, walls or pool background. In a recent pool a decidedly unpleasant color effect resulted from the preliminary assumption that the water would be blue and that the wall was to be a background for flesh tints of nude swimmers. Upon completion, the water proved to be a light green and the swimmers appeared as in drab gray bathing suits.

In the case of another pool, samples of the wall and pool tile were taken to a swimming pool and placed adjacent to the water and under the water. Very satisfactory results were observed in the pool where the study was made, but when the new pool was erected the color effect was decidedly unsatisfactory on account of a difference in direction of sunlight and color of water.

A color scheme should be adopted that will have a cool effect in summer and yet not be too cold in winter. The pool just completed in the New York Athletic Club by York and Sawyer, architects, with variegated gray green tile, is a particularly happy solution. It is often advisable to enliven a color scheme by the restrained use of an intense color such as red, at least for numerals.

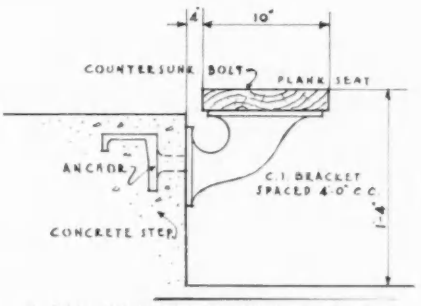
For the gymnasium natatorium just completed at the University of Michigan by the architects, Smith, Hinchman and Grylls of Detroit, the following tile specification was followed:

"Upper part of walls of pool from nosing tile down to about eighteen inches below top of gutter curb, also lining of gutter, all of approved three-quarter inch square Faience Plastic Hand Made Tile . . . in a mixture of blues and greens as selected by the architects, and grading from deep colors at the top to light colors at the bottom."

In no case should the ceiling or walls be painted on account of the certainty of scaling. Where color other than the natural color of cement plaster is desired it should be obtained by the use of Portland cement stucco with mineral coloring. Stuccoes which contain lime or gypsum or vegetable coloring agents are not recommended because of the destructive action of moisture on them.

13. CEILINGS

The ceiling should be at least twelve feet above the water and care should be taken that no structural beam or truss occurs over the end of the diving board within a maximum diving arc.



DETAIL OF BLEACHER SEAT BRACKET

INTRA-MURAL SPORTS BUILDING, ANN ARBOR, MICH.

SMITH, HINCHMAN & GRYLLS, ARCHITECTS

14. SPECTATORS' GALLERY

In the past it has been general practice to place the spectators' gallery over the runway. This has proved unsatisfactory as a gallery placed near the ceiling is uncomfortably warm, with the other practical disadvantage that only those in the front row are able to obtain a good view of the pool. It is now considered more desirable to provide bleachers at one or more sides of the pool in back of the runway. These may be either temporary or permanent. When temporary bleachers are provided, one runway is made sufficiently wide to accommodate them. This additional space is of value, when not occupied by bleachers, for conducting "dry land swimming" instruction or as a lounging space for swimmers. Permanent seating accommodations should be completely separated from the pool runway by a parapet wall or rail. The spectators' gallery should have an independent entrance and in no circumstance should there be access to the pool floor. The bleachers may rise from the pool level or may be elevated several feet above the runway.

The latter method is preferable for bleachers entirely surrounding the pool but when spectators are on one side only their view will not be obstructed by officials and swimmers who use the runway on the opposite side of the pool.

15. ACCESSORIES

(A). CLOCK.

A clock of Telechron type operated by electricity may be included as part of the furnishing scheme, its face flush with the wall and enclosed in a vapor tight case.

(B). DRINKING FOUNTAIN.

Drinking fountains are not used to any considerable extent by swimmers and it is not essential that they be provided in the swimming room. Their location should be in the hallway or dressing rooms.

(C). CUSPIDORS.

Marble or tile urns partially filled with sand are preferred for spittoons.

(D). BENCHES.

Concrete or marble benches are a convenience if the runway is wide enough to permit their use.

(E). SLIDES.

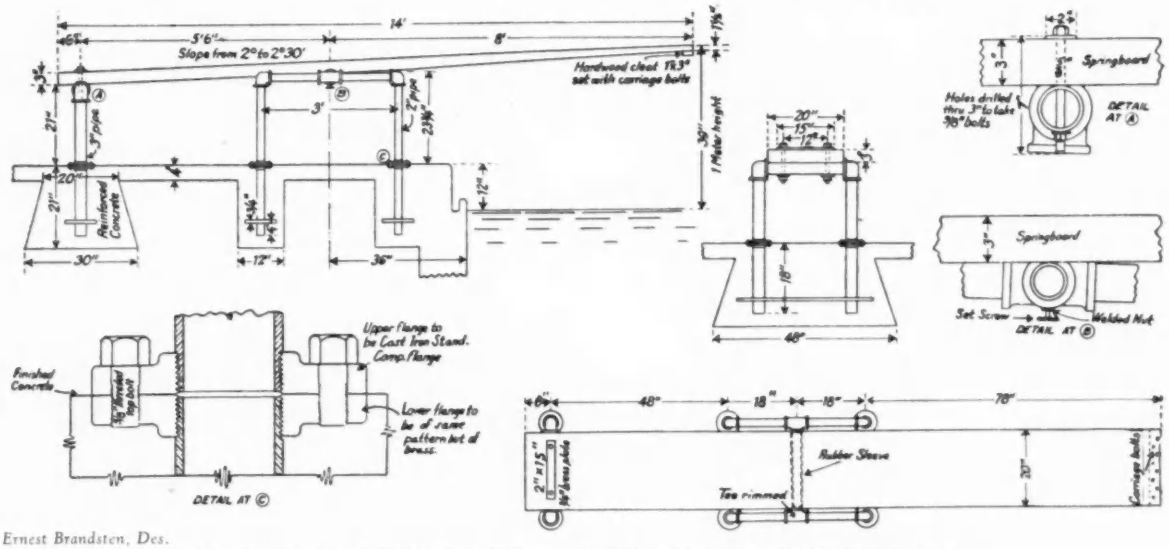
Slides are provided with most outdoor pools and with some indoor pools. Their inclusion will depend on the use of the pool. Commercial pools, catering to the general public, will recognize their inclusion as a commercial asset.

(F). DIVING BOARDS.

One or more diving boards should be installed in every pool in conformance with the "Swimming Rules of the National Collegiate Athletic Association" which read as follows:

"The installation and use is strongly recommended of the board known as the 'Brandsten Board,' with dimensions and specifications as shown in the diagram, (below). The height of the board from the water level shall be not less than 2 feet 6 inches and not more than 4 feet."[1(b)]

It is advisable to provide a high diving stand preferably supported on a pipe frame. In the recently completed pool of the New York Athletic Club, its high diving platform is suspended from the ceiling with the advantage of a clear runway.



Ernest Brandsten, Des.

NATIONAL COLLEGIATE A. A. STANDARD SPRINGBOARD

All fittings except flanges to be made of malleable iron. The upper flanges shall be cast iron standard composition flanges. All lower flanges that are set in concrete shall be of brass. All pipes shall be galvanized. All angular joints shall be screwed with full threads. Springboard to be dried out before being used and given two coats of pure boiled linseed oil. Cocoa matting to cover board, with additional cross-runner at end. The springboard is to be made of *selected vertical straight grain Oregon pine in one piece.*—From Spaulding's Athletic Library No. 91R, page 12.

(G). LIFE SAVING and FIRST AID EQUIPMENT.

Poles with hooks and life rings should be placed around the pool at accessible points, the number and placement depending upon the use of the pool. "First Aid" equipment should also be kept for use in case of cuts or other injury.

(H). DOORS.

All doors should be of non-ferrous metal such as copper, bronze or aluminum. It is needless to say that wood doors are unsatisfactory.

The Architectural Bureau of the Y. M. C. A. in coöperation with door manufacturers has developed two types of non-rusting doors for use in shower and swimming pool rooms. The Dahlstrom Metallic Door Co. manufacture an aluminum door and the Kawneer Co. a nickel-alloy door. These doors are

unmoulded, are left unpainted and weather to a pleasing gray. The Kawneer firm also make sash of the same nickel-alloy.

(I). LADDERS.

Ladders should be recessed in the walls of the pool. Ladders that project may injure the swimmers. The rungs are covered with small tile or foot holes are provided. (See fig. 1, page 72.) Chromium plated brass pipe hand grips should be installed at the top of the ladder to assist swimmers in climbing out of the pool.

16. HEATING AND VENTILATING

The air in the pool room should be kept at approximately 77 degrees F. with the ventilation system planned to obviate draught on the bathers. The warm air should be brought in at floor level and if a fan system is used the air current should be directed over the water. The "Univent" system has been found to be satisfactory when a central ventilating system is not used. Radiators with a direct system should be of brass, and not iron which rusts too rapidly. They should, of course, be enclosed so as to prevent direct contact with bathers.

17. ARTIFICIAL LIGHT

Light is important in swimming pool rooms and each pool should receive detailed study. All lights must be provided with vapor proof fixtures. If the ceiling is hung the light fixtures may be recessed, permitting access to fixtures above the ceiling. The Holophane system of light distribution has been found satisfactory and of low cost. Provision should be made so that at least one light over the pool may be kept on at all times. This precaution is necessary to prevent swimmers, entering the pool room after hours, from diving into an empty pool.

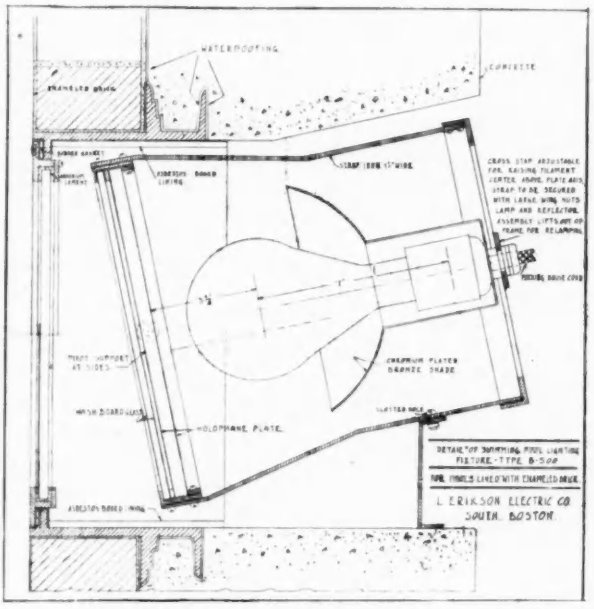
If the pool is to have underwater lights they should be installed from the outside of the pool in such a manner that any leakage which may occur will be carried away and not cause a short circuit. These lights should be spaced approximately ten feet on centers around the edge of the pool and about one foot below water surface. (See illustration on this page.) Care must be taken to avoid any dark spots.

18. DAYLIGHT

In the past, skylights were often provided because of the assumed sterilizing value of sunlight. This value is largely lost with ordinary glass but ultra-violet ray glass makes available the benefits of direct sunlight.

In order to prevent excessive condensation, a skylight, if provided, should be double, with provision for heating the intervening space. Sun bathing by overhead or side windows should be made a feature of pools.

Side windows should be double in a northern climate.

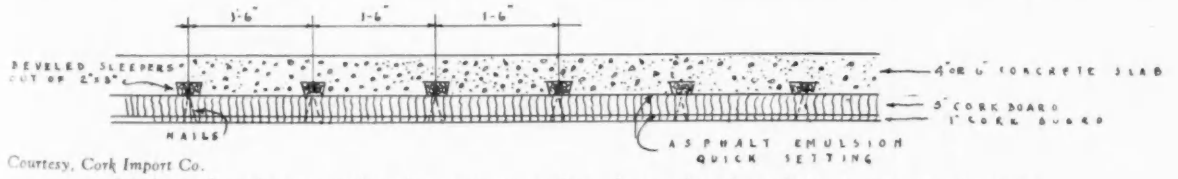


FIXTURE FOR SUB-WATER LIGHTING

19. INSULATION

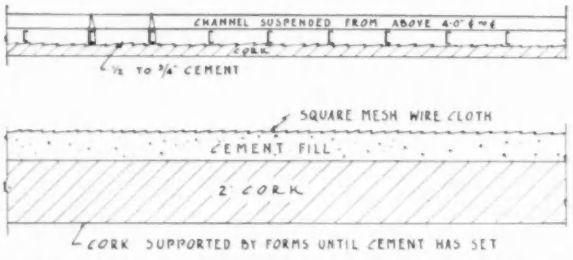
If there are not heated rooms above the ceiling of the pool, great care must be taken to obtain proper insulation or heating of space above a hung ceiling in order to prevent condensation and the resulting discoloration of the ceiling. There may also be objectionable dripping of condensed moisture into the pool. Proper surface temperature may be obtained with a hung ceiling if heat is provided between the ceiling and roof, or proper surface temperature may be had through use of the correct thickness of insulation on the under side of the roof slab.

The "Chart for Determining Resistance of Roof Construction Necessary to Prevent Condensation" and the table of "Coefficients of Transmission of



Courtesy, Cork Import Co.

Method of applying cork board on concrete ceilings for combined insulation and sound absorption



DETAIL OF HUNG CEILING WITH INSULATION OF EXPOSED CORK

Various Types of Flat Roofs" will enable an architect to determine the amount of insulation needed under various conditions.

In using these charts a humidity of 90 to 100 per cent should be assumed for pools with low ceilings where there is no fan ventilation. For pools with high ceilings and fan ventilation a lower humidity may be assumed.

Insulation may be obtained in various ways. Where insulation is applied to the upper side of the roof slab alone there will be condensation on the under side if the pool room is permitted to cool at night. This condensation will occur when the room temperature is again raised, due to the time required for the mass of concrete which has become cooled at night to be raised again to the room temperature. This condition would be overcome by use of insulation on the under side of the roof slab. The use of materials not affected by moisture for the combined purpose of insulation and sound deadening is considered under "Acoustics."

20. ACOUSTICS

(A). GENERAL CONSIDERATIONS.

1. In order to reduce reverberation the ceiling area should be broken up by beams. A curved ceiling, if used, should be designed by an acoustical expert. It is common knowledge that most vaulted ceilings cause excess reverberation.

2. To obtain satisfactory acoustical results the walls as well as ceiling should be treated with a sound absorptive material.

3. In specifying any acoustical material the effect of moisture on the material must be understood. Although the pool room may have proper ventilation while in use and perhaps be free of condensation while in use, yet entirely different conditions will prevail at night or at times when the pool is not ventilated.

4. Most materials lose their acoustical value if painted or if cleaned by means of a rough brush.

(B). ACOUSTICAL MATERIALS.

1. Acoustical Felt. *Nashkote A or B.* This is a satisfactory sound absorbing material for general acoustical purposes and may be used in swimming pools, but must not be applied on walls or ceiling which are external. The acoustical felt because of its high porosity permits circulation of humid air through the felt which will condense on the cold roof slab and cause trouble.

If the swimming pool is located directly under rooms that are heated there is no danger of condensation and the acoustical treatment can be cemented to the floor slabs without requiring plaster or a furred ceiling.

This material may be used safely under a roof or roof slab only if a suspended ceiling provides, above the hung ceiling, space which is ventilated and heated at all times. (In a school house in Detroit where acoustical felt was applied provision was made for heating and ventilating the air space between the hung ceiling and roof during the winter. The pool, however, was used in the summer without ventilating the dead air space with the result that the sound deadening felt absorbed moisture and acquired mould.)

2. Cork Board. Cork board has an advantage since it combines sound absorption and heat insulation qualities. It is strongly recommended. As shown in the sketch on page 77, the corkboard should be in two layers cemented together with asphalt emulsion, the thicker layer being toward the outer low temperature and the thinner layer toward the inside for soundproofing. The asphalt emulsion coating between these two sections will give an airtight and moisture-tight surface to prevent the infiltration of warm air from the pool into the corkboard, there to condense and cause trouble.

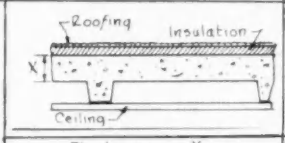
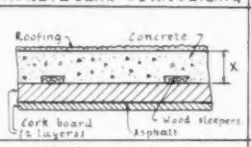
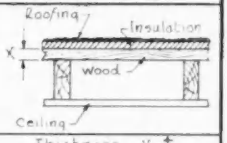
Refrigeration engineers are now agreed that in the case of cold storage and ice warehouses the insulation should be on the top of the roof slab, but in swimming pools, the low temperature is outside, hence the insulation should be on the inner, or the warm side.

3. Acoustical Board. (*Acoustex.*) This is an acoustical material formed from compressed wood fiber treated with magnesium oxychloride. It rates high as a sound absorbent material and is valuable for general acoustical purposes. It is believed by the manufacturers that it will not disintegrate when used in swimming pool construction. However, condensation within the material may lead to difficulties.

4. Acoustical Plaster. There are several acoustical plasters on the market which are fairly satisfactory for general use but those having lime or gypsum base should be ruled out in swimming pool construction as moisture causes disintegration. In this connection it should be said that lime or gypsum plaster is undesirable even as a first coat for cement plaster in pool rooms. In one city where a gypsum

COEFFICIENTS OF TRANSMISSION (U) OF VARIOUS TYPES OF FLAT ROOFS COVERED WITH BUILT-UP ROOFING AS APPLIED TO SWIMMING POOLS BASED ON TABLES IN A.S.H.&V.E. GUIDE 1929

NOTE – These Coefficients are expressed in B.t.u. per Hour per Sq.ft. per 1°F difference in temperature between the air on the two sides and are based on an outside wind exposure of 15 miles per Hr.

INSULATION			CONCRETE SLAB-HUNG CEILING						CONCRETE SLAB-CORK CEILING						WOOD ROOF				
The values of U in this Table are based on the following Internal Conductivities (C) which are expressed in B.t.u. per Hr. per Sq.ft. per 1°F: Roofing 1.325 per 1"; Concrete 8.30 per 1"; Wood (Yellow Pine or Fir) 1.00 per 1"; Fiber Insulation (Board form) 0.33 per 1"; Cork board 0.30 per 1"			 Thickness – X						 Thickness – X						 Thickness – X †				
Roof No.	Thickness of Insulation	Kind of Insulation	1/8" a	2" b	3" c	4" d	5" e	6" f	1/8" a	2" b	3" c	4" d	5" e	6" f	1" g	1½" h	2" i	3" j	4" k
227	0"	No Insulation	0.304	0.300	0.290	0.280	0.271	0.262	0.680	0.658	0.610	0.568	0.532	0.500	0.258	0.227	0.213	0.175	0.149
228	½"	Fiber Insulation (Board form)	0.208	0.206	0.201	0.196	0.192	0.188	0.334	0.330	0.317	0.306	0.295	0.285	0.185	0.169	0.160	0.138	0.121
229	1"		0.158	0.157	0.154	0.152	0.149	0.146	0.222	0.220	0.214	0.209	0.203	0.199	0.145	0.133	0.129	0.114	0.102
230	1½"		0.128	0.127	0.125	0.123	0.121	0.119	0.166	0.165	0.162	0.159	0.156	0.153	0.119	0.112	0.108	0.097	0.089
231	2"		0.107	0.106	0.105	0.104	0.102	0.101	0.133	0.132	0.130	0.128	0.126	0.124	0.101	0.096	0.093	0.085	0.078
232	1"	Cork board	0.151	0.150	0.147	0.145	0.142	0.140	0.208	0.206	0.201	0.196	0.192	0.188	0.138	0.129	0.124	0.110	0.100
233	1½"		0.121	0.120	0.118	0.116	0.115	0.113	0.154	0.153	0.151	0.148	0.145	0.143	0.112	0.106	0.103	0.093	0.085
234	2"		0.100	0.100	0.099	0.098	0.096	0.095	0.123	0.122	0.120	0.119	0.117	0.115	0.095	0.090	0.088	0.081	0.075
	3"		0.075	0.075	0.074	0.074	0.073	0.072	0.087	0.087	0.086	0.085	0.084	0.083	0.072	0.069	0.068	0.064	0.060
	4"		0.060	0.060	0.060	0.059	0.059	0.058	0.068	0.067	0.067	0.066	0.066	0.065	0.058	0.056	0.055	0.053	0.050

Courtesy of the American Society of Heating and Ventilating Engineers

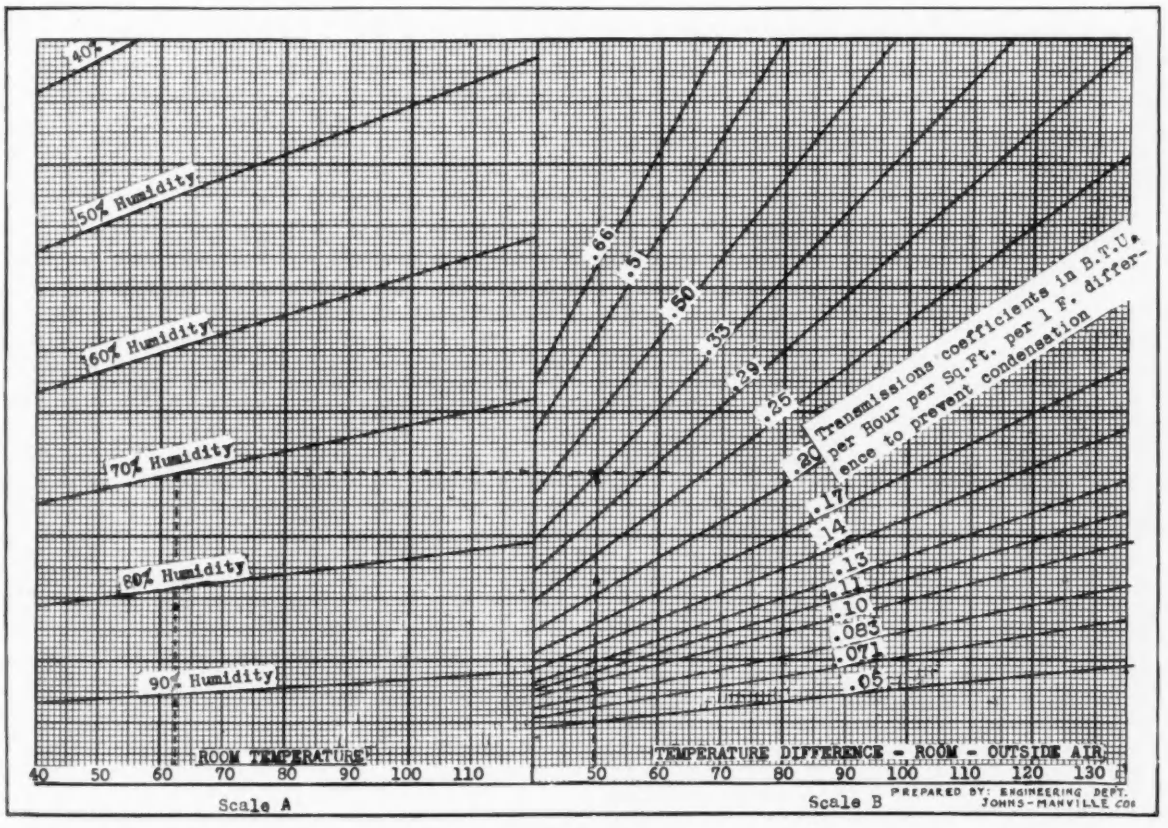


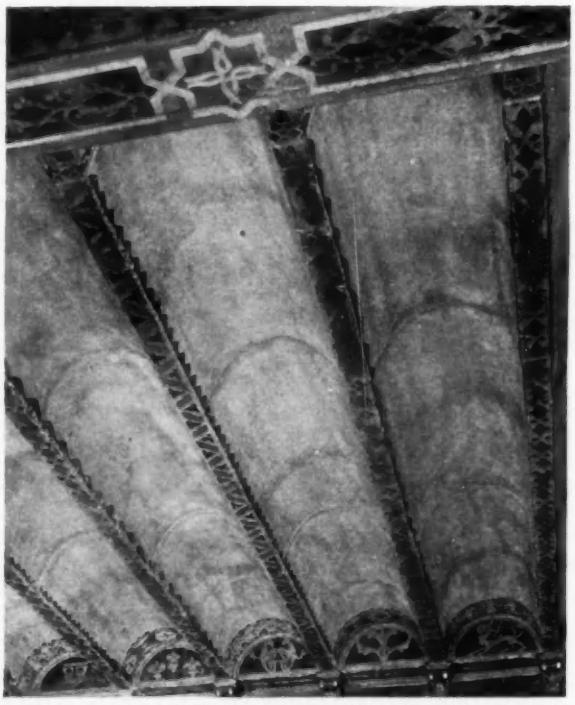
CHART FOR DETERMINING RESISTANCE OF ROOF CONSTRUCTION NECESSARY TO PREVENT CONDENSATION

first coat was used with a second and finish coat of cement stucco, minute hair cracks developed in the surface, permitting moisture to reach the gypsum. This disintegrated and caused the surface coat to bulge and crack.

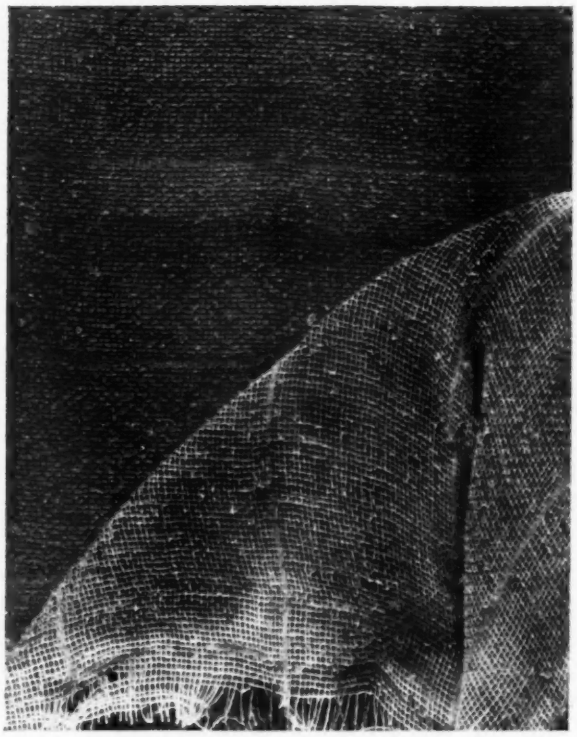
Akoustolith is an improved acoustical plaster which is sometimes used in swimming pool work. Care must be taken to prevent smoothing the surface and filling the voids with the resultant loss of sound absorption value.

5. Acoustical Tile and Artificial Stone. R. Guastavino Company who manufacture the foregoing *Akoustolith* plaster also furnish this same material as precast stone or tile. It is, perhaps, the best while at the same time the most expensive product. It may be installed with regular Guastavino vault construction, or applied directly on the soffit of concrete floor slabs, or wire lath and cement plaster ceilings. For side walls the installation can be made directly on any of the many masonry surfaces without a scratch coat, if the surface is reasonably true. This tile has slightly higher sound absorption value than the plaster but costs several times as much and its use has been confined to luxury pools where ample funds are available.

With *Akoustolith* plaster or tile the sound absorption is due to the porosity of the surface. Any application of paint to the surface nullifies its acoustical value.



STRUCTURAL CONCRETE CEILING (PAN SYSTEM) SUITABLE FOR MODERATE COST SWIMMING POOLS



ROUGH CONCRETE SURFACE SUITABLE FOR APPLICATION OF TILE, PRODUCED BY LINING CONCRETE FORMS WITH ¼" MESH BURLAP

6. Cinder Block or Cinder Concrete (as acoustical treatment). Very porous and dry-mix cinder concrete or cinder blocks have been found to possess considerable sound absorption properties. (See Table on page 86.)

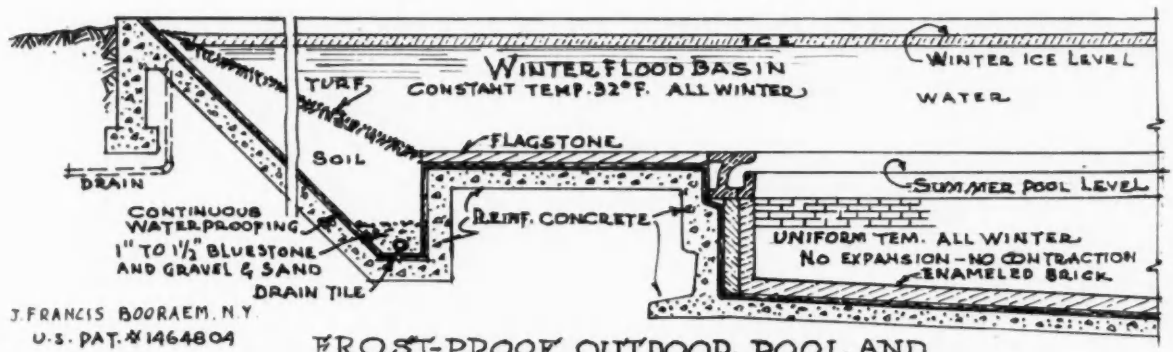
In order to obtain satisfactory scale a block with four inches to twelve inches face is recommended. If the ceilings and walls—above the tile wainscot—are constructed of cinder concrete or exposed cinder blocks without plaster covering, the reverberation will be very greatly reduced. Cinder concrete is low in cost, fairly efficient and may be made attractive as in the illustration shown on this page. Sulphur free cinders must be specified, as sulphur will cause discoloration and affect strength.

B. VARIABLE FACTORS INFLUENCING DESIGN AND SELECTION OF MATERIALS

1. LOW COST POOLS

(A). CONCRETE WITHOUT TILE FINISH.

This method is cheapest for swimming tank construction, but the concrete soon becomes stained. Dark walls and bottom are decidedly objectionable for indoor pools because of the greatly increased danger of drowning. With light lined tanks it is



FROST-PROOF OUTDOOR POOL AND SKATING BASIN

possible to see a person when under water and thus a swimmer getting into difficulties may be easily detected and his rescue effected.

The painting of concrete pools has not proved satisfactory as the paint peels.

(B). CONCRETE POOL WITH LIGHT COLORED VITREOUS BRICK LINING.

When economy is a major consideration a concrete pool may be lined with light vitreous brick at a cost of twenty-eight to thirty dollars per thousand at kiln. This brick may also be used for wainscoting. Ceiling and walls above the wainscot may be finished with rough surface Portland cement stucco or cinder concrete as suggested under acoustical treatment.

2. AVERAGE COST POOLS

Pools other than those of minimum cost or outdoor pools are most frequently lined with three-quarter or one inch tile applied directly to the concrete. However, some are lined with glazed brick.

Although tile or glazed brick often extends to the ceiling, the room would be more satisfactory from an acoustical standpoint if the tile wainscot did not continue above six feet. For the average cost pool the walls and ceiling should receive sound absorption treatment of cinder concrete, cinder block or cork. If the pool is under a heated ceiling, acoustical felt is a satisfactory alternative.

3. LUXURY POOLS

The construction of the luxury pool itself will vary slightly, if any, from the average pool. The pool may be lined with hand made tile and *Akoustolith* sound absorbing artificial stone may be used for walls and vaulting of ceiling. The windows and skylight may be of violet-ray glass and underwater lighting provided. Luxury will also be expressed in the character of the accessories.

4. OUTDOOR POOLS

(A). SHAPE AND SIZE.

"The circular or oval type is particularly adapted to public pools. Such a pool resembles a small lake with sides gradually sloping from the beach to a deep section in the center. The maximum shallow water space which is provided tends to reduce the overcrowding so common in public pools due to the fact that about 75 per cent of those using them do not swim. A diving platform at the center gives an open space for the swimmers, as only those who can swim are able to reach it. Furthermore, it is impossible to fall into deep water from the shore." [5(a)]

Some of the pools in public parks have irregular shapes which conform with contour of the ground or landscaping. Size and shapes of outdoor pools vary greatly and must be considered as individual problems.

(B). FROST PROTECTION.

Outdoor pools in a northern climate may be so designed that they may be protected against injury by frost and incidentally used for skating in the winter. This permits a double use of the ground. By having a sloping concrete runway around the pool and filling the pool to this higher level the pool is kept at an even temperature. (See illustration above.)

C. TREATMENT OF WATER

GENERAL PRINCIPLES.

"The recommended method for the treatment of the water is that water in the pool be constantly and continuously drawn from the pool, filtered, sterilized, and returned, with an additional supply of fresh water to make up for that lost. A few pools, especially of the older type, were so constructed that the pool was filled, used for a certain period of time, emptied and refilled. This older method has been found to be not only more costly, especially if there is any charge for the water itself, but also less efficient from the standpoint of purity of the water.

"Stovall, Nicholas and Vincent carried on an experiment at the University of Wisconsin to determine certain factors in swimming pool maintenance. One of the subjects of investigation was, 'How long may the water of a pool be safely used

INTERIOR OF SWIMMING POOL ROOM

POOL WITH OUTDOOR GYMNASIUM AND BALCONY

VILLA OF VICOMTE DE NOAILLES AT HYÈRES, FRANCE

ROB MALLET-STEVENS, ARCHITECT

SWIMMING POOL AND BALCONY (LUXURY TYPE)

ENTRANCE TO DRESSING ROOMS

SOUTHAMPTON BATHING PAVILION, LONG ISLAND, N. Y.

PEABODY, WILSON & BROWN, ARCHITECTS

without renewal?' Their conclusion of this point was:

"We have not extended our work to the point where we are able to say how long a pool may be used without renewing with fresh water but our results show that at the end of four months' time the water is as satisfactory as at the beginning of the run. [6(a)]

"It is evident that if clean water is to be maintained the recirculation or flowing through system must be designed to provide a turnover ratio of at least two, and that where heavy bathing loads are anticipated, the turnover ratio should be three or more in twenty-four hours. [2(c)]

"The total number of bathers using a swimming pool during any period of time shall not exceed twenty persons for each one thousand gallons of clean water added to the pool during that period.

"The total number of bathers permitted to use a swimming pool during any period of time shall not exceed seven persons for each one thousand gallons of water in the pool unless the pool shall have been completely disinfected at least once during that period." [2(d)]

(A). THE RECIRCULATION SYSTEM.

"The recirculation system consists of the pumps, haircatcher, and filters together with all necessary pipe connections to the inlets and outlets of the pool. The water heater, the chlorinator and the suction cleaner are also usually installed on or connected with the recirculation system and may be considered as integral parts thereof."

(B). PUMPS.

"Centrifugal pumps are preferable for swimming pool circulation, although plunger pumps are sometimes used. Electric drive is also preferable. When pipe lines from the suction cleaner lead to the pump suction, a pump which will develop good vacuum must be used. When pressure filters are used pumps must be designed to pass the required volume under the maximum head which may develop in the filters. When designed to operate with multiple unit filters it is advisable to have pumps in duplicate with proper cross connections to permit one filter to be washed with the effluent from another. If filters are located at an elevation higher than the water line of the pool a check valve must be placed on the pump suction and arrangements made for priming."

(C). HAIR CATCHER.

"The recirculation system should include a strainer to prevent hair, lint, etc., from reaching the filters. The best type of hair catcher consists of a metal chamber containing a removable cylindrical strainer, so arranged that the water passes through the strainer from the outside. The strainer should be of non-corrosive material with openings not more than three and one-half inches across. A slotted strainer is more easily cleaned than one which is perforated. The area of strained openings should be at least ten times the area of the water inlets. Hair traps should be so constructed that they can be quickly taken down for cleaning by loosening two or three wing-nuts. Proper valves should be provided to prevent flow of water through the strainer while cleaning."

(D). WATER HEATER.

"In northern climates some method of heating the water is essential for indoor pools. Blowing steam directly into the pool as is practised in some instances, or heating coils placed directly in the pool, are not recommended. A heater designed to heat all or a part of the circulation water is preferable. In designing a heater, ample surface for heat interchange must be provided. Such a heater may be designed for use with steam or hot water. Automatic thermal control is desirable. Provision should be made for each removal of the heater parts for cleaning.

(E). SUCTION CLEANER.

"In the opinion of the committee the only satisfactory method of removing the dirt, hair, etc., settling on the bottom of the pool is by means of a suction cleaner. As such cleaners are commonly operated by the circulation pumps, they may be classed as an adjunct to the recirculation system. When a suction cleaner is to be operated by the recirculation pump, a gate with graduated stem or other registering device should be provided for throttling the flow from the pool outlet to permit the pump to operate at maximum efficiency when the suction cleaner is in use. Fixed pipe connections for attachment of the suction cleaner to the pump suction should be of ample size to reduce friction to a minimum, and the cleaner and all removable connections should be designed to provide a maximum velocity at the suction nozzle."

(F). PIPING SYSTEM.

"The piping system should be properly designed to reduce friction losses to a minimum. Pipe capacities should generally be at least double the theoretical value. Flange joints or unions should be inserted at intervals to permit any part of the system to be quickly taken down for cleaning or repairs. A pump and blow-off should be provided at the lowest part of the system to permit removal of any accumulating iron rust. Openings should be provided for insertion of gauges to permit vacuum on pump suction and pressure at discharge to be determined, should a study of the recirculation system be desirable. It is advisable also to make provision for insertion of Pitot tubes or meters for checking the actual volume of water passing through the system under working

conditions. Outlets should be provided for obtaining samples of the water as it leaves the pool, and, after filtration, for purposes of laboratory tests. Other requirements for piping are discussed under the heading, "Inlets and Outlets." [2(d)]

(G). INLETS AND OUTLETS.

The efficiency of circulation within the pool will depend to a large extent on the location of inlets and outlets.

There is a difference of opinion among designers of swimming pools as to the best location of the inlets and outlets for recirculation of the water. Some advise that there be one outlet at the deep end of the pool placed at the center and at the bottom, and that the inlet at the shallow end be at the center and near the top of the water. Where pools are wider than twenty feet two or more inlets and two or more outlets are recommended.

Other designers provide that the water enter at the deep end of the pool and that it overflow into the scum gutter in the shallow part. The argument for this method is that dirtier water and floating matter from the more crowded shallow end will be carried off more rapidly.

A third practice is to locate a series of inlets at various points around the entire pool.

"All pools should be provided with an outlet at the deepest point of sufficient size to permit the pool to be completely drained in four hours or less. Outlet opening in the floor of the pool should be at least four times the area of the discharge pipe to reduce suction currents. This opening must be covered with a proper grating." [2(e)]

(H). STERILIZATION.

"Several methods of sterilization have been tried out in swimming pools, such as ozone, ultra-violet rays and chlorination. The one now most frequently recommended by writers and designers is chlorination. There are at least three methods of effecting sterilization by chlorination; calcium hypochlorite, liquid chlorine and electrochlorination.

"The factors mentioned by designers and writers as being essential to successful sterilization are: It is asserted that in many cases where hypochlorite of lime is used, the sterilization of the pool depends upon a certain amount of this material being administered by the attendant. The disadvantage of this method lies in the possibility of carelessness and neglect on the part of the attendant, whereas the mechanically operated dosers are more certain.

"It is important that an excessive overdose be prevented. Excessive chlorine in the water is irritating to the eyes and mucous membrane.

"The action of the oxydizing agent should be residual, that is, a residual amount of the disinfectant should remain in the water to sterilize immediately any pollution disseminated by bathers.

"The disinfectant should be stable enough to remain in the pool water for a time in active form so as to be able to attack bacteria when encountered. In order that the water in the pool be pure in all parts, it is necessary that the circulating system be efficient and that the water be kept in continuous circulation." [4(b)]

"From all available information the addition of chlorine either as a gas or as a water solution by use of proper apparatus is today the most satisfactory method of pool disinfection. . . . It is possible not only to completely disinfect the entire body of water in the pool with chlorine, but also maintain in the pool water at all times a residual amount of disinfectant to sterilize immediately any dangerous pollution disseminated by bathers. With the proper chlorine apparatus it is also possible to increase or diminish the dosage as required to compensate for variations in the bathing load.

"A possible objection to the use of chlorine for indoor pools is the chance of accidental escape of gas into the room. Modern chlorine apparatus is carefully designed and built to prevent possibility of such accidents. As a factor of safety it is advisable to install the chlorinator and tanks in a special closet with vents near the floor connecting with a chimney or other duct leading outside the buildings.

"Next to treatment with chlorine as gas or water solution, continuous application of a solution of hypochlorite of lime or hypochlorite of soda is the most effective method of swimming pool disinfection. It is sometimes difficult to handle and apply these chemicals without escape of some objectionable odor into the room. When open to the air these chemicals also change rapidly in chlorine content and frequent tests of the strength of solution being applied and readjustments of the rate of application, as well as frequent tests of the residual chlorine in the pool water, must be made when this method of disinfection is used.

"Intermittent disinfection with hypochlorites as practised at many pools must be considered a makeshift. . . . On the basis of any available evidence the committee cannot recommend the use of ultra-violet ray apparatus alone for disinfection of any pool where the bathing load is high or where large temporary loads are likely to occur. . . . The data on the use of ozone for swimming pool disinfection are very few and inconclusive. There is no evidence that ozone has any residual sterilizing effect after the water has been treated and disinfection must, therefore, proceed according to the law of consecutive dilution and be subject to the limitations imposed by that law." [2(f)]

While in the above quotations the Committee recommends the use of chlorine either as a gas or as a water solution, most recent practice seems to indicate the desirability of use of an electric chlorinization process where salt is decomposed by an electric current to form chlorine gas and a stabilized neutral (non-irritating) sodium hypochlorite solution. In this process the supply of available chlorine is automatically in proportion to the amount of electric current through the machine. The electric current is proportioned to the dosage of chlorine required and the possibility of an overdose of chlorine practically eliminated. The stabilized solution is distributed throughout the pool more effectively. The chlorine does not escape from the water. The ozone method is also receiving favorable consideration. Synthetic sea water is being provided in some pools and is certainly worthy of consideration. The water is more buoyant and does not dry out a swimmer as does fresh water. In addition there is probably a stimulating effect from the salt as well as some sterilization value. If salt water is to be used a special plumbing system and pumps are required, as salt has a corrosive action on iron.

APPROXIMATE COSTS PER SQUARE FOOT FOR STRUCTURE AND LINING OF POOL WALLS AND FLOOR

	Item Cost.	Total Cost Structure and Lining.
STRUCTURE.		
Concrete Wall	$ .75	
Steel Frame ($1.50) and Gunite ($.50)	2.00	
LININGS.		
Vitreous Brick, 4 inch (No back-up brick)	.40	
With concrete tank		$1.15
With steel and Gunite		2.40
Glazed Brick Including back-up brick and membrane lining	1.00	
With concrete		1.75
Tile	1.25	
With concrete		2.00
With steel tank and Gunite		3.25

APPROXIMATE COST PER SQUARE FOOT FOR ACOUSTICAL TREATMENT OF CEILING AND WALLS

	Item Cost.	Sound Absorption C4 512 Vib. per Second.
Cinder Tile	$ .00*	18%
Acoustical Felt		
Nashkote A or B		
¾ inch	.65	53%
1 inch	.72	67%
Cork Board		
1 inch	.25	30%
4 inch (For combined insulation and sound absorption)	.50	35%
Acoustex 1 inch	.60	51%
Akoustolith		
Plaster	.35	29%
Tile	1.25 to 2.50	38%

*Listed at "no cost" since cinder tile is part of structure.

REFERENCES

1 Spaulding's Athletic Library (Official Rules for Water Games) No. 91R for 1928. National Collegiate Athletic Association Swimming Rules. See Index under rules. 1a, p. 3; 1b, p. 15.

2 Journal of the American Association for Promoting Hygiene and Public Baths. Vol. 10, 1928, Chicago. (Final Report of Joint Committee on Bathing Places of Conference of State Sanitary Engineers, and Public Health Engineering Section of American Public Health Association.) 2a, p. 46; 2b, p. 46; 2c, p. 52; 2d, p. 46; 2e, p. 49,50; 2f, p. 53.

3 State Department of Education, Pennsylvania. Report of the Survey of the Public Education and Child Labor Association of Pennsylvania. Philadelphia, 1922 (Quoted from Thomas), 3a, p. 91.

4 Thomas, Minor Wine, Public School Plumbing Equipment, Bureau of Publications, Teachers College, Columbia University, New York City, 1928. 4a, p. 92; 4b, p. 95,96.

5 Portland Cement Association, Swimming Pools, Chicago. 5a, p. 6.

6 American Journal of Public Health Renovation in Swimming Pool Control. W. O. Stovall, Nicholas Starr and Vere E. Vincent.

See also Municipal Index for 1928 published by American City Magazine Corporation, 443 Fourth Avenue, N. Y. C. "Typical Outdoors Municipal Pools." Russell Sage Foundation (N. Y. C.) "Sources of Information in Play and Recreation." (This contains 27 references to swimming pools and costs $1.00 the copy.)

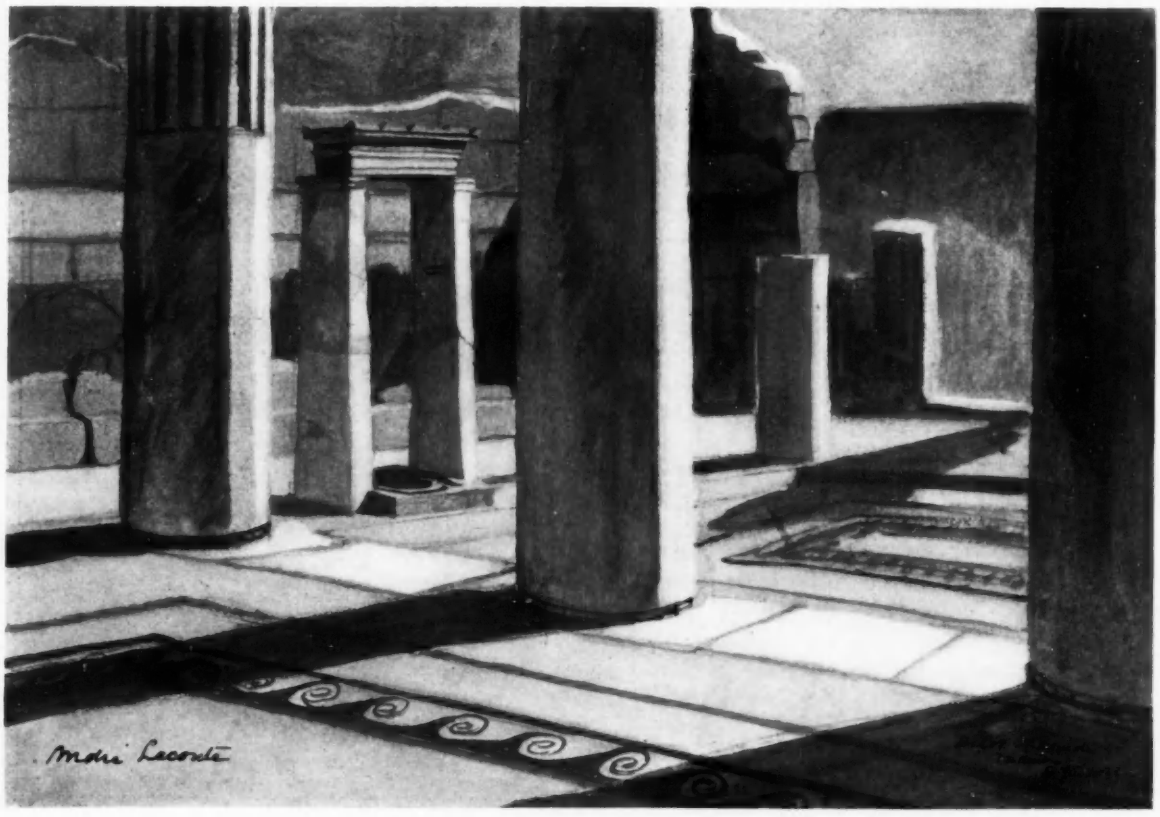
SPECIFICATION CHECKING LIST

1. SIZE of POOL
   - Length, breadth and depth
2. STRUCTURE
   - Footings
   - Concrete walls
   - Steel frame and *Gunite*
3. POOL LINING
   - TILE
     - with concrete
     - with steel tank and *Gunite*
   - Glazed and vitreous brick
     - with concrete
     - with steel tank and *Gunite*
4. SCUM GUTTERS
   - Recessed type
   - Open type
   - Drains
5. PARAPETS
   - At ends of pool twelve to eighteen inches above water level
6. COPING
   - Non-slip tile
7. SCUM BAND
   - Six inches to one foot in width, in color
8. NON-SLIP BAND for RACING
   - Two feet wide, both ends
9. DISTANCE AND DEPTH MARKINGS
   - Distance every five feet
   - Depth in foot units at upper edge of pool
10. SWIMMING LANES
    - At least five feet wide
    - Terminals four feet from each end
11. MARKING for WATER POLO
    - Painted markings preferred to colored tile
12. RUNWAY
    - At least four feet wide at sides, ten to twelve feet wide at ends
    - Space for bleachers
    - Non-slip tile
      - ceramic
      - *Alundum*
13. WALLS
    - Oatmeal surfaced tile
    - Vitreous brick
    - Acoustical plaster above base
14. COLOR SCHEMES
    - Experimentally determined
15. CEILING
    - At least twelve feet above water
    - Acoustical and insulation treatment
16. SPECTATORS' GALLERY
    - Permanent
    - Temporary
17. ACCESSORIES
    - Clock, drinking fountain, cuspidors, benches, slides, diving platforms, life saving and first-aid equipment, non-ferrous doors
18. HEATING and VENTILATING
    - Intake registers at pool level
    - Fan system
    - Univent system
    - Direct radiation
19. ARTIFICIAL LIGHT
    - Vapor-proof fixtures
    - Recessed installation preferred
    - Safety illumination for night
    - Underwater lights
20. DAYLIGHT
    - Skylights
      - violet-ray glass
      - heated space above ceiling
    - Side windows
      - double in Northern climate
21. INSULATION
    - Determination of correct thickness of insulation—See chart Page 79
    - Walls
    - Ceiling
22. ACOUSTICAL TREATMENT
    - Beams at ceiling desirable to prevent reverberation
    - Caution against condensation
    - Materials
      - Acoustical felt
      - Cork board
      - *Acoustex*
      - Acoustical plaster
      - Acoustical tile and imitation stone
      - Cinder block or cinder concrete
23. TREATMENT OF WATER
    - Recirculation system
      - Complete turnover once every eight hours
      - Pumps
      - Hair catcher
      - Suction cleaner
      - Inlets and outlets
    - Filtration
    - Water heater
    - Sterilization
      - Ozone
      - Ultra violet ray treatment
      - Chlorination

NOTES AND COMMENTS

THE MOSAICS AT DELOS

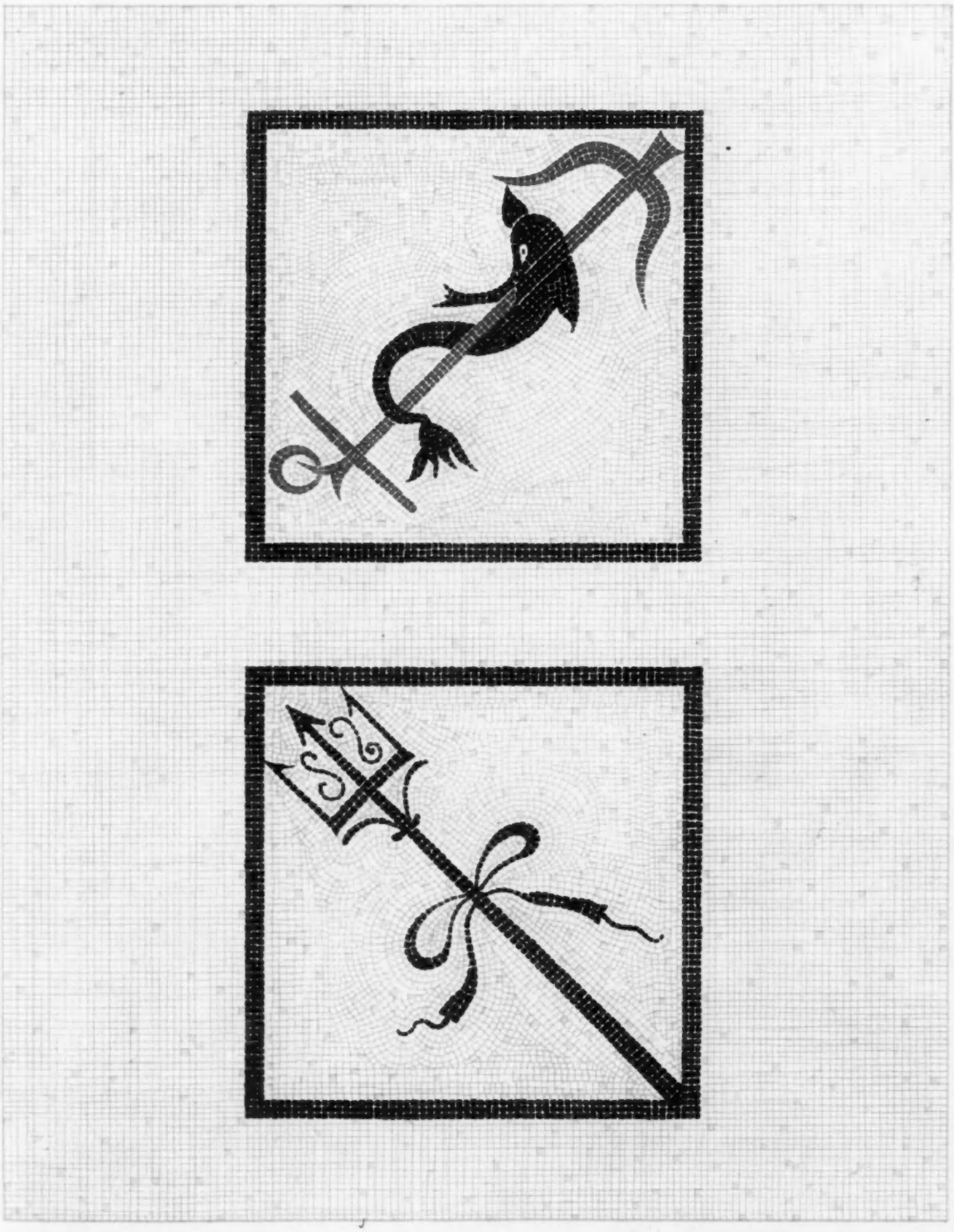
PAINTING and mosaic are two branches of Greek art which today seem almost irretrievably lost, due largely to the fact that few typically Greek houses have been found in the course of modern excavations. One might wish that the houses at Delos dated from Hellenic rather than from Hellenistic and Graeco-Roman times, but they at least suggest the Greek private dwelling of the finer period and its decoration. Despite Pliny's statement that the practice of decorating pavements "after the fashion of paintings" was begun by the Greeks and the fact that painted floors were not uncommon even in Mycenæan times, the mosaics at Delos constitute the most considerable and important group that has ever been found on Greek soil, and our knowledge of Greek floors is derived almost entirely from them.



HOUSE OF THE TRIDENT AT DELOS

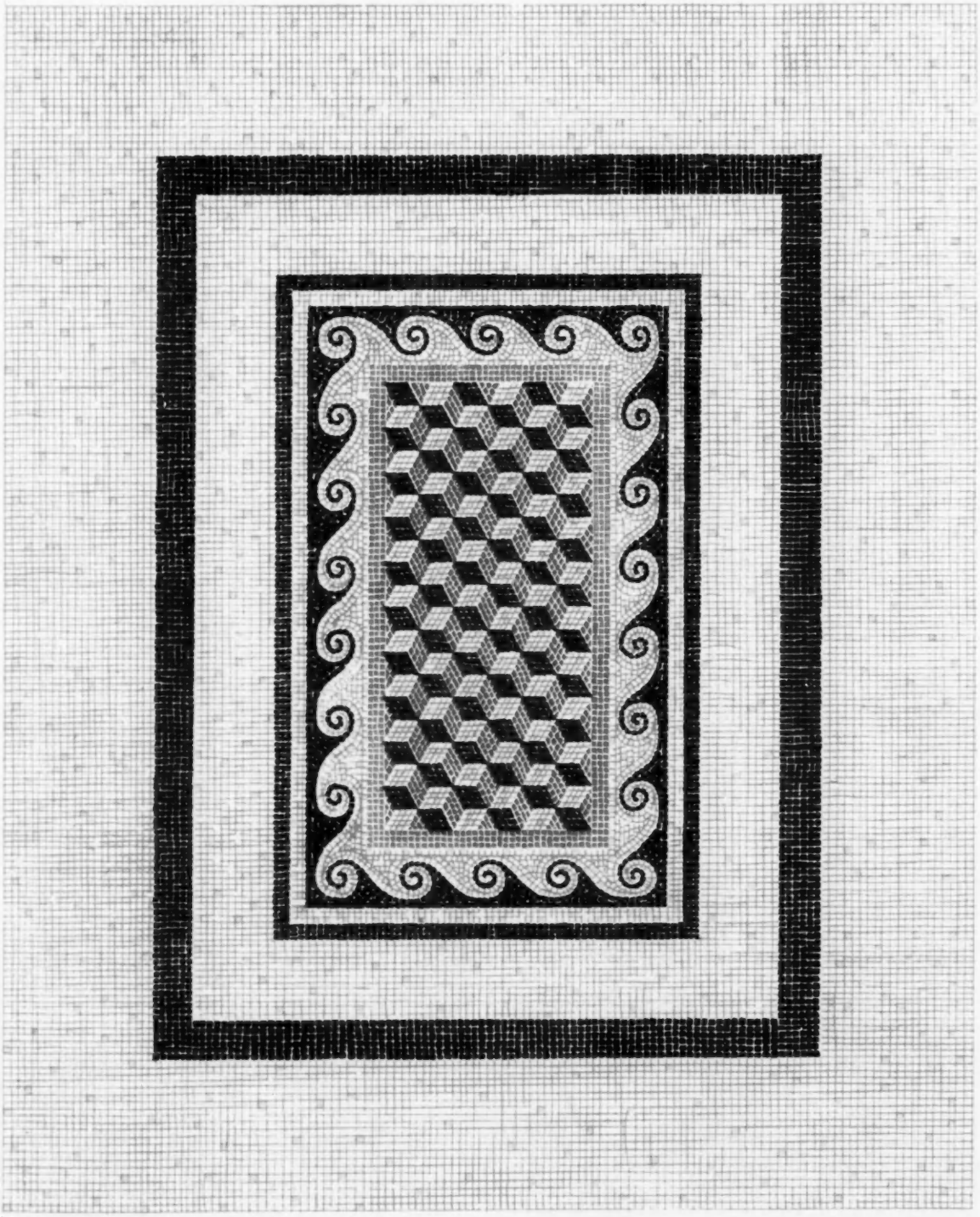
Delos, the smallest but most famous of the Cyclades, was the religious center of the Ionian races. Its sanctity was indeed so great that burials were not permitted on any part of the island, and at a later time deaths and births were both prohibited; a neighboring island to the west was the scene of such earthly contingencies. During the fifth century, Delos, along with the other islands, was subject to Athens. Its independence came as a result of the conquests of Alexander the Great and from this time on it was the center of a flourishing commerce which advanced with even more rapid strides when the Romans, in their turn, ceded the island again to the Athenians. Great buildings and fine private houses were erected, and it is to this period of prosperity, the third, second, and first centuries B.C., that the mosaics belong. During the early part of the first century, the islands were devastated by the generals of Mithridates, and in 69 B.C. the town was completely destroyed by the pirates.

The excavations at Delos have been carried on consistently by the French Archaeological School at Athens since the year 1873. The precinct of Apollo, the theatre, and an extensive commercial quarter have been disclosed, along with a considerable num-



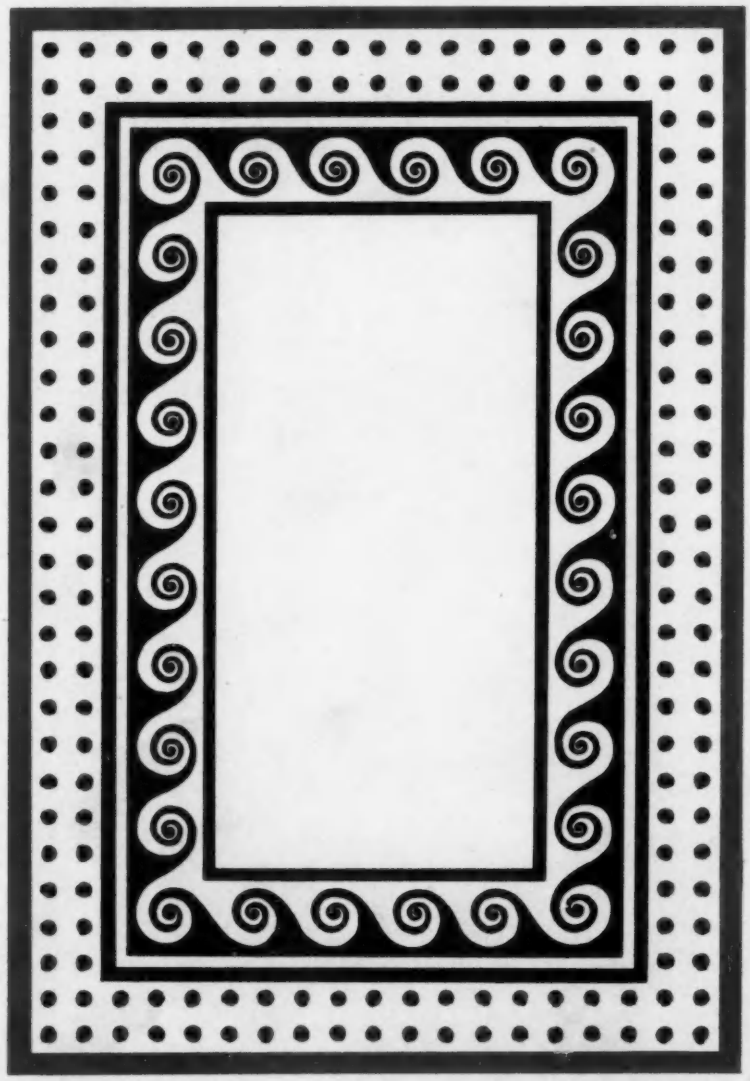
MOSAIC FLOOR IN DELOS ISLAND - GREECE
SCALE 1/10

ARCHITECTURAL RECORD SERIES.
POLYCHROME FLOORS
ANDRÉ LECONTE, MES ET DEL.



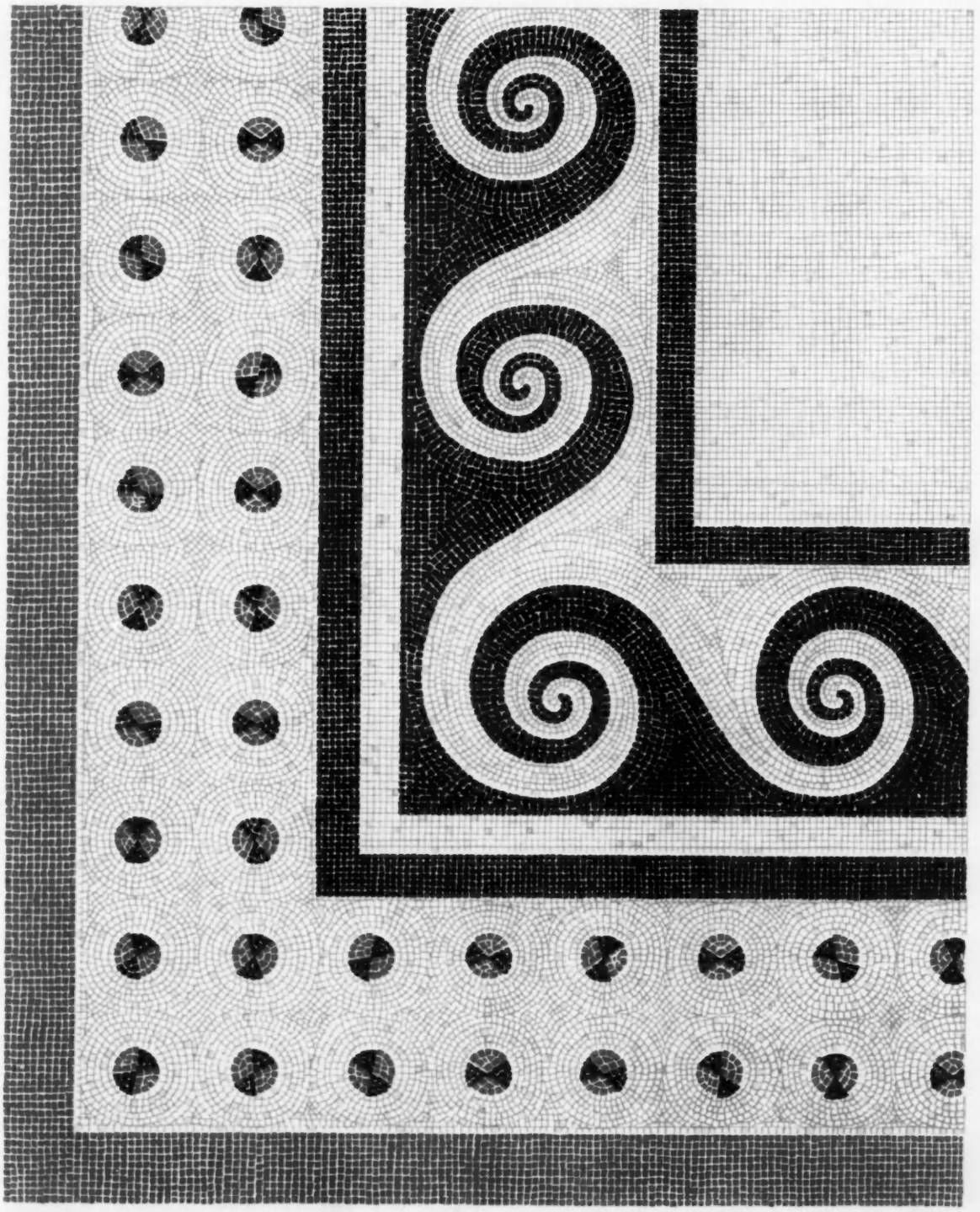
MOSAIC FLOOR IN DELOS ISLAND - GREECE
SCALE 1/10

ARCHITECTURAL RECORD SERIES.
POLYCHROME FLOORS
ANDRÉ LECONTE, MES ET DEL.



MOSAIC FLOOR IN DELOS ISLAND_GREECE
SCALE 1/40

ARCHITECTURAL RECORD SERIES.
POLYCHROME FLOORS
ANDRÉ LECONTE. MES ET DEL.



MOSAIC FLOOR IN DELOS ISLAND - GREECE
CORNER DETAIL - SCALE 1/10

ARCHITECTURAL RECORD SERIES.
POLYCHROME FLOORS
ANDRÉ LECONTE, MES ET DEL.

ber of private houses which, for the most part, are located near the theatre. The houses, fronting on narrow winding streets paved with slate, are similar to those at Pompeii, except that they are more simple as to plan and decoration. Each consists of a single court surrounded by columns, the floor being paved with mosaics; various rooms open from the court, including one larger than the rest which served as a dining room. The paintings have a liturgical content closely associated with Italian domestic cults, while the mosaics, Hellenic or Hellenistic in character, display in some instances an uncommonly strong oriental influence.

The mosaics found are all in the form of floors. These are of various types and not unlike those previously known from the excavations at Pompeii and in North Africa. For the most part, the pavements consist of three layers of cement, a thin top layer of very fine quality, averaging from two to three centimeters in thickness, into which the tesserae were inserted; beneath are two layers of coarser cement, each averaging from seven to eight centimeters in thickness. This method is practically in accord with the specifications laid down by Vitruvius. The tesserae are of many colors and were either made of material from the local quarries or were manufactured. In some instances, small round pebbles of bluish grey, brown, and dark green hues were simply inserted in the cement; sometimes the pebbles were broken into two or more parts and inserted with the broken sides up. Tesserae of stone are common both in the form of cubes and of broken fragments; white, yellow, red, and black are represented along with an infinite number of variations of these colors. There are also tesserae of green schist and of white marble with a slight bluish tone. In some cases, small fragments of pottery of a dark reddish brown color were inserted in the cement, their rounded surface being apparent. Tesserae of enamel were employed especially for the different tones of blue and green, though yellow, red, and a bright rose also appear.

One would probably imagine the floors at Delos as being originally highly polished. The evidence in ancient authors indicates that after mosaic floors were laid they were rubbed down and treated in some such manner, possibly with wax. The floor would then harmonize with the walls, which were often painted by the encaustic process, a method of painting in wax calculated to give a smooth and polished surface. Though as little is known about the appearance of a mosaic floor in ancient times as about encaustic painting, one can imagine the effect where each tessera, separated from its neighbors by the contrasting shadow of the interstices, bore a high polish; this quality, along with the uneven texture of the floor itself and its infinite variety of colors, would assure an elegance and brilliance that is somewhat lacking in the extant remains and more especially so in our smooth modern floors, where the surface is rubbed down to such an extent that all the original character of mosaic is lost.

PRENTICE DUELL

ANNUAL EXHIBITION OF THE ARCHITECTURAL LEAGUE, NEW YORK

NEW YORK is the heart of that economic and industrial life whose pulsations are felt throughout America, energizing states and cities with its vitality. Here the vital force of the country is proclaimed in an unprecedented scale of organization; here the genius of American progress is manifest in finance, industry, the stage, the forum, the arts.

Among the symbols of the character of America, so conspicuous in this city, is its ensemble of great buildings. In the jumble of impressions which any stranger must have upon reaching New York for the first time, its architecture typifies American achievement most vividly.

No week passes that I do not meet one or more architects from abroad. To each the skyline of New York is simply staggering, no matter how frequently he may have studied it in illustrated periodicals. The architect finds in New York what men in other walks of life discover here in their respective callings, an advanced stage of ordered development which cannot be considered as a spontaneous phenomenon.

The type of aesthetic result which has been produced does not arrive automatically. There must be something fundamental to create it. I find two causes for the beautiful ensemble which New York presents. First, the urge for greater beauty in surroundings, and, secondly, the greater mass efficiency arising from concentration of business. The fact that production and distribution are interdependent makes it expedient for business representatives to locate near one another so that personal contacts can be made with the least loss of time. Thus the leading industries of the world find offices in New York.

The urge for beauty and the economic urge for concentration would not produce aesthetic results, of themselves. The impulse must be guided, directed, and inspired. For forty-seven years, starting with a small group of architects, the Architectural League of New York has been presenting through annual exhibitions a collection of significant current creations in architecture and the allied arts. The League was organized February 18, 1881, with eighteen members; it was reorganized January 18, 1886, and was incorporated with 166 members November 2, 1888. The effort of the members was disinterested—to let the public see the better trend in building. In 1892, the League obtained permanent headquarters in the building of the

American Fine Arts Society, and there it maintained for many years club rooms as well as a working library for the use of its members. A year ago the League moved to Architectural League House at 115 West 40th Street, where last year's exhibition was held.

The League has been steadily expanding its policy and increasing the size of its exhibits; but, until recent years, because of limitations of space and funds, it has been compelled to ignore in its regular exhibitions the fundamental services of the manufacturer, the material man, and the contractor. This omission the League has, in part, overcome by special exhibitions which not only give room for the expansion of the annual architectural show to include a greater variety of exhibits from foreign countries but also permit the inclusion of those essentials which enter into the construction and equipment of a building. The third of these large exhibitions, the Architectural and Allied Arts Exposition, will be held in the Grand Central Palace next April.

The material men furnishing structural steel, elevators, stuccoes, mosaics, stone and all the supplies that go to complete a modern building, and the contractors who erect the buildings designed by architects, are to have a place in the exhibition, which will enable the public as well as the architects and others who compose the League, to review the possibilities in beautiful construction now available.

It costs upwards of $150,000 to put on an exposition representative of the skyline of New York. The Architectural League, unaided, could not do it. But with the coöperation of the building trades we shall have an exposition of the entire machinery of construction in a city like New York.

In this day, when the necessities of life are taken so much for granted, there is more need than ever for architectural supervision and for design by the various talents of architects, sculptors, painters, and craftsmen embraced in the Architectural League. It is taken for granted that buildings will be roomy, healthful, and comfortable; so we look forward to beautiful buildings. We expect that the type of car we can afford will perform well mechanically; so we choose the one that is most pleasing to the eye. Manufacturers of radiators, heating plants, refrigerators, and the like, when they have achieved efficiency of service in their product, turn to artistic refinements. In short, we are emerging from the era when we accept things that are ugly simply because they are efficient and cheap.

The American architect has never before found the public so willing to heed his advice, for America is now seeking beauty of design, of form, of mass, and of color. We see this change on all sides, in the streets, in the shops. At this exposition, the public, which is now seldom lured to the smaller architectural shows, will have an opportunity to inspect the best contemporaneous work of the artists, manufacturers, and craftsmen whose collaboration has made the skyline of New York a symbol of America.

HARVEY WILEY CORBETT

THE BOSTON STATE HOUSE

SOME FIFTEEN years ago when the Boston State House was provided with its present marble wings, the yellow paint which had previously covered its brickwork disappeared under a coat of white paint which was intended to harmonize the work of Bulfinch with the modern additions. Under this coat of white paint disappeared also much of the very great virtue of the building. The original design, become but the central pavilion of a rather amorphous mass, no longer showed its unusually skilful central scheme and seemed somewhat weak in arrangement and over-elaborate in detail.

At last not only the white paint but the yellow beneath it as well has been removed from the State House, and Bulfinch stands more than vindicated. To see the building today is to see a great monument that one had but half known before as through poor photographs. The optical effect of the red-brick—red being a color that comes toward the eye—makes the central original mass stand forth from the marble wings which seem by illusion to pass behind and not to join it. No longer do the wings and the Bulfinch design appear as one amorphous mass. Perhaps this work of Bulfinch now appears more independent and more justly emphasized than at the time it was built—a rich jewel of coral and ivory and gold protected behind and at the sides by the wall of the marble wings.

It should not be necessary in America, where the particular charm of white architectural features against red brick has at all times been appreciated, to point out in detail how vastly more effective the building is at present; how vigorous the delicate forms, reinforced by color contrast, now again appear; how like a Venetian bubble of white and gold the dome now rests lightly on the solid brick pediment; nor how above the brick basement arcade, the white Corinthian colonnade appears to be a rich and superlative decoration. For primarily, it was only necessary for Bulfinch's work to be set apart, as optical illusion now effects, from the encumbering wings, to assert the very evident fact that in art the present may vie with, but may not improve, the works of the past.

HENRY-RUSSELL HITCHCOCK, JR.

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BOOK REVIEWS

THE AMERICAN RENAISSANCE

DUFFUS, R. L.

The American Renaissance, Knopf. $3.50.

"THIS is the record of a more or less random pilgrimage undertaken in the hope of finding out if there are any signs of an aesthetic revival in America." Mr. Duffus is thinking chiefly of the plastic arts though he has something to say of the arts dramatic. His conclusion is that something of the kind is going on. Part I describes what has happened at certain universities—especially Harvard, Yale and Princeton—and the different approaches to the arts at these different institutions. Part II takes up recent developments at several important art schools, in Brooklyn (The Pratt Institute), Cleveland, Pittsburgh, Chicago, and elsewhere; also in the Eastman School of Music in Rochester, and the Curtis in Philadelphia.

So far as these go there appear to be two types of crusaders who are bringing art home to America: those who are pursuing culture, and those who are pursuing craftsmanship. "There is some craftsmanship in culture and some culture in craftsmanship, but so far no one has arrived at an ideal mixture." Art at Harvard is associated with Charles Elliot Norton who was much of a Ruskinian aesthetic moralist, and with the Fogg Art Museum which trains museum curators. Art at Princeton is associated with Allen Marquand who was a scholarly authority on Della Robbias, and with Howard Crosby Butler who was an archaeologist. These, like the art courses in most universities, are predominantly cultural. On the other hand, the two heads of the Yale Art School for two generations back were J. F. Weir and Sargent Kendall, painters, and art at Yale, as in most of our art schools, aims primarily at craftsmanship.

But craftsmanship in art does not all come from art schools and their curriculums. There are those who approach art as a personal adventure. Schools are apt to be conservative, and innovations to spring from individuals, or from spontaneously combustive groups of students who club together, hire a studio and persuade artists whose work they admire to help them. The Art Students League grew out of some such rebellion against the National Academy. "Its revolt was not so much against a conception of art as against a scheme of art education." Mr. Duffus (Part III) is somewhat ironical in his attitude toward "adventure in art." I gather that he prefers art schools to art leagues. But in the end he seems almost to repent. "It is the fashion," he says, "at the League to be passionately interested in one's work, just as it is the fashion at many colleges and universities to be passionately interested in everything but one's work. In short, the League may not be educational—I do not pretend to judge—but it is, after its fashion, magnificent." But what is there, one may ask, in any art school, or in any school anywhere in the world, more profoundly educational than to work hard and be passionately interested in one's work? The great educators are men who somehow have the gift to kindle that same passionate interest, which Mr. Duffus slightingly calls a "fashion" and which in the minds of successful educators is almost the crux of the whole matter.

In Part III Mr. Duffus gives also a history and description of three American academies, the National Academy of Design in New York, the Pennsylvania Academy of Fine Arts, and the American Academy in Rome; but whether they are properly grouped under art as adventure, or are properly art schools might be debated. Part IV is entitled "Dusting off the Museums," and is mainly concerned with the newer educational work of museums like the Metropolitan and those in Chicago, Pittsburgh, Cleveland, Detroit, Toledo and Houston. Part V is on "The Arts Dramatic."

In fact the "Renaissance" which Mr. Duffus uncovers seems to be entirely educational, an affair of the universities, art schools, art centers, art leagues, art classes, museums turned educational, and community movements for the cultivation of an interest in the arts. Unquestionably all these may be involved in a renaissance. They tend to indicate, or even create, the atmosphere out of which a renaissance may grow. But do they constitute such a renaissance? Does not the focal point of a renaissance lie in shops and studios, rather than in art schools, sketching classes, or cultural lectures in colleges and museums? Is not its significance to be looked for in what is being produced rather more than in what is being studied? Is not a piece of really beautiful modern pottery a better proof of an aesthetic movement than any number of cultural lectures or community art centers; or rather a proof of a more important kind of aesthetic movement? The renaissance of the fifteenth century was something of an educational revival, an awakening to forgotten interests, but our interest now in its art is in what was actually done by artists in the practice of their crafts.

European critics, if asked today, what is the most remarkable recent art development in America, would probably answer, "Your new kind of sky-scraper." Some, the ultra amiable, might call it the most remarkable thing happening anywhere. Others, the crushingly superior, might add that it is the only thing of any importance in art that ever did come out of America. But Mr. Duffus does not anywhere refer to the matter. I recently asked a decorator and dealer in *objets d'art* if there were any renaissance of art now in America and what it was; and was answered by a list of potters, ironworkers, weavers—Mercer tiles, Haegar pottery, Pewabic pottery, the Irving Forge, Yellin ironwork, the furniture of Lester Boronda, the designs of Hunt Diederich, and so on. The opinion seemed to be positive that something new and interesting was going on in the industrial arts; and a reference was given to an article in *The Arts* (edited by Mr. Forbes Watson) for September, on four modern American potters, Poor, Volkmar, Soini and Carl Walters. But all this does not seem to occur to Mr. Duffus as having anything to do with an American renaissance.

"Something is going on," as he justly concludes. His book is well written and amply proves his thesis of a widely spread movement in art education. The investigation was well worth making. But he would have done well to have defined more strictly the nature and limits of it, for his point of view is academic, the point of view of the educator rather than of the artist.

ARTHUR W. COLTON

THE HISTORY OF ARCHITECTURE

FLETCHER, SIR BANISTER [F.].

A History of Architecture on the Comparative Method, 8th ed. Large 8°. About 3,500 illustrations, including figures on plates. Nearly 1000 pp. Batsford, London; Charles Scribner's Sons, New York. 1928. $10.00

SOME WORKS score on account of their originality, some on account of their well-tried usefulness in the past; Fletcher's "Comparative" combines the two by appearing in a bewildering succession of editions, each a marked improvement on its predecessor. The original work was prepared by the present author, then known as Banister F. Fletcher, under the aegis of his father, the late Professor Banister Fletcher, in 1896, the fifth edition of 1905 having held the field as a short handbook for fifteen years. The sixth edition (1921) was a vast improvement. The seventh (1924) had larger plates and additional subjects, and now the text has been correspondingly enlarged, thus producing a highly-compressed, sleek and handy volume; 5000 of the sixth sold in three years, and 10,000 of the seventh—a noteworthy achievement in semi-technical English book-production. The fifth edition has a green, sixth blue, seventh black, and eighth smooth blue cover.

The eighth edition has, in addition to the enlarged text pages—so made as to retain the former pagination and index references—a number of extra figure subjects, both plates and tail-pieces. To keep the book as far as possible up to date, illustrations of such works as Liverpool Cathedral and the upward enlargement of the Bank of England are included, though practically no corresponding progress has been made with the text. An interesting historical feature is the vertical section of the crossing and dome of St. Paul's and a corresponding half-plan, made up of sectors taken at different levels, and hatched or tinted accordingly; this is useful in connection with the recent anxiety as to the safety of that famous building. Restored views of ancient cities are also added. Apparently no enlargement of either bibliographies or glossary has been effected since the sixth edition.

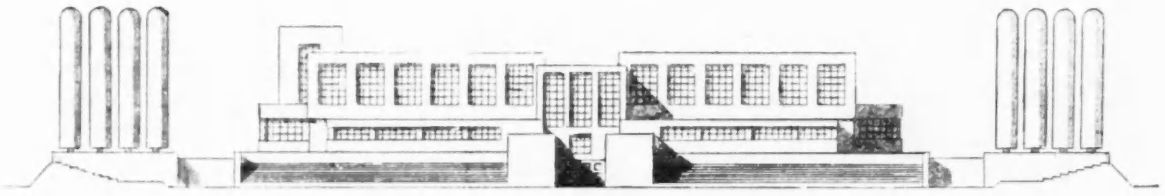
A Spanish translation has been produced by Canosa, of Barcelona, and it is understood that a French edition is in train.

The book is too familiar on both sides of the Atlantic to need a general review of its method here, save that the rigidly-adopted co-ordination and division of the text into certain headings under each style, and the consequent analytical study and comparison which can be made, form one of the best systems for a quick-reference work for the qualified architect, as well as for the technical student; it also possesses more advantage for the amateur reader than is commonly realized, by enabling him to grasp the salient features easily; but the narrative style has been adopted under each division to make it easily readable within these limits. Aesthetic criticism has been minimized—perhaps wisely for such a work.

There is one great source of usefulness in this kind of compilation—viz., that it simplifies a scientific study of structural methods as applied for given purposes and to given materials; such a study was recommended by Prof. Lethaby years ago, and is only now being carried out—in a variety of ways, but still with insufficient use of the collective experience of the past; Atkinson (R.) & Bagenal's "Theory and Elements of Architecture" represents an English attempt now in progress. By such a classification of lessons already learnt shall we help on the adventures of the future.

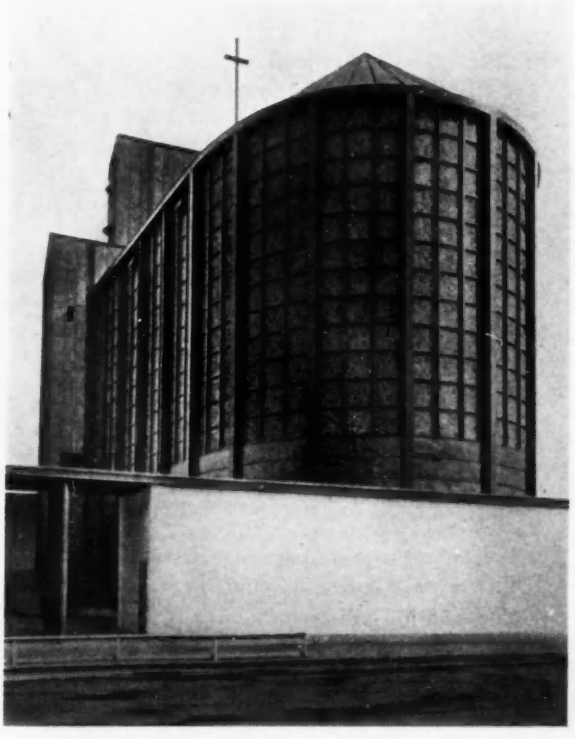
H. V. MOLESWORTH ROBERTS

ILLUSTRATIONS
from
FOREIGN PERIODICALS



A STADIUM IN SOKOL, CZECHOSLOVAKIA
STRÁNSKÝ-ŠTĚGL, ARCHITECT AND ENGINEER
From *Architekt Sia*, Nov., 1928

THE STABLES AT THE ROYAL HOSPITAL, CHELSEA, LONDON
DESIGNED BY SIR JOHN SOANE IN 1807
From *The Architectural Review*, Sept., 1928



A CHURCH AND HALL IN STEEL AND GLASS
—the Evangelical Exhibit at the Cologne Exhibition
HOWARD ROBERTSON AND F. R. YERBURY, ARCHITECTS
From *The Architect and Building News*, Nov., 1928

LIST OF NEW BOOKS ON ARCHITECTURE AND THE ALLIED ARTS

COMPILED BY

PAULINE V. FULLERTON

LIBRARIAN IN CHARGE OF THE DIVISION OF ART AND ARCHITECTURE, THE NEW YORK PUBLIC LIBRARY

ARCHITECTURE

ACHARYA, PRASANNA KUMAR.

A dictionary of Hindu architecture; treating of Sanskrit architectural terms, with illustrative quotations from Śilpaaástras, general literature and archaeological records. London: Oxford Univ. Press, 1927. xxi, 861 p. 4°. 30s. Amer. price $10. 722.4

"A full dictionary of all architectural terms used in the Mānasāra, with explanations in English and illustrative quotations from cognate literature where available for the purpose," and also "all the new architectural terms of any importance discovered in all the known architectural treatises, epigraphical documents, and general literature."—Preface. There are three appendices: a sketch of Sanskrit treatises on architecture; a list of historical architects; and a full subject index.

ALGOUD, HENRI.

Mas et bastides de Provence; anciennes et modernes habitations. Illustrations de F. et A. Detaille. Marseille: F. Detaille, 1927. 160 p. incl. plates (part col'd and mounted). illus. f°. 130 fr. 728.6

A detailed description of the Provençal country house, old and new, its exterior, interior and landscape setting. Excellently illustrated by reproductions of plans, photographs and water colors.

AUBERT, MARCEL.

Notre-Dame de Paris; architecture et sculpture. Paris: A. Morancé, 1928. 2 v. illus. (incl. plan), 67 pl. f°. 350 fr. 726.61

The introductory text discusses the rôle and the influence of Notre-Dame de Paris in mediaeval art. The 67 plates are large folio in size, and illustrate the architecture, sculptured detail and wood carving of the cathedral.

AZPIAZU E YMBERT, SALVADOR DE.

La bendita tierra; viajes por España, dibujos de Salvador de Azpiazu, prólogo y breves comentarios de Serafin y Joaquin Alvarez Quintero. Madrid: Editorial voluntad, s.a., 1927. 126 l. plates, port. f°. 75 pesetas. 720.946

An interesting collection of some 120 drawings of various picturesque aspects of Spanish architecture. Each plate is accompanied by a short descriptive note.

BESTELMEYER, GERMAN.

German Bestelmeyer; mit einer Einleitung von Fritz Stahl, (pseudonym of Siegfried Lilienthal). Berlin: F. E. Hübsch, 1928. xv, 54 p. incl. plans, plates. 4°. (Neue Werkkunst). 12 marks. 724.931

A monograph illustrating the work of this Munich architect of the contemporary German school.

COLAS, RENÉ.

Les styles de la renaissance en France dans l'architecture et la décoration des monuments; accompagnés de 160 planches hors texte en phototypie. Couverture en couleur par Georges Bouisset. Paris: R. Colas, 1928. 64 p. illus. (incl. plans), 160 pl. 4°. 100 fr. 724.14

This volume opens with a brief historical summary of the architecture of the period, which is followed by a series of 160 plates illustrating many types of renaissance work as exemplified in some 65 buildings.

GEBELIN, FRANÇOIS.

Les châteaux de la renaissance; deux cent vingt et une héliogravures, quarante-cinq figures dans le texte. Paris: Les Beaux-arts, édition d'études et de documents, 1927. viii, 306 p., front., illus., plans, 104 plates. f°. 125 fr. 728.82

Bibliography, p. 185–190.
A history of the French château from the disappearance of feudal survivals through the end of the 16th century. Then follows an alphabetical arrangement of individual châteaux, with careful historical notes and a bibliography. Sixty-one examples are illustrated.

HAMLIN, ALFRED DWIGHT FOSTER.

Text book of the history of architecture; 6th edition revised. New York: Longmans Green & Co., 1928. xxviii, 493 p. illus. 8°. $2.50. 720.9

A new edition of a standard text book.

KLEIN, WALTER.

Die St. Johanneskirche zu Gmünd. Frankfurt am Main: Kommissionsverlag H. L. Brönner, 1928. 138 p. illus., (incl. plans), plates. 4°. (Gmünder Kunst. Bd. 6.) 7.50 marks. 726.5

Bibliography, 1 p. at end.
An historical and critical study of this Swabian church, its individual features and sculptured detail.

LEJEAUX, JEANNE.

La Place d'Armes de Metz. Un ensemble architectural du XVIIIe siècle. Oeuvre de Jacques-François Blondel. Strasbourg: Librairie Istra, 1927. 119 p. plates. f°. 55 francs. 724.14

Bibliography, p. 117–119.
500 copies only, printed.
A carefully documented study of this example of 18th century architecture, published by L'Ecole régionale d'architecture à Strasbourg. The preface is by Paul Vitry.

MELANI, ALFREDO.

Palladio, 1508-1580; la sua vita, la sua arte, la sua

influenza. Milano: Ceschina, 1928. 71 p. illus. (incl. facsim., plans), 50 pl., port. 4°. 90 lire. 724.15

Portrait on title page.
Bibliography, 2 p. following plates.
A study of Palladio, the man and the architect; with 50 plates reproduced from the rare folio edition of Scamozzi, Vicenza 1776–1784.

MORAND, DEXTER.

The monumental and commercial architecture of Great Britain of the present day. London: John Tiranti & Co.; New York: Architectural Book Publishing Co., Inc., 1928. v. 1. f°. 30s. Amer. price $12.50. 724.94

Volume 1 illustrates 10 buildings on 54 plates. The types of buildings included are the following: public and memorial; theatres and cinemas; school and university; flats; office, bank and insurance buildings. Represents only British architects and mainly those working in the traditional manner.

SILLIB, RUDOLF.

Heidelberg. Leipzig: Klinkhardt & Biermann, 1927. 150 p. front., plates. 12°. (Staetten der Kultur. Bd. 36.) 4.50 marks. 720.943

Contents: Sillib, R. Vorgeschichte; Gotik; Renaissance. Lohmeyer, K. Barock; Romantik; Sagen.
A small volume concerned mainly with the architecture of this German city. Reasonably clear half tone illustrations.

TYRRELL-GREEN, EDMUND.

French church architecture. New York: Macmillan Co., 1928. xx, 261 p. front., illus., plates. 8°. $4.50. 726.5

French ecclesiastical architecture is here studied from three angles of approach—its "outstanding features," its Romanesque Gothic and Renaissance phases, and certain "special classes of structure," such as bridge chapels, fortified churches, town belfries, etc. Illustrated by line drawings and photographs.

VIRETTE, JEAN.

Façades et détails d'architecture moderne. Paris: A. Sinjon, 1927. 2 p. 48 pl. (incl. plans.) f°. 110 fr. 728.3

Recent work in Paris of some eleven French architects, in the traditional French manner.

WATTJES, J. G.

Modern Dutch architecture. Series 2. London: J. Tiranti & Co., 1928. 8 p. plans, plates. f°. 22s. 6d. 724.992

A representative group of plates illustrates various types of Dutch architecture and some interiors. The arrangement is alphabetical by architects, and a proportion of plans is included.

WEIGALL, ARTHUR EDWARD PEARSE BROME.

The grand tour of Norman England. London: Hodder & Stoughton, Ltd., 1927. 352 p. front., plates. 8°. 20s. 723.42

Reprinted in part from the Daily Mail.
"The object of the book is to give the reader a rough general idea of the amount of Norman work still to be seen in England, so that anybody who is interested in the period may learn where to look for its chief remains."—Preface.

WEINGARTNER, JOSEF.

Bozner Kunst. Bolzano: Vorlagsanstalt Vogelweider, 1928. 192 p. illus. 12°. 6.50 marks. 720.9436

A study of certain special phases of the architecture of this Tyrolese city. Not very fully illustrated.

ZELLER, ADOLF AUG.

Fruehromanische Kirchenbauten und Klosteranlagen der Benediktiner und der Augustiner-Chorherren nördlich des Harzes, aufgenommen, dargestellt und beschrieben. Berlin: W. de Gruyter & Co., 1928. viii, 73 p. illus. (incl. plans), 45 pl. f°. 50 marks. 726

Bibliography, p. 64–73.
At head of title: Technische Hochschule zu Berlin. Louis-Boissonnet-Stiftung 1909.
A carefully detailed architectural study of this local school of German Romanesque, illustrated by many measured drawings and reproductions from photographs.

ALLIED ARTS

AMERICAN ACADEMY IN ROME.

Memoirs Vol. 7. Rome: American Academy in Rome, 1927. 168 p. 54 pl. (part col'd.). f°. $5.50 720.6

Contents: Duell, Prentice. The Tomba del Triclinio at Tarquinia.
Lawrence, Elizabeth Baily. The illustrations of the Garrett & Modena manuscripts of Marcanova.
Carpenter, Rhys. Apollonios Nestoros.
Van Buren, Albert William, and Gorham Phillips Stevens. The Aqua Alsietina on the Janiculum.

BRIGGS, MARTIN SHAW.

Rusticus; or, the future of the countryside. London: K. Paul, Trench, Trubner & Co., Ltd., 1927. 94 p. 16°. (To-day and to-morrow.) 2s. 6d. 720.4

COULTON, GEORGE GORDON.

Art and the Reformation. Oxford: B. Blackwell, 1928. xxii, 622 p. front., illus. (incl. facsims.), plates. 8°. 25s. American edition published by Knopf at $7.50. 709

Bibliography, p. xix-xxii.
"My object is to trace the rise and decay of Medieval Art, and thence to argue first that its origin was less definitely religious than is commonly supposed; secondly, that its decay was gradual—a logical and natural consequence of its evolution—and lastly, that its deathblow came not so much from the Reformation as from that general transformation of the western intellect which we call the Renaissance."—Chapter 1.
An expansion and outgrowth of the Lowell lectures of 1923.

DUFFUS, ROBERT LUTHER.

The American renaissance. New York: A. A. Knopf, 1928. 4, 321 p. 12°. $4.00. 707

"This is the record of a more or less random pilgrimage undertaken in the hope of finding out if there are signs of an aesthetic revival in America, and if so, what forms it is likely to take and what the typical American approach to the arts may be."—*Foreword.*
Largely a survey of educational activity in the broadest sense of that term.

FAIRFIELD, OTHO PEARRE.

The Italian Renaissance in art, a study in appreciation. New York: The Macmillan Company, 192[illegible]. xiv, 487 p. incl. front., illus. 8°. $5.00. 709.4

A non-technical history of the architecture, painting, and sculpture of the Renaissance, designed to serve as a general introduction to the period.

GAUTHIER, JOSEPH.

Le mobilier vendéen et du pays nantais. Paris: C. Massin & Cie., 1927. 11 p. 40 pl. f°. (Collection de l'art régional en France.) 75 fr. 749

In a similar fashion to other volumes of the series, the text discusses the types of this provincial furniture; and the plates illustrate individual examples and interiors.

MOUREY, GABRIEL.

French art in the XIX century. London: The Studio, 1928. vii, 64 p. front. (col'd) 66 pl. 8°. (Great periods in art.) 10s. 6d. 709.44

Bibliography, p. 61-64.

A survey of French nineteenth century art, covering painting, sculpture, architecture and decorative art, painting and sculpture being especially emphasized.

NOACK, FERDINAND.

Eleusis, die baugeschichtliche Entwicklung des Heiligtumes; Aufnahmen und Untersuchungen von Ferdinand Noack, mit Beiträgen von J. Kirchner, A. Körte und A. K. Orlandos. Berlin: W. de Gruyter & Co., 1927. 2 v. diagrs., illus. (incl. plans.), plates, tables. f°. 150 marks. 722.8

"Dem deutschen archäologischen Institut in Athen zum Feste seines fünfzigjährigen Bestehens . . . gewidmet."

Bibliographical footnotes.

V. 1 Textband. V. 2 Tafeln.

A technical archaeological study, excellently illustrated and indexed.

PHILLIPS, R. RANDAL.

The modern English interior. London: Country Life, 1928. xxxii, 192 p. 189 plates. 4°. 21s. 747

Reproductions of some 250 photographs of interiors represent the work of more than 80 contemporary English architects and artists. The grouping is by individual rooms.

RÉAU, LOUIS.

Une dynastie de sculpteurs au XVIII[e] siècle, les Lemoyne. Biographie et catalogue critiques: l'oeuvre de l'artiste. Reproduite en 136 héliogravures. Paris: Les Beaux-arts, 1927. 249 p. incl. plates, ports. front. f°. (L'art français, collection dirigée.) 125 fr. 735

Bibliography, p. 159-161.

Detailed study of a family of French sculptors and of its individual members, including biography, chronology and check lists of works. Illustrated by 80 excellent plates.

ROSSI, CESARE, AND M. BOROLI.

"*Italian cities and landscapes.*" Venice; with 10 original water colours by Emanuele Brugnoli. Novara: Instituto geografico de Agostini, 1927. 106 p. illus., col'd plates. f°. 100 lire. 709.45

English edition also published in London by Simpkin at 30s.

An informal history of the art and architecture of Venice, very fully illustrated from photographs and water colors. Has an index of names and a classified list of illustrations. A parallel volume in the same series has been issued for Como.

ROUSSEL, JULES.

La sculpture française: époque romane. Paris: Albert Morancé, 1928. 36 p. 50 plates. 4°. (Documents d'architecture.) 90 fr. 734

A selection of outstanding examples of Romanesque sculpture, illustrated by excellent plates and descriptive, historical and bibliographical notes.

STOREY, WALTER RENDELL.

Beauty in home furnishings (what to choose, and why). New York: Rae D. Henkle Co., Inc., 1928. 297 p. front., illus. 8°. $3.50. 740

Bibliography, p. 295-297.

A series of chapters reprinted from the New York Times Magazine, covering various elements of interior decoration, such as furniture types, hangings, floor coverings, metal furnishings, lighting fixtures and decorative pottery.

TERRASSE, CHARLES.

Bonnard, texte de Charles Terrasse. Paris: H. Floury, 1927. 206 p. col'd front., illus. (incl. port.), plates (part col'd). 4°. 200 fr. 759.4

200 copies only, printed.

Bibliography, p. 200.

A criticism of the work of this French painter whose first exhibition in New York was held in April, 1928.

VENTURI, ADOLFO.

Giovanni Pisano, his life and work. Paris: The Pegasus Press, 1928. ix, 62 p. 120 pl. f°. £6. 6s. 735

Printed at the Officina Bodoni, Verona.

Bibliography, p. 61-63.

An elaborate volume emphasizing the bibliography, biography and work of this Italian sculptor; with most excellent photogravure plates.

WAINWRIGHT, SHIRLEY B.

Modern plywood. London: E. Benn, Ltd., 1927. viii, 66 p. illus., 32 pl. 4°. 10s. 6d. 721

This volume discusses the evolution and the characteristics of plywood, its uses as a building material for ceilings, walls, partitions and doors, and its application to furniture construction.

WEIR, LEBERT HOWARD.

Parks, a manual of municipal and county parks. Compiled as a result of a nation-wide study of municipal and county parks conducted by the Playground and recreation association of America, in co-operation with the American institute of park executives at the request of the National conference on outdoor recreation. This study was made possible through funds granted by the Laura Spelman Rockefeller Memorial. New York: A. S. Barnes & Co., 1928. 2 v. front., illus. (incl. maps, plans, facsims., forms, diagrs.). 4°. $15.00. 711

Paged continuously. Contains bibliographies.

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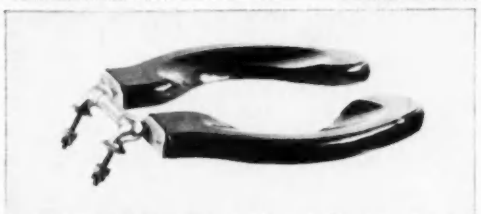

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NOTES IN BRIEF

COLUMBUS MEMORIAL LIGHTHOUSE COMPETITION

A change in the preliminary conduct of The Columbus Memorial Lighthouse Competition is announced by Albert Kelsey, Technical Adviser to the Permanent Committee of the Pan-American Union.

The first contest to select a group of competent designers which is now in progress, is to be regarded as a sketch competition, and therefore, in order to reduce the amount of work, and the cost to the competitor, it has been decided that all the drawings except the elevation may be submitted at one-half the scale called for in the programme. A bulletin, confirming this announcement, has been sent to competitors.

The selection of "finalists" is to be made in Spain and all drawings must be in Madrid by or before April 1st. About fifteen days should be allowed for shipment of drawings from New York City.

The time for voting for members of the International Jury has been extended. All ballots received in Washington before February 15th will be counted. It is, naturally, desirable that competitors vote for representative men of the various countries. If the competitor has no knowledge of Latin-American architects, he might write to the Sociedad de Arquitectos Mexicanos, 5 de Mayo 10, Despacho 50, Mexico City; and to the Sociedad Central de Arquitectos, Piedras 80, Buenos Aires, Argentine Republic, to find out whom they recommend as candidates. He might also write to M. Poupinelle, Secretary of the International Congress of Architects, Brussels, Belgium, for names of candidates for Europe; or to Professor Karl Moser, Secretary of the Société D'Architecture Moderne, 120 Freudenbergstrasse, Zürich, Switzerland. As to the United States, probably the best information is to be had from the New York Chapter of the American Institute of Architects, care of William Adams Delano, 101 Park Avenue, New York City. Presumably, it is of importance that the member from North America should be able to speak Spanish, and, of course, French.

Spain is to build a temporary building for the exhibition, and the king, accompanied by Ambassadors and Ministers of the American Republics stationed in Madrid, will formally open the exposition.

Further details of the competition may be obtained on application to Albert Kelsey, Technical Adviser to the Columbus Memorial Lighthouse Competition, Washington, D. C.

CALENDAR OF EVENTS

I

1929	
Jan. 25	Beaux-Arts Ball. Hotel Astor, New York City.
Jan. 28, 29, 30	Housing Convention. Hotel Adelphia, Philadelphia. For programme see National Housing Association, 105 East 22nd Street, New York City.
Feb. 4-9	American Ceramic Exposition. Exhibition Hall, Hotel Stevens, Chicago.
Feb. 11-Mar. 24	American Industrial Arts. 11th Exhibition. Metropolitan Museum, New York City.
April 23-25	Producers Council. Annual Meeting in conjunction with
April 23-25	American Institute of Architects. Annual Meeting. Washington, D. C.
April 15-27	Architectural and Allied Arts Exposition. (Architectural League of New York.) Grand Central Palace, New York City.
April 17-May 11	"Own Your Home" Exposition, indoor and outdoor, Chicago.
May 30	National commemoration of Major Pierre L'Enfant and William Thornton, by Federal and state organizations devoted to architecture.

II

Jan. 23	James Harrison Steedn Memorial Fellowship in Architecture, Washington University, St. Louis, Mo. Final date for entry in competition.
Jan. 31	Wright Memorial Competition, Kill Devil Hills, Kitty Hawk, N. C. Final date for receipt of drawings at the office of the Quartermaster General, Munitions Building, Washington, D. C.
Feb. 15	All ballots nominating members of the International Jury in the Columbus Memorial Lighthouse Competition must be in Washington.
March 1	Prix de Rome. Final date for entry in competition. New York City.
April 1	Columbus Memorial Lighthouse Competition drawings must be in Madrid, Spain.

COMPETITION FOR THE PRIX DE ROME

The American Academy in Rome has announced its annual competitions for Fellowships in Architecture, Landscape Architecture, Painting and Sculpture.

In Architecture the William Rutherford Mead Fellowship is to be awarded; in Landscape Architecture the Fellowship is provided by the Garden Club of America Fund.

The competitions are open to unmarried men, not over 30 years of age who are citizens of the United States. The stipend of each fellowship is $1,500 a year for three years, with allowances of $500 for transportation to and from Rome and $150 to $300 for materials and incidental expenses. Residence and studio are provided at the Academy and the total estimated value of each fellowship is about $2,500.

In architecture, graduates of accredited schools will be required to have had architectural office experience of six months, and men who are not graduates of such schools may enter the competition if they have had at least four years of architectural office experience and are highly recommended by a Fellow of the American Institute of Architects.

Entries will be received until March 1st. For further information address Roscoe Guernsey, American Academy in Rome, 101 Park Avenue, New York City.

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THE JAMES HARRISON STEEDMAN MEMORIAL FELLOWSHIP

The Governing Committee of the James Harrison Steedman Memorial Fellowship in Architecture announces the fourth competition for this Fellowship, to be held in the Spring of the year 1929.

The value of this Fellowship is represented by an annual award of Fifteen Hundred Dollars to assist well qualified architectural graduates to benefit by a year in travel and the study of architecture in foreign countries, as determined by the Committee and under the guidance and control of the School of Architecture of Washington University.

This Fellowship is open on equal terms to all graduates in architecture of recognized architectural schools of the United States. Such candidates must be American citizens of good moral character, and shall have had at least one year of practical work in the office of an architect practising in St. Louis, Mo., before being entitled to assume the benefit of the Fellowship. All candidates shall be between twenty-one and thirty-one years of age at the time of appointment to this Fellowship.

Application blanks for registration can be obtained at any time upon written request addressed to the head of the School of Architecture of Washington University, St. Louis, Mo., to whom application blanks properly filled out must be returned not later than January 23, 1929. Any requests for supplementary information relative to the rules and regulations governing the competition shall be made at the same time.

ON THE WAY TO DELOS

WRIGHT MEMORIAL COMPETITION, KILL DEVIL HILLS, KITTY HAWK, NORTH CAROLINA

A programme of competition for the Wright Memorial, Kill Devil Hills, Kitty Hawk, N. C., is announced by the office of the U. S. Quartermaster General, Washington, D. C. It was enacted by Congress "that there shall be erected on Kill Devil Hill, at Kitty Hawk, in the State of 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 author of the design selected by the Jury shall be the architect of the Memorial, and a contract will be made with him by the Quartermaster General, acting for the Memorial Commission, to prepare the necessary plans and specifications and for such supervision as may be needed to secure proper execution of the design, for which services he shall receive the sum of Five Thousand Dollars ($5,000).

Drawings should be sent before January 31, 1929. Copies of the programme may be obtained by intending competitors by addressing the Quartermaster General, Munitions Building, Washington, D. C.

CONTRIBUTORS

Roy Brown is a landscape painter. He studied at the Julian Academy in Paris, was a pupil of Jean Paul Laurens, René Menard and Raffäelli, and is represented at the Metropolitan Museum of Art, the Art Institute of Chicago and other museums.

Prentice Duell is an architect and archaeologist, now lecturer on ancient architecture at Bryn Mawr College. During 1923-25 he was Charles Eliot Fellow at the American Academy in Rome. He is author of a treatise "Etruscan Tomb Paintings" and has written articles on Greek polychromy.

André Leconte sought out and measured floors of southern Europe for The Record Series of Polychrome Floors. He was winner of the Grand Prix de Rome in 1926 and is now resident student and architect of the French Government at the French Academy in Rome. The ancient Greek floor mosaics of Delos which he measured and rendered in watercolor were recently excavated by French archaeologists. "The town of Delos," says Mr. Leconte "looks somewhat like Pompeii, but the Greek houses have the peristyle, with atrium and garden. . . . In general, the floor pattern in color is in the middle of rooms or surrounds the peristyle. The shape of rooms is often irregular and walls are not parallel." The mosaic of the floors illustrated in this issue are of marble approximately one centimeter square.

Edmund Gilchrist gained recognition by his distinguished treatment of group houses at St. Martins, Pa., and later at Mariemont, Ohio. He has successfully remodelled several houses near Philadelphia.

Myron Bement Smith was Guggenheim Foundation Fellow in 1927-28, during which time he investigated and prepared drawings of Italian stonework. He is the writer of the series, "North Italian Brickwork," published in The Record, January-June 1927.

Robert L. Davison, a new staff member of The Architectural Record, is Secretary of the Research Institute for Economic Housing. He was trained at Harvard and conducted research for the City Housing Corporation of New York, and the New York State Housing Board. He also has had general contracting experience in Florida, Boston and Los Angeles.

R. M. Schindler, architect of Los Angeles, formerly worked with Erich Mendelsohn and with Frank Lloyd Wright.

PROFESSIONAL ANNOUNCEMENTS

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NEWS OF THE FIELD

THE FOURTH of next month will see the opening of the first American Ceramic Exposition to be held in Chicago during American Ceramic Week. A quarter of a million dollar display of ceramic products, equipment and raw materials will be presented in Exposition Hall. Only American ceramic products will be exhibited. Glassware, pottery, sanitary ware, terra cotta, brick and tile will be included in the exhibition.

CONSIDERATION of an educational exhibit, to be included in the Architectural and Allied Arts Exposition by the building interests, has been made by a sub committee of the general exposition committee representing the building trades and the Architectural League of New York. Plans have been discussed concerning the presentation of an exhibition of actual building construction, including an exhibition of a group of buildings now under construction in Manhattan. Members of the exposition committees forecast the largest and most complete architectural exposition in history. Exhibits from Germany, France, Austria and Belgium have been assured and plans are under way to bring exhibits of the leading current architectural masterpieces of other foreign countries to the exposition. All exhibits will be classified. There will be included garden sculptures, city and suburban plans, skyscrapers, murals, conceptions of future cities and landscape architecture. Some of the well known skyscraper tops of New York City will be brought to earth in exact models. More mechanical workings than ever before exhibited are announced for this year. Color harmony will be shown as well as modern mosaics and colored tile. Howard Greenley is again in charge of decorations for the hall. Charles H. Green is again managing director, assisted by Walter T. Sweat as associate director. The exposition will be held in Grand Central Palace, April 15 to 27.

COLONEL ERNEST MCCULLOUGH and EDWARD S. HANSON have announced their association as merchandising counsel, specializing in advertising in the engineering, architectural and construction fields. Offices have been opened in Salmon Tower, New York City. Colonel McCullough was formerly editor, and Mr. Hanson, managing editor, of *Building Age and National Builder*.

THE AMERICAN CONCRETE INSTITUTE will hold its twenty-fifth annual convention in Detroit, February 12, 13 and 14. Two medals will be presented at the close of the convention, the Leonard C. Wason medal for the most meritorious paper presented at the 1928 convention in Philadelphia, and the Henry C. Turner medal for "notable achievement in the field of concrete." The secretary of the Institute has announced that convention papers and reports for preprinting must be received by December 10. Among the subjects to be discussed are a condition survey of concrete structures, the economy of quality in concrete, development of reinforced concrete specifications in the last decade, and volume changes in concrete. The last-mentioned subject will be presented by Prof. Raymond E. Davis of the University of California.

A NEW $7,500,000 organization, the Federal Seaboard Terra Cotta Corporation, has been formed from the merger of the New Jersey Terra Cotta Company, Federal Terra Cotta Company, and South Amboy Terra Cotta Company. The three terra cotta plants, in neighboring locations of Perth Amboy, Woodbridge and South Amboy, will function as one unit. Plans are under way for their enlargement. The personnel, plant capacity and management features of the companies is to be combined. Eckardt V. Eskesen will serve as president of the new corporation. Other officers include De Forest Grant, chairman; Peter C. Olsen, first vice-president and general manager; Karl Mathiasen, secretary-treasurer; Harry Lee King and William Mathiasen, vice-presidents. Executive offices of the corporation have been opened at 101 Park Avenue and sales offices at 299 Madison Avenue, New York City.

THE COMBINATION of beauty and utility which marks the permanent building material display of the Architects' Samples Corporation is ever a revelation. The display rooms of the corporation include the entire ground floor of one wing of the Architects' Building and extend in great measure throughout the other wing. In these rooms are to be found everything of interest to the architect and engineer from boilers to mosaics. Substantial displays are made of all manner of building materials, roofings, flooring, as well as interior and exterior furnishings. The corporation was organized some fourteen years ago, sponsored by leading architects. During this time exhibitors have not only continued their displays year after year but have enlarged their exhibits. There are no manufacturers' representatives located in the rooms, nor is there any selling. The display serves as a means for architects, engineers, contractors, interior decorators and real estate developers to allow clients to personally inspect building materials at a time when they are in the market to buy or specify.

THE ASSOCIATION OF CAST STONE MANUFACTURERS is lining up the problems concerning concrete stone which it will attempt to solve. Progressive manufacturers generally recognize a necessity to bring some order out of chaos by standardization. There is now far too wide a range of qualities and characteristics in the products, sold under various trade or general names, but all, in the mind of many architects, having some claim on classification as concrete stone. The manufacturers are approaching their problem with the idea that what architects desire in cast stone is that it be durable, that it be permanently good-looking, and that it be dependably uniform in quality. In the field work of the American Concrete Institute's committee, P-3, Concrete Stone Specifications, it is proposed to study and analyze as many cast stone jobs as possible in order to ascertain why each particular job is satisfactory or unsatisfactory. The Committee on Specifications has recommended that compressive strength be not less than 3500 pounds per square inch at 28 days and that the absorption be not less than three per cent and not more than seven per cent by weight of the dry specimen. These values are being submitted to the membership of the Association.