



THROUGH THE AGES

JUNE, 1925

“Then sculpture and her sister
arts revived; stones leaped to
form, and rocks began to live.”

—POPE



THROUGH THE AGES



VOL. 3

JUNE, 1925

NO. 2

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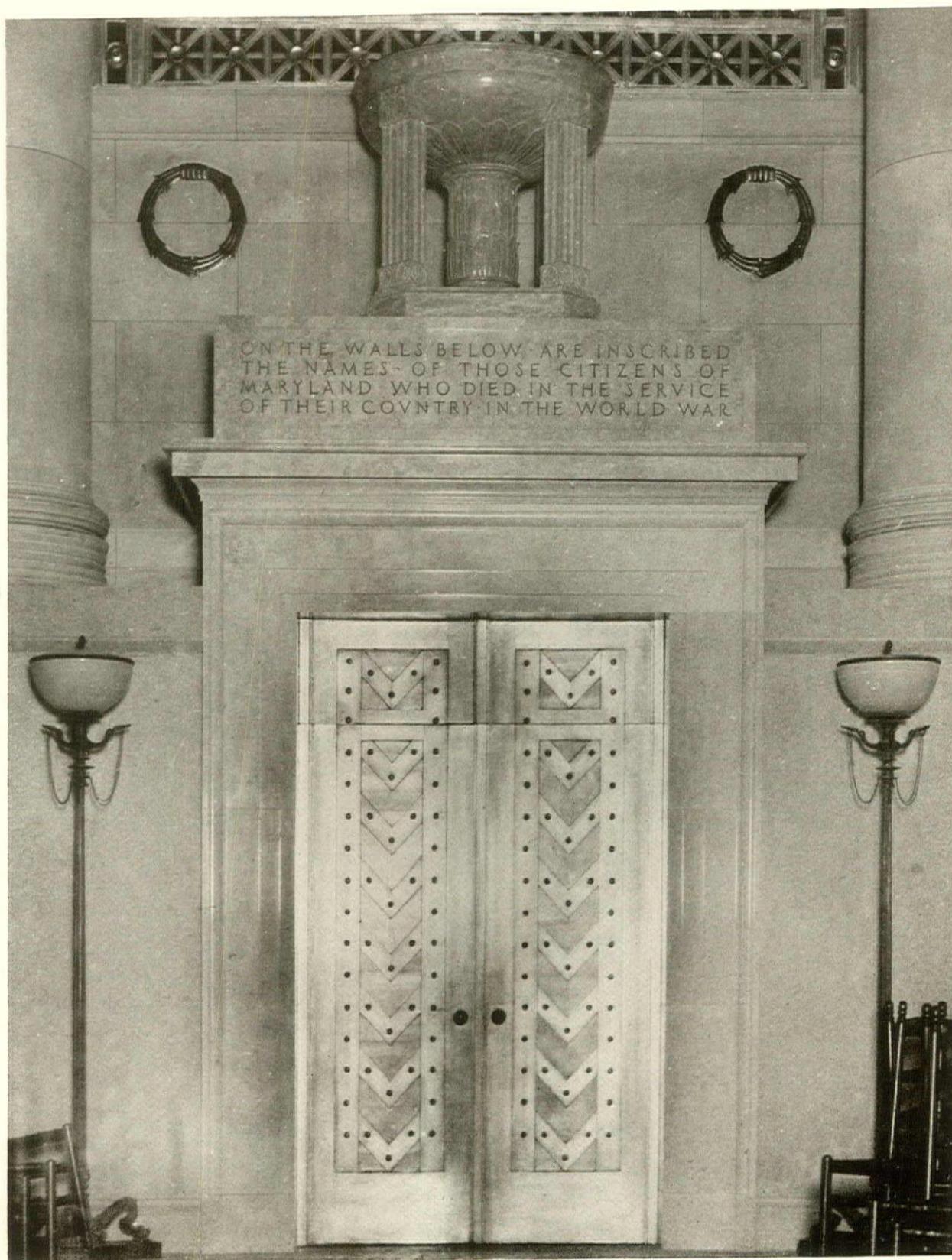


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The doors at the back of the stage in the War Memorial, Baltimore.

THROUGH THE AGES

A Monthly Magazine devoted to
the uses of Marble - its universal
adaptability, beauty, permanency
and economy.

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THE WAR MEMORIAL

A New Monumental Structure Recently Opened in Baltimore

BALTIMORE has lately acquired a building whose external formality is as severe as its interior grace is attractive. This is the new War Memorial erected by the people of the State and the City in memory of the native sons who fought in the World War.

The structure has just been completed and was dedicated on April 5, 1925. It occupies a space on the east side of a newly razed area that formerly was the site of a jumble of business houses of a nondescript character. It faces west, upon what will eventually be a municipal square; on the opposite side of this square is the first of the three old civic buildings that dominate this portion of Baltimore—the City Hall. On successive blocks are the Post Office and the Court House, all of them built of that Baltimore County marble used so extensively in the Monumental City in the last half of the nineteenth century.

The architect of the War Memorial, Laurence Hall Fowler, was chosen after a competition that produced several schemes of real merit. His design provided for a hall large enough for concerts, mass meetings

and similar gatherings, yet not so utilitarian as to blur the memorial character of the monument.

The impression gained by the passerby is that of a building carefully studied as to detail, but almost forbidding in its austerity. The ornamentation is conventional and frigid, lacking that pliancy characteristic of the Grecian art at its best period. The Doric columns of the front portico support an unusual weight of stone above, most readily observable when viewed from either side. The walls are battered slightly and at each angle are raised acroteria. These, together with a delicate cresting, tend to relieve the austerity slightly. On the north and south façades, the order is repeated in the form of pilasters, not much more than suggestions, and tied to the main portico by ornamental bands. In spite of the sternness of the lines, it is evident that much care has been expended on the design, and there is an imposing strength about it that is not to be underestimated.

The entranceway leads into a vestibule that is strikingly original, not so much in its plan as in the color scheme and the mate-



The new War Memorial Building in Baltimore stands on the east side of the new municipal square, opposite the City Hall.

rials. The floors, walls and ceiling are all of a dark red marble, spotted with white fleckings, rich in color and warm in tone. This marble, which is used in other parts of the interior, and of which mention will be made again, is Red Ark Fossil, from Arkansas.

From this vestibule are doors opening into the main hall and yet not directly onto the auditorium floor. There is a kind of lobby, a few feet below this main floor level, from which four stairways ascend, two directly ahead and two at either end. Between the former pair is a descending stair leading to the trophy room below.

The visitor is at once struck by the impression of grandeur, even before he has had a chance to take in the warmth and color of the great hall itself. A closer study will reveal the reason for such a feeling. On

every side is a wealth of marble; under foot the floors are of dull Italian Travertine; the walls up to a height of some 18 feet are glistening slabs of Tavernelle; lamp standards, with bases of Tavernelle and Belgian Black marble, are conspicuous. This same combination of materials is used for the sides and tops of the stair walls, the treads themselves being of Travertine. Directly in front is a broad marble stairway leading to the trophy room below. Through partly opened bronze doors a glimpse may be had of colonnaded depths below.

Ascending any of the four stairs, the whole room may be studied at leisure. Extending around both sides, the floor is raised a height of 2 or 3 feet, separated from the central seating space by a parapet of Tavernelle marble, topped by a cap of Belgian

Black, and relieved at intervals by lamp standards similar to those described above. The eye is led naturally to the platform at the end of the room which serves as a stage.

This stage is one of the most prominent architectural features of the room, the focal point of the interior scheme. At the rear of the rostrum are curious bronze double doors that are highly suggestive of the tomb and the resurrection. A marble urn of classic beauty is placed over the center of this door. The grill above, vast in its expanse, and handsomely painted with gold ornaments, serves as a screen for the organ which one day will be placed in the space behind. The

eye is held by the accumulation of effects, notable as much for their intrinsic beauty as because the architect has achieved a fine mood of mysticism which is proper in a building of this character, but so rarely found.

Overhead is an area of sheer blue, the blue of the open sky, surrounded by borders of ornamental beams painted in subdued colors. It is almost as if the chamber were open to the sun and rain, so closely does the ceiling shade approximate the dome of Heaven. High up on the walls, above the columns that encircle the whole room, are inscriptions reciting the names and dates of the



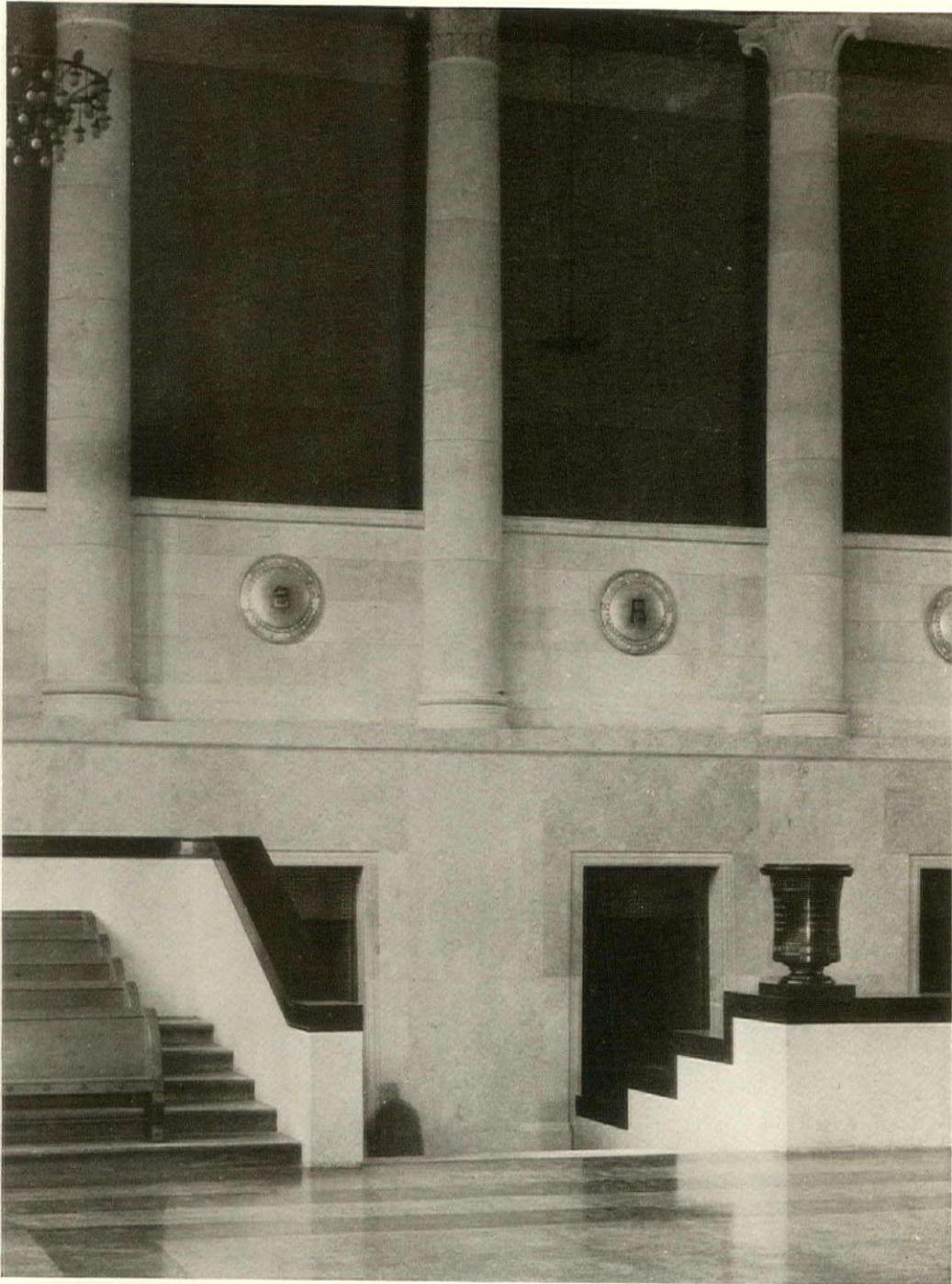
View of main hall looking west toward the entrance. Travertine, Belgian Black, Tavernelle and Red Ark Fossil marbles were used.



The west end of the Main Auditorium, showing the four flights of steps leading to the main floor level.

battles in which the Maryland troops participated. Lower down, beneath each window, are shields, each emblazoned with the insignia of one of the American Divisions of the Expeditionary Force.

The floor of the main hall is of marble terrazzo in a pattern of alternate strips of two tones of gray. The inner side of the parapet surrounding the seating space, as well as the front of the rostrum itself, is



The balcony at the rear of the hall with its columns suggestive of Egypt.
Note the divisional medallions on the walls.

wainscoted in Red Ark Fossil marble, affording a touch of color in pleasing contrast to the gray note that predominates.

Standing on the stage, and looking toward the western end of the room, other features

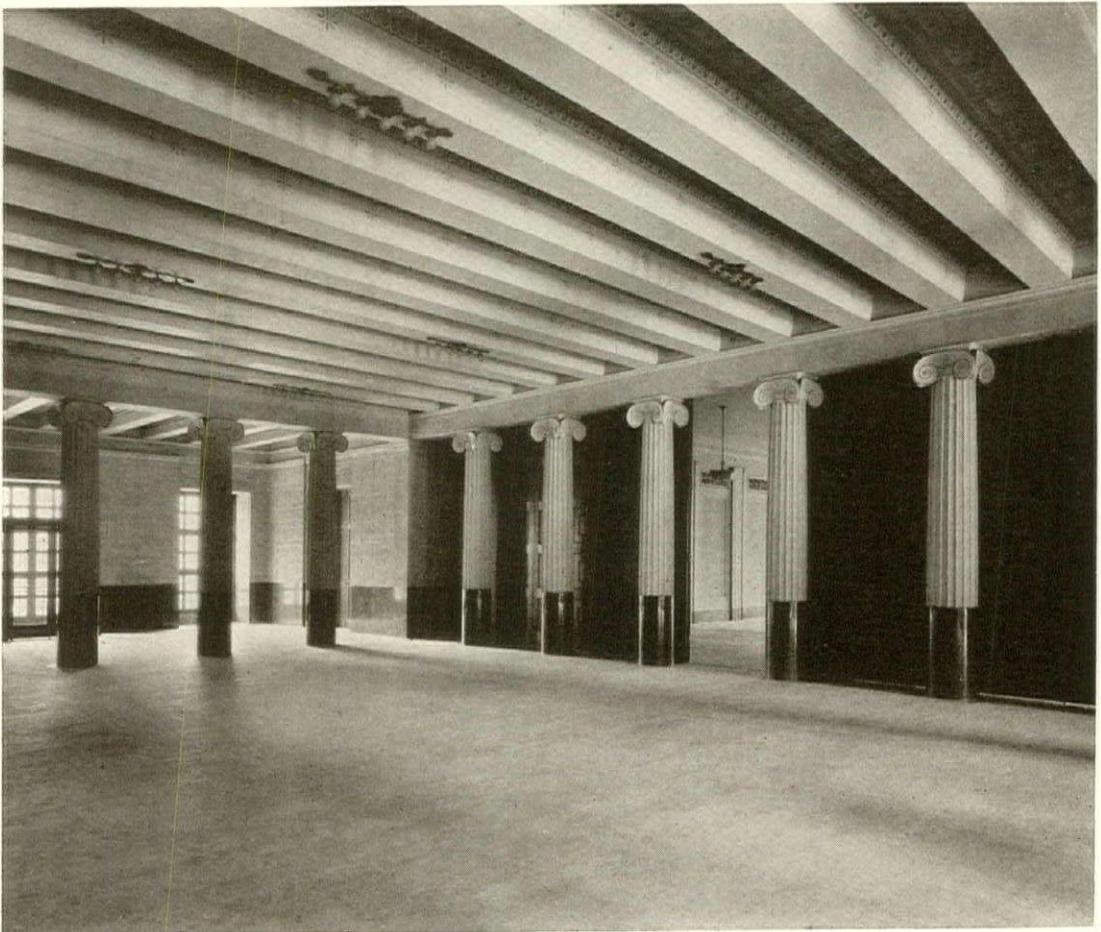
impress themselves. The beauty of the entrance is here felt more keenly. The black of the marble, the broad stairs, the graceful funeral urns that flank them, assume to themselves a new beauty. We note for the

first time, too, the colonnaded balcony that fills two-thirds of the rear wall space, and we perceive an unusual character in the design of the columns that is suggestive of the Nile rather than the Tiber or the Ægean Sea.

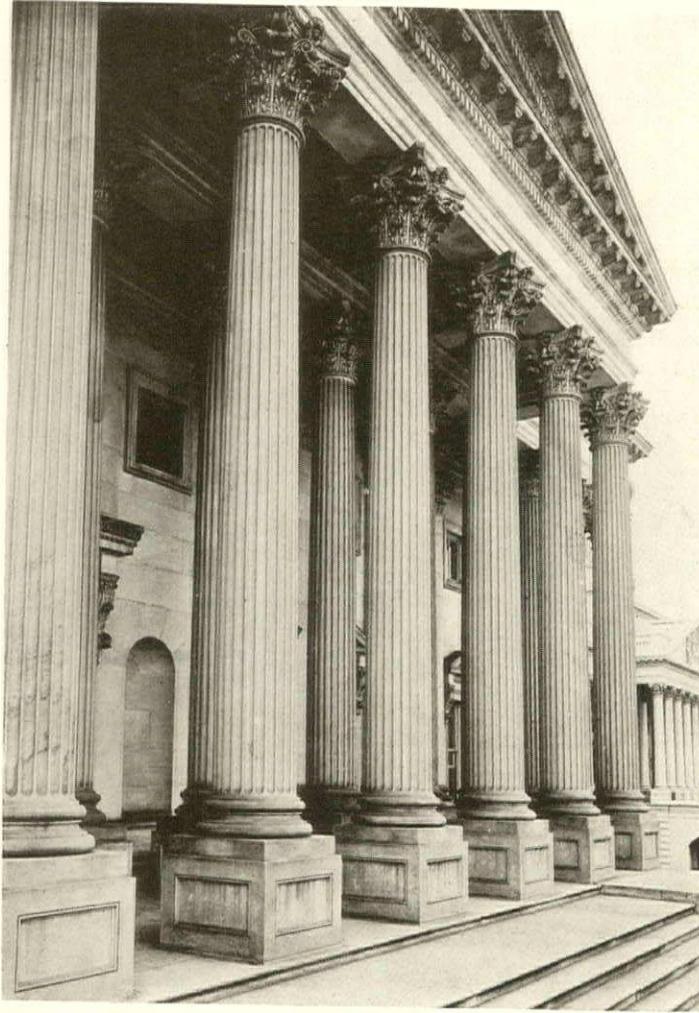
On the floor below the main hall, space is taken up chiefly by a large open room of moderate height with a beamed ceiling, and intended as a Trophy Hall. The floor of this compartment is of Napoleon Gray; the same material is also used for the adjoining chambers, which have been assigned to various patriotic societies. Around the sides of the Trophy Hall are fluted columns bearing rather odd looking capitals of Ionic motif and sheathed at the base in Red Ark Fossil

marble. The room is wainscoted to a distance of 5 or 6 feet from the floor in this same red stone. Conventionalized ornamentation in color is applied to the ceiling.

It is evident that the architect has been handicapped by lack of funds. "He has been forced in many matters to use imitation material," said the *Baltimore Sun*, "when the crying need was for real. But architects have always been so handicapped. What Christopher Wren did with St. Paul's has always indicated that the competent architect may rise superior to such obstacles. This building is a proof that good taste and true love for the task in hand will inevitably produce a thing in which all of us may take a lasting pride."



The Trophy Room in the War Memorial Building, Baltimore, has a floor of Napoleon Gray, with wainscoting of Red Ark Fossil marble.



Monolithic columns of Maryland marble in the wings of the National Capitol at Washington.

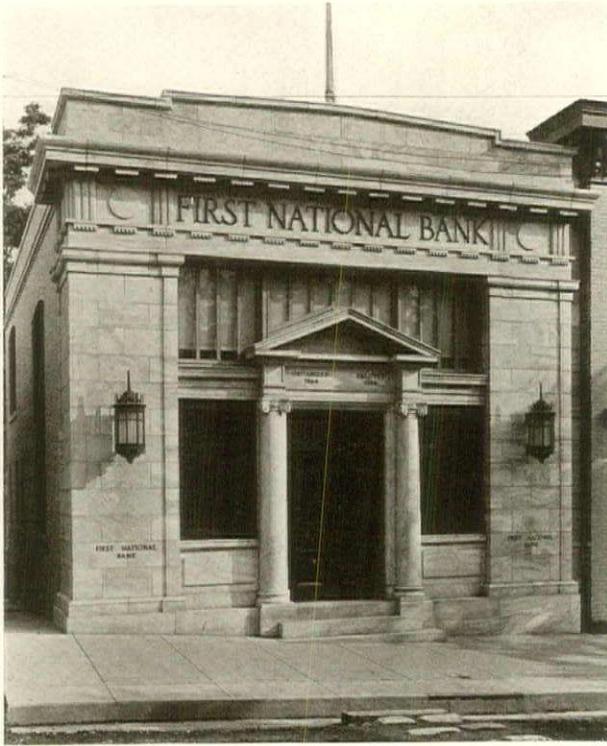
MARBLES OF MARYLAND

Quarry Development Has Been Slow, Chiefly Through Lack of Capital and Disappointed Expectations

COMPARATIVELY few Marylanders know that their state has produced in the past fifty years a considerable quantity of marble. This output, though relatively small when compared to the showing of such states as Vermont, Alabama, Georgia and Tennessee, nevertheless was a factor at one time in construction work all over the eastern part of the country. Today,

however, Maryland marbles are not being quarried with any degree of regularity for building work, though they are being used to some extent for other purposes.

The State House at Annapolis was built of Maryland marble; so was the Washington Monument in Baltimore. So, also, were the Peabody Institute, the Courthouse, the Savings Bank of Baltimore, Enoch Pratt Li-



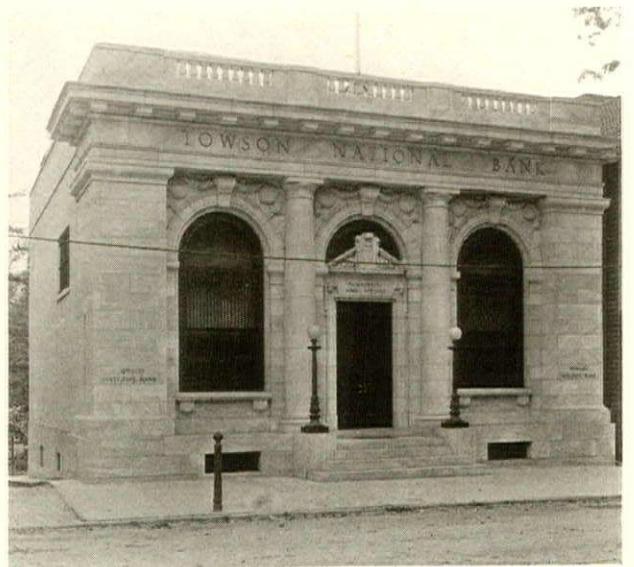
The First National Bank, New Windsor, Maryland; A. C. Leach, architect. Both exterior and interior are of Mar Villa marble.

brary, the old Citizens National Bank, the Oheb Shalom Temple and the First Christian Science Church, all in Baltimore. Away up in Buffalo stands the Albright Gallery of Art, one of the most imposing edifices of its kind in the country—a solid structure of brilliant white marble taken from the soil of Maryland not fifteen miles from Baltimore. In Philadelphia similar material built the Drexel Bank and the Penn Mutual Building; in New York it was used for the spires of St. Patrick's Cathedral and for the Metropolitan Club.

One of the most famous piles of masonry in the country—the Washington Monument in the National Capital—was constructed chiefly of marble from Cockeysville and Texas, Baltimore County, Maryland. Further examples are to be found in Washington in the extension of the Patent Office Building, the old General Post Office and in the

main hall, stairway and colonnade of the Senate Office Building. The wings of the Capitol Building contain 108 fluted monoliths each 26 feet long of Cockeysville marble, placed there during the administration of Thomas V. Walter as architect of the building. Mr. Walter, it is interesting to note, was a pioneer and active promoter of the American Institute of Architects.

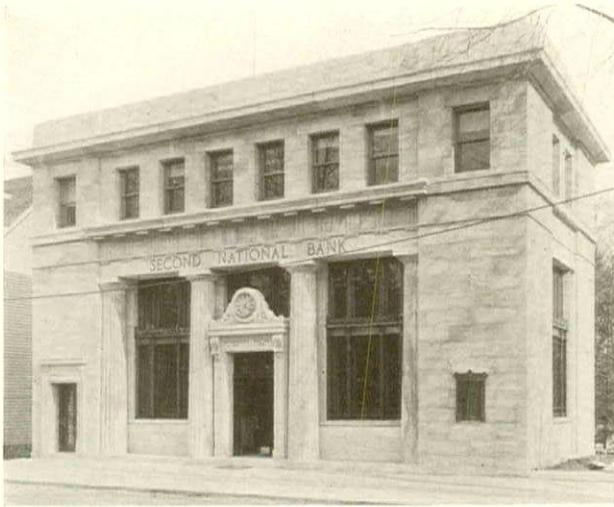
To the layman, statistics usually mean little. Even a visit to a quarry, with its exposed fields of white stone, has but scant significance. He sees a great stretch of white, with streaks of pink and splashes of dull brown and green where, on the ledges left by the cutting process, dirt has fallen and vegetation has developed. He sees men working with hand and steam drills, the mechanical channelers cutting long lines in blocks of seemingly inexhaustible deposits, huge derricks lifting out the blocks after they are broken out, men with tools cracking off defective pieces to be sold as rough-back for minor construction—and he asks why more capital doesn't go seriously into the development of all the state's resources.



The Towson National Bank, Towson, Maryland, is built of a pink-tinted marble.



The first monument to Washington was erected in Baltimore of Maryland marble. The statue at the top is 16 feet, wrought in three separate pieces, from one block of 36 tons, by Henrico Cancici, an Italian sculptor of merit. It was elevated by means of a pair of shears attached to the cap of the column by pulleys and capstan, planned and directed by Capt. James Woodside, of Washington.



The Second National Bank of Towson, Maryland. This marble also came from the Cockeysville district.

As a matter of fact, any man who goes into marble quarrying, whether in Maryland or in Colorado or anywhere, undertakes a big job. The earth's movements have cracked the stone until what looks on the surface like a good deposit, might turn out to be a dead loss, after the expense of stripping away the dirt and drilling. Cutting marble is a costly and tedious process and the profit is comparatively slight.

There are many old quarries scattered around Maryland. At Cambria and Cardiff there are Verde Antiques, classified as a trade marble, but scientifically not marble at all. At Boonesboro and Eakles Mills are small deposits of cream colored marbles. At Benevolla there are both marble and limestone deposits, practically unworked. Some little marble has been taken from time to time from quarries at Gunpowder Dam and Whitehall. At the latter place the material was Verde Antique, and showed both good color and quality. The entire hill was destroyed by dynamite in getting out crushed stone for road building. This dynamite, exploded at the bottom of 20-foot holes, opened up such seams that it was impossible afterwards to take out blocks larger than

2 feet in length—a glaring example of man's greedy short-sightedness. Today, the quarry is furnishing ballast for the Northern Central Railroad. The bulk of the real quarrying in Maryland has been done, however, at Cockeysville and Texas, a few miles north of Baltimore, on the old York pike.

In a history of the character and distribution of marble in Maryland, written by Dr. Edward B. Matthews, we read the following: "The rock of Texas," he writes, "is a coarse grained marble of nearly pure carbonate of lime, suitable for use as flux or fertilizer, while that at Cockeysville is a finer grained, dolomitic marble rich in magnesium and well adapted to building and decorative purposes. Dr. H. H. Hayden, who was a dentist and whose descendants are leading business men of today, first became interested in geology as a sort of hobby and wrote a letter way back in the 1700's, pointing out the possibilities of this marble to Dr. Nathaniel Potter. His judgment was justified when the marble was used to make the statue of Washington that surmounts the monument in Baltimore." This statue is famous as the first erected in



The Maryland Club, Baltimore's most exclusive social organization for men, was built of Maryland marble.

America to our most famous countryman. In the fifteen years that followed very little marble was taken out beyond some 200,000 bushels a year that went into fertilizer, being burned, crushed and scattered over the farms. The authorities, fearing the depletion of the supply by even such modest withdrawals, made arrangements to have a geologist explore the region. He reported practically inexhaustible stores of this material.

In 1847, Dr. David D. Owen, of the Smithsonian Institution, reported thirteen quarries in active operation in the Cockeysville-Texas field.

In 1913, Dr. Matthews wrote as follows: "The Cockeysville marble is of splendid quality. The grain is fine, seldom exceeding one-sixteenth of an inch in diameter. Its crushing strength is 22,416 pounds to the square inch, and the absorption ratio is low—0.213 per cent. In color it is pure white with now and then a few streaks of pale blue, which gives the rock a faint gray appearance."

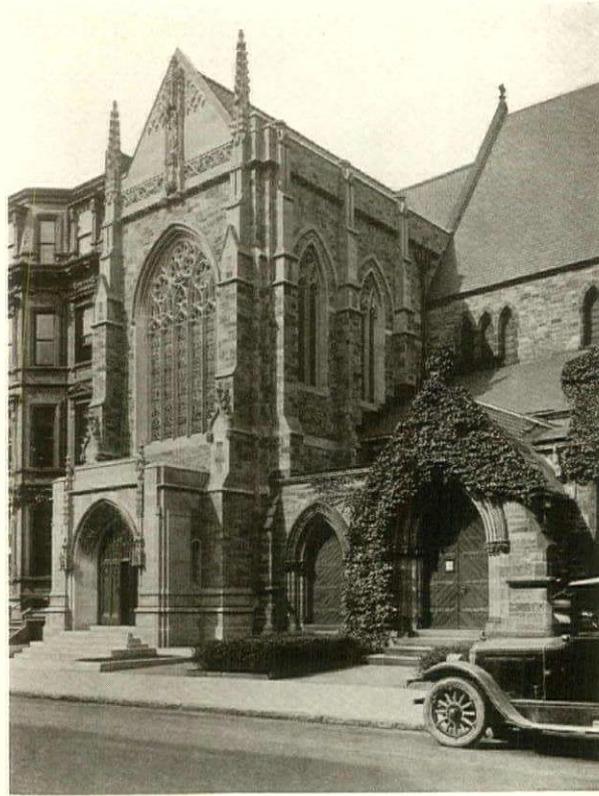
The stone takes a good finish, becoming almost dazzling white, as seen in the marble steps of thousands of houses in Baltimore, as famous throughout the country as the oysters and crabs of the Chesapeake Bay. All the marble is not white, however. In the

large monolithic columns of the Hearst Tower, formerly the Maryland Casualty Building, and in the interior work of the Western National Bank of Baltimore and the Towson National Bank, Towson, Maryland, there was used a variety of stone with a pinkish tint, not unlike that of some of the Tennessee marbles, with irregular lines and shades that are distinctively artistic.

In 1896-98 Maryland quarries, chiefly at Cockeysville and Eakles Mills, produced from \$110,000 to \$130,000 worth of marble each year. These figures dropped from 20 to 40 per cent in the next seven years, when the rebuilding operations after the Baltimore fire of 1904 brought the demand in 1905 and 1906 up to \$138,404 and \$176,495 respectively. In 1913 a number of Baltimoreans stepped in and organized the largest company in the state to work the quarries near Cockeysville. The output ran to about \$100,000 a year, which was inconsiderable when compared to the \$3,493,000 worth produced by Vermont in 1909. Since then there have been one or two attempts to work the quarries, with varying success, but the production figures have never been of a nature to place Maryland prominently among the states considered as centers of the marble industry.



The Court House in Baltimore is a fine old structure in the Renaissance style. The exterior is of Cockeysville marble



THE LESLIE LINDSEY MEMORIAL

The New Chapel of Emmanuel Church, Boston

TEN years ago there occurred one of the great tragedies of the Great War. On May 7, 1915, the civilized world was startled into horror by the news of the sinking of the *Lusitania* and the death of hundreds of innocent passengers aboard that ill-fated vessel. Among these passengers were Leslie Lindsey Mason and her husband, Stuart Southam Mason, the former the daughter of William and Anne Hawthorne Lindsey, of Boston.

Last year there was consecrated in the old New England city a new building that had been erected in loving remembrance of their daughter's untimely end—the Leslie Lindsey Memorial, the new chapel of Emmanuel Church. The architects of this structure, Allen and Collins, of Boston, combined in their plans features from the

best examples of the various periods of English Gothic.

In general form and proportions the precedent of the English Perpendicular was followed; the lower arcading of the nave is decidedly Early English; the window tracery is reminiscent of the Decorated Period.

This mixture of styles was intentional. Indeed, the charm of many of the ecclesiastical buildings in England is due to this lack of adherence to a fixed type; construction then extended over a considerable period, and new influences almost invariably developed between the laying of the foundation and the final finishing touches. Eccentricities of treatment in the Lindsey Memorial were necessitated, moreover, by certain conditions of the site; the narrow lot and the blank walls of the adjoining

buildings introduced difficulties of design the solution of which have proved far from detrimental to the whole scheme.

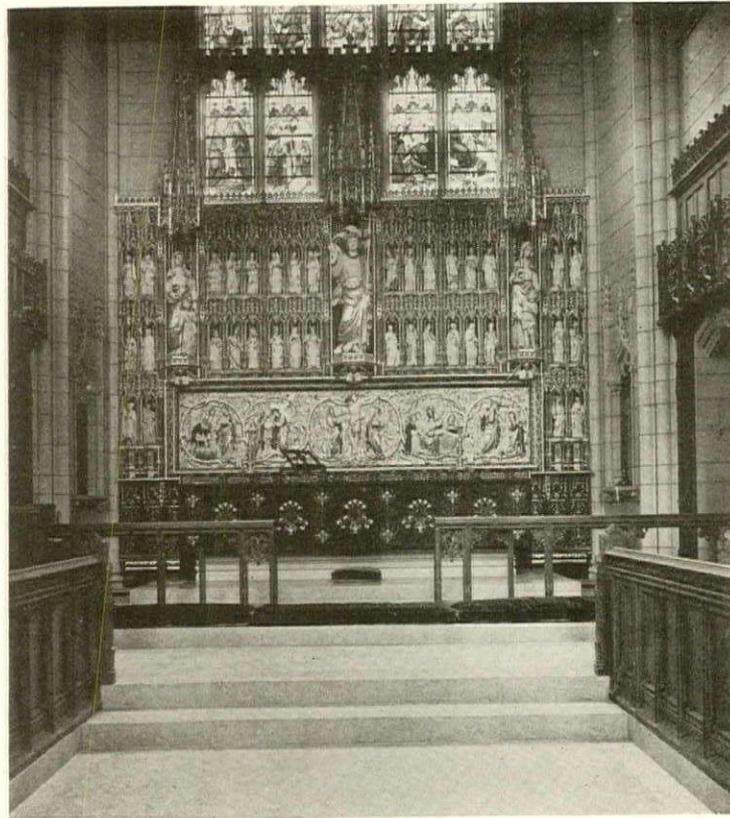
The exterior is built of the same stone as the parent church, a Roxbury conglomerate with limestone trim and tracery. Beneath the great nave window a low vaulted entrance porch leads into the nave itself, a vault that rises to a height of 46 feet and extends to the north with seven equal bays a distance of 85 feet. The last bay forms the chancel, with a deep traceried sanctuary arch. The side walls are pierced with windows only in two places, but this absence of

fenestration is offset by an applied arcade with a rich carved cresting and panels of warm Bath Stone, the lofty slender columns and rich fan tracery and carved bosses of the groined ceiling.

The floor of the nave is of Travertine marble, which affords a happy contrast to the Botticino marble of the chancel, floor and steps, and the Bath Stone chancel rail and the Caen Stone pulpit base. The pulpit, choir stalls and lectern are of oak, richly carved, the lacework panels of the canopies rising in crocketed finials against the warm background of the Bath Stone walls.



The nave, looking toward the reredos.



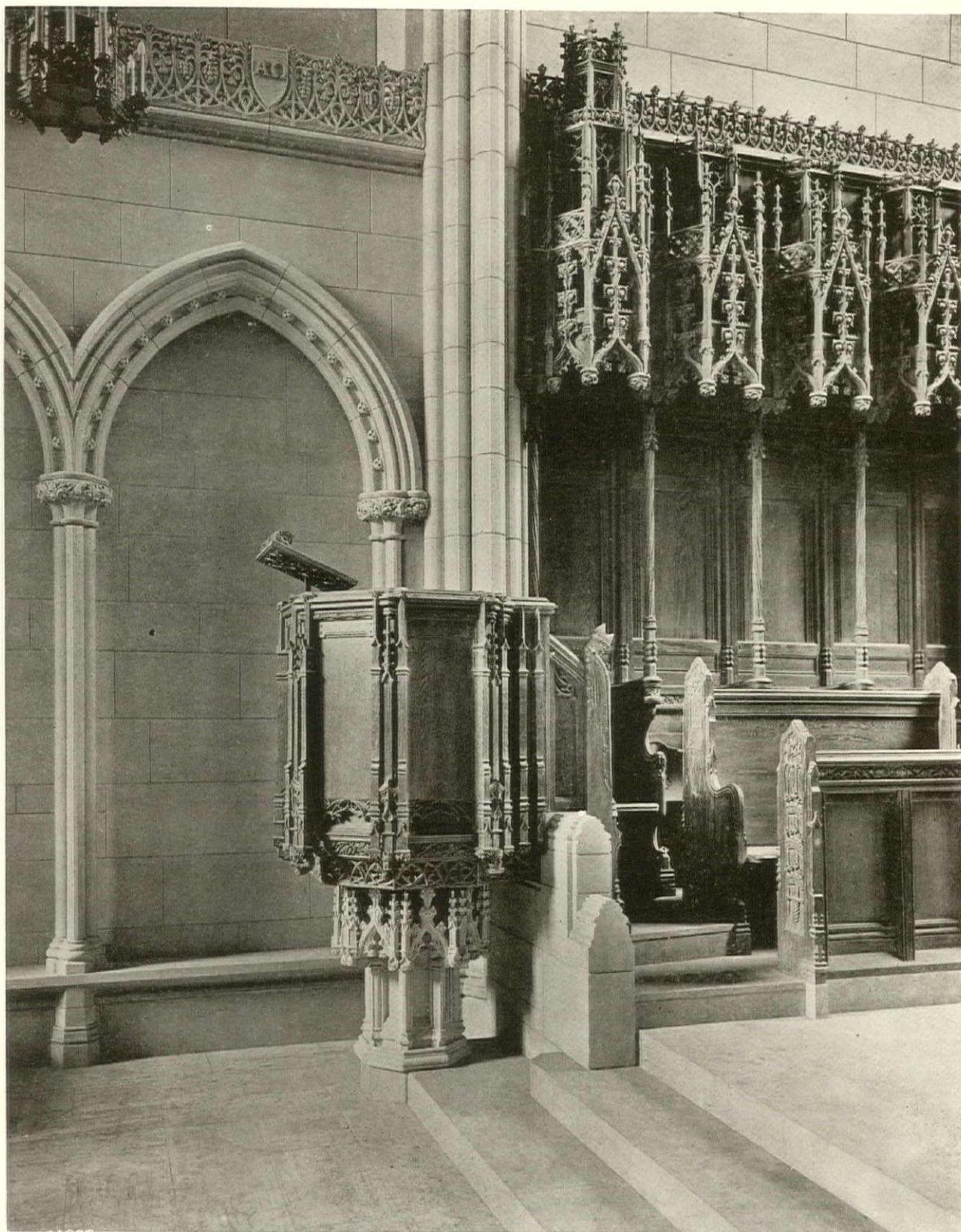
Details of the reredos, showing the thirty-six small alabaster statues in the niches.

One of the interesting features of the chapel is the symbolism that has been employed throughout the carving in wood and stone. Bosses, pendants, saints and angels all contribute to this human interest. Birds, animals, flowers, various objects and even colors have their ecclesiastical interpretation, so that the chapel reveals a story to the observant from the entrance door to the bosses of the ceiling.

The exterior, for instance, is dominated by the Virgin and Child in the main gable, a carving after the manner of the best mediæval artists. To her right, in a field of fleur-de-lis, are the three rings that symbolize the Holy Trinity; to her left are the three roses of the Virgin Mary. Other symbols appear on the belt course, in the arch of the main entrance, in the tympanum of the oak door and elsewhere. Inside

the vestibule doors, supporting the flanking niches, are the Ship of the Church and the Pelican with her young.

Over the lower arcade of the nave runs a foliated stone cheneau in which appear at regular intervals emblems of the saints. These include the apples of St. Dorothy, the Pincers of St. Agatha, the Square of St. Thomas and many others, all of which bear some relation to events in the lives or martyrdom of the saints, and each of which is a story in itself. Even the vaulted ceiling is replete with religious significance, the bosses in the six bays marking from the entrance bay to the chancel bay an ascending scale in the Ecclesiastical Hierarchy. On the ends of the choir screen appear the Crown and the Sword, and the Lilies and the Cross. The face of the lectern has carved upon it the Sermon on the Mount,



The pulpit, with the choir stalls and hood to the right. The floor is Travertine; the pulpit-base, Caen Stone; the chancel floor and steps, Botticino. The walls of the nave are Bath Stone.

flanked by the Ten Commandments.

The altar is built of plainly worked Bath Stone covered by a single slab measuring 11 feet by 4, and having a molded plinth which shows beneath the "decent carpet of silk" prescribed by church rules and which here, following a mediæval precedent, does not reach the ground.

Even longer than the altar and about the same height, is an "upper frontal," or reredos, of pure white Nottinghamshire alabaster carved in low relief and decorated in gold and color. It measures 13 feet 2 inches by 3 feet 2½ inches and has five pictures, each in one piece of alabaster and enclosed by a trailing rose, the stem of which forms the Cross of the central picture of the Saviour.

This reredos owes its existence to our knowledge of the English alabaster reredoses which in the Middle Ages were sent all over Christendom as then known, and now adorn its museums. In design, however, it resembles them only in the treatment of its coloring. It is interesting in this respect that the mediævals followed the examples of the Greeks who colored their ordinary marbles, but when they employed so fine a marble as the Parian, which closely resembles the English alabaster, they left the flesh untouched except for a preparation of wax and merely penciled the features with color and gilded the hair and drapery. The Hermes at Olympia is a partially surviving example.

However, the Nottingham quarries, it would seem, did not yield pure white blocks of sufficient size to produce in single stones these slabs or the three main figures in full relief above the reredos. These latter are about 4 feet high and depict the Blessed Virgin, the Risen Saviour and Saint Elizabeth, in order from left to right. They stand in the main niches of the altar screen

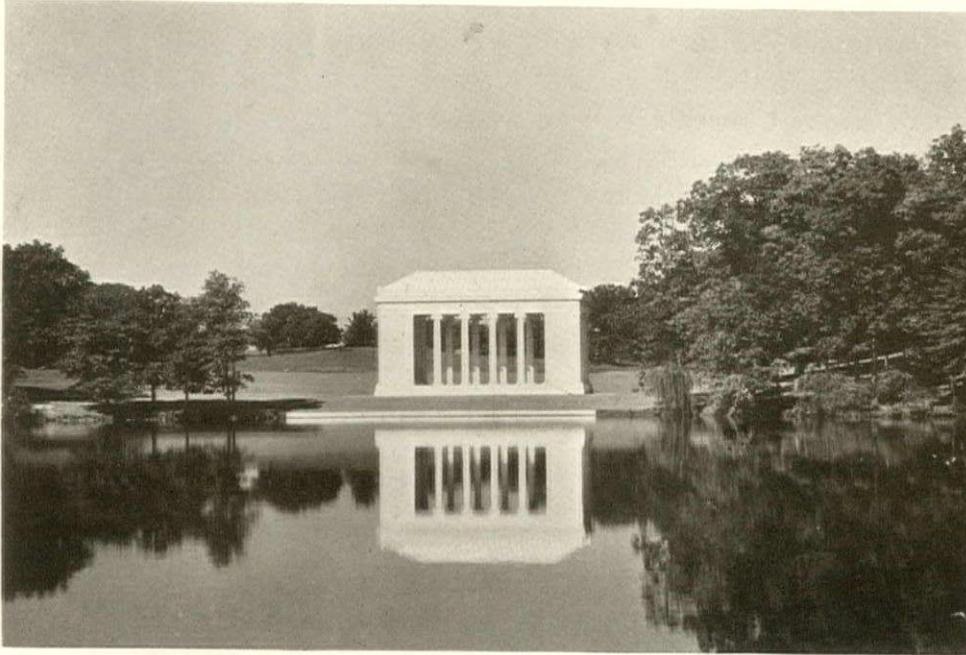
which enshrines the reredos and are surmounted by tall canopies. Between them and on each side are thirty-six smaller niches each containing an alabaster statue a foot and a half high, of the size more usual in the mediæval Nottingham examples, from which some of the gold borders are directly taken. Like their prototypes these figures have a smaller proportion of gilded and colored decoration.

The screen itself is of Caen Stone entirely covered with gold and color, after the traditional manner. It is often declared that the modern chisel or pencil cannot attain to the character and skill of the cutting and painting of the Middle Ages. Certainly the chiseling of much of the imagery, though it does not suffer by comparison with similar present-day work, does not quite disprove the assertion. But it is suggested as an interesting fact that the pencil work of the decoration and the cutting of the tabernacles bear comparison with the finest Middle Age workmanship. Moreover, it is interesting to note that some of the stones are very large to contain such intricate cutting without a fault, and are only second in this respect to their immediate predecessors of the Stanton Chantry at St. Alban's, Holborn.

The altar window, of five lights, has the central panel beneath the transom of solid stone, thus affording a contrast to the middle tabernacle of the altar screen which rises in front of it.

The body of the chapel is illuminated by wrought-iron hanging candelabras, of excellent execution.

Altogether, the Lindsey Memorial Chapel has a charm that cannot be conveyed by words and illustrations. The construction is dignified, the details reverential. Certainly the designers have, in this structure, added another glory to the record of American ecclesiastical architecture.



Charm

LONGFELLOW, speaking of Evangeline, wrote: "When she passed it seemed like the ceasing of exquisite music."

The charm of a beautiful structure never palls; when it is expressed through the medium of marble, it is everlasting.

A STUDY OF PRACTICAL PROBLEMS OF THE MARBLE INDUSTRY

A SERIES of investigations of certain problems involved in the installation and care of interior marble is now under way at the Bureau of Standards. It was undertaken through the initiative of the National Association of Marble Dealers, and has to do with the causes of certain types of trouble occasionally encountered when marble is used for interior trim; with the means of prevention and cure of these troubles and, finally, with the effect of cleaning compounds on the marble.

When interior marble is properly installed and cared for these troubles are seldom encountered, but with a view of rendering the best service to its customers the National Association of Marble Dealers has deemed it worthy of an extensive study covering all the points involved.

The investigation involves the following phases:

(a) The relative discoloring effects of different materials in the walls to which marble is attached.

(b) The value of different waterproofing materials in preventing discolorations.

(c) The removal of different kinds of stains from the exposed face of the marble.

(d) The cause and prevention of decay of interior marble.

(e) Cleaning processes, with particular reference to their harmful effects on marble.

Marble used for interior trim is occasionally disfigured by soluble salts which leach to the surface and produce a stain. The marble dealer generally blames this staining on the other materials which were used in connection with the marble, and it seems likely that this is true, as marble it-

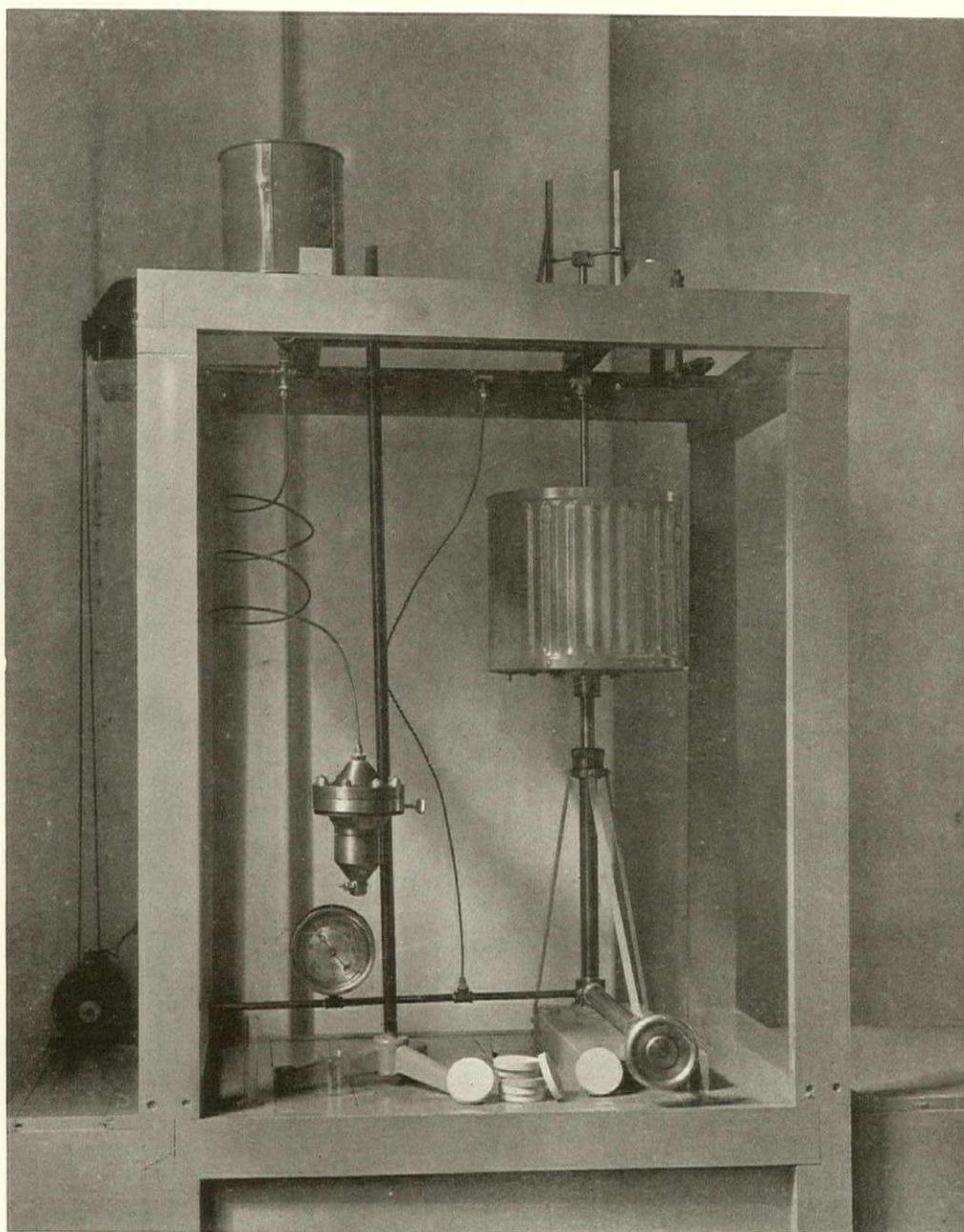
self is nearly pure calcium carbonate, or a combination of the same with magnesium carbonate.

In an effort to place the blame for such staining the Bureau is making tests with all the materials likely to be used in the backing walls. Two methods are being used. In one method small walls of usual construction will be built, having marble faces and backings of brick or other types of masonry. The back side of the walls will be kept damp, and the moisture will be allowed to evaporate from the surface of the marble. This method, while it comes the nearest to duplicating actual conditions, has the disadvantage of being expensive and not so very definite.

Hence most of the tests are to be made by the vat method, the walls being used merely as a connection with actual conditions. Small marble vats will be made, and in these vats the suspected staining materials will be placed with water and their effect noted. By this method comparisons of different types of marbles can be readily made, and a wide range of suspected materials tested.

This method is also to be used for testing the effectiveness of waterproofing compounds for preventing the penetration of stains into marble and will be used especially in tests of colorless waterproofing compounds intended for application to the back of the marble.

For testing the effectiveness of waterproofing compounds in reducing the permeability to water under pressure, another method has been devised. In this method a disc of stone 3 inches in diameter and $\frac{1}{2}$



The permeability apparatus devised by the Bureau of Standards.

inch thick is used. It is placed in the apparatus in such a way that a water pressure of as much as 500 pounds per square inch can be brought in contact with its upper side. A cup-shaped vessel, having a sharp edged top 2 inches in diameter, is screwed into the lower part of the apparatus until it makes contact with the lower side of the

specimen. The portion of water which comes through the stone and collects in the cup is measured at intervals during the test and gives the rate at which water comes through a definite area of the stone under a certain pressure. In some cases it has proved necessary to absorb the water by means of a desiccant, such as calcium

chloride, and to determine the amount of moisture from the increase in weight, as the amount was too small to be determined in any other way.

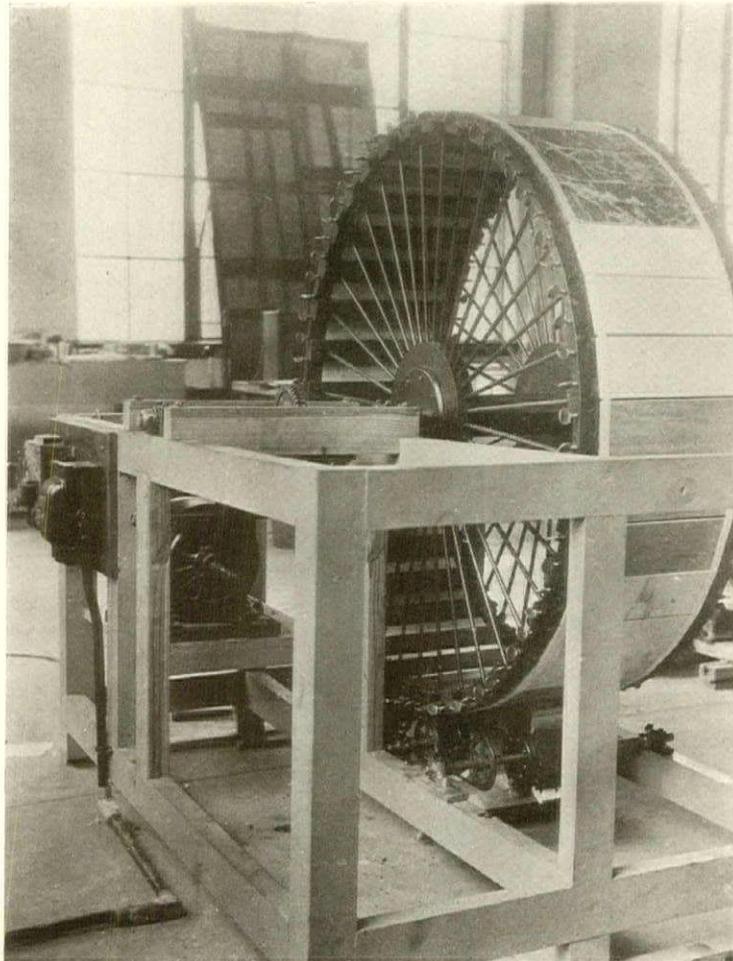
This method is to be used especially in tests of waterproofing compounds which are intended for application to the back of the marble blocks before they are put in place.

The leaching of salts to the surface occasionally causes disintegration of the stone as well as staining. The water carrying them evaporates, and the salts left behind crystallize in the pores of the stone, producing an action similar to frost but much more rapid and severe. It is a known fact that some of the strongest and densest types

of stone have been injured in this way.

From the few cases that have been observed, it appears that the decay of interior marble work is confined chiefly to cases where walls below grade are faced with marble without providing a waterproof membrane or an air space in the wall to take care of ground moisture. In such cases it is no wonder trouble occurs. There is an unlimited supply of trouble-making material available.

The study of cleaning compounds for marble is to be undertaken mainly with a view to determining the ultimate effect of the different compounds which are commonly used for the purpose. This will in-



Apparatus for making long period scrubbing tests on marble.

volve a study of their chemical and physical effects through a long series of applications.

For the making of some of these tests an apparatus has been devised consisting of a large wheel, which is to revolve at a very slow rate. Marble slabs are to be fastened to the periphery of this wheel, and as it revolves each slab in turn is brought, at the bottom, in contact with felt mops carried by a smaller wheel, and dipping at the lower side of the small wheel into the cleaning solution to be tested. The effect will be identical with that obtained by scrubbing the marble in the usual way.

In rising from the scrubbing mops the slabs next come in contact with a warm blast of air which will draw out the moisture absorbed in the scrubbing process. Thus the processes of cleaning and subsequent air drying will be repeated over and over, an effect equal to that of fifty to a hundred years of normal service being produced in a period of a few weeks.

Slabs that have been tested in this way will be compared with slabs of the same material that have not been tested, being examined for surface conditions and tested

for elasticity and transverse strength. The apparatus will carry 36 slabs of marble at a time, and these are to be chosen to represent the entire range of compositions and accessory minerals. A number of different cleaning compounds are also to be tested.

Another phase of the work is to be the study of actual cases of discoloration or decay of marbles in buildings, thus connecting the results of the tests with actual conditions and possibly leading to a better understanding of the structural conditions which should be avoided.

Comparatively little of value is hoped for from this part of the investigation, as there are very few cases on record in which interior marble has failed to give a good account of itself. It is also very difficult to obtain information as to structural conditions in such cases.

Careful inspections are planned, however, of all cases of marble failure of which information can be obtained, and anyone who knows of such cases can aid materially by pointing them out. This may be done by writing either to the National Association of Marble Dealers at Cleveland, Ohio, or to the U.S. Bureau of Standards, Washington.

**BOUND VOLUME NO. 2 IS NOW OFF THE PRESS.
HAVE YOU ORDERED YOURS?**

(See page 69 of this issue)

The second bound volume of *THROUGH THE AGES* is now ready for distribution. The full text contents of the twelve issues of this magazine from May 1924 to April 1925, inclusive, have been gathered under one cover, elaborately bound in *de luxe* form.

No architect can afford to be without this collection of authentic facts about the use of that finest of building material—*MARBLE*. In addition, the text is profusely illustrated with beautiful—and, in many cases, rare—views that comprise a valuable addition to an architectural portfolio.

The addition is limited. For your convenience we are attaching an order blank on page 69 of this issue.

SEND IT IN BEFORE IT IS TOO LATE



A MELODY IN STONE

The People of Providence Profit by Musician's Will

THE Monument to Music which has been erected in Roger Williams Park at Providence, Rhode Island, is one of the latest additions to the rapidly growing number of beautiful structures in this country. It is made of Highland Danby marble, taken from the quarries of Vermont. It follows the Greek style of architecture, and in its superb situation is a creation of rare beauty.

The idea originated with William Curtis Benedict, of erecting in Roger Williams

Park a monument which would be "dedicated to and illustrative of music." It was through a generous provision in his will that the idea was made possible of accomplishment.

Mr. Benedict was a native of Vermont, born and educated in that state. When a young man he entered business in Rhode Island, beginning his career in a savings bank in Pawtucket of which his uncle was president.

At the opening of the Civil War, being a

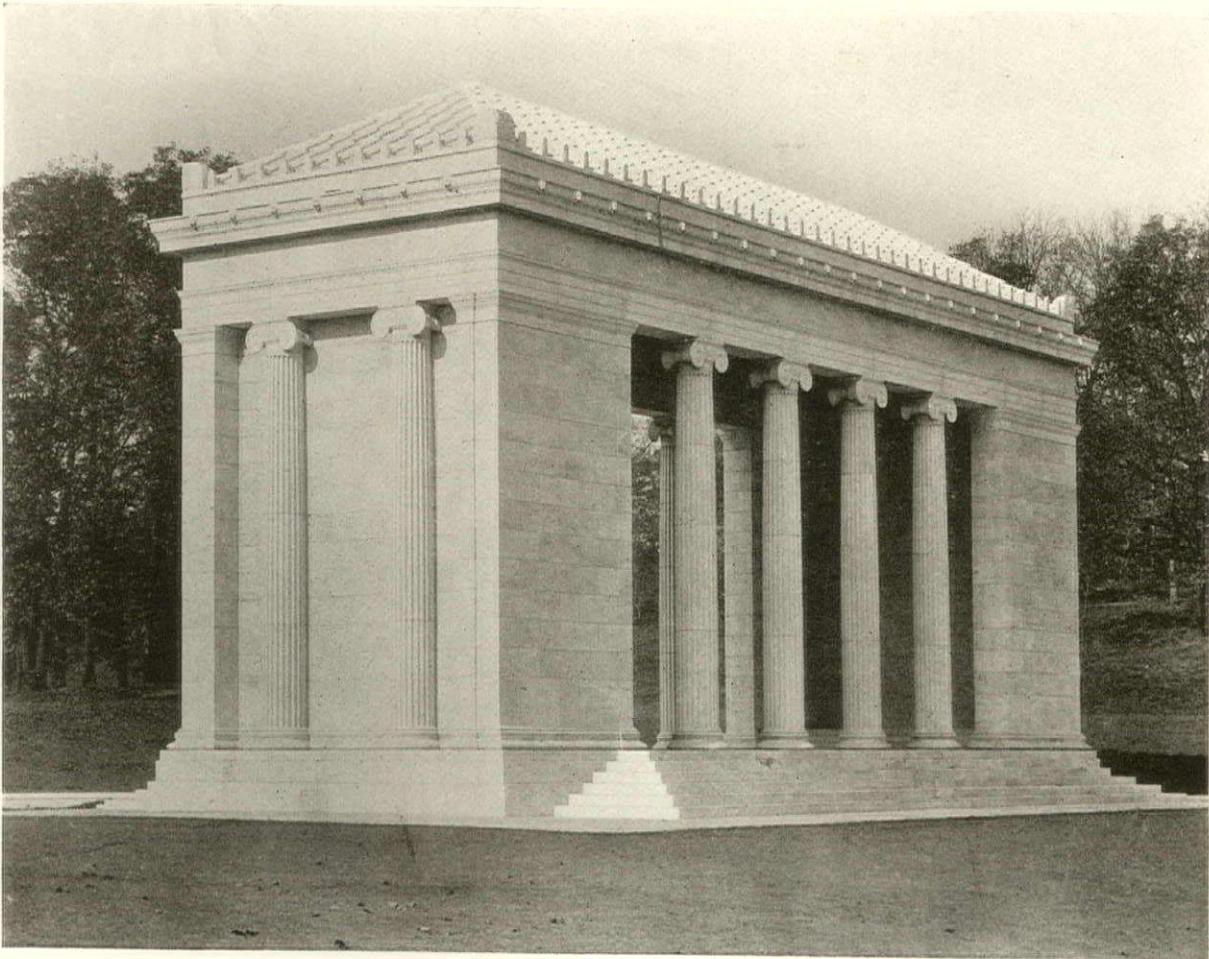
member of the Slater Drill Corps, he enlisted with that body. Serving with distinction, he rose to the rank of first lieutenant, and later became quartermaster for General Daniels. After the war he went into the starch and oil business in Providence. He was recognized at one time as the largest importer of olive oil in the country. Throughout his life he was known as an honest and reliable business man.

Mr. Benedict was a musician of considerable ability, possessed a fine tenor voice, and was deeply interested in the art. He lived to be seventy-five years of age and died in Providence in April, 1915. His will provided that a sum of \$75,000 should be set apart for the purpose of erecting this

monument. His instructions were that it should be erected in Roger Williams Park, and should be constructed both to instruct and to adorn. How well his wishes have been carried out, the finished monument testifies.

Owing to the World War nothing was done on the monument for some time after his death. After the close of the war plans were started and the site was selected. The design was submitted by the firm of Bellows and Aldrich, of Boston, and after some changes was accepted. Soon after the acceptance, the firm was dissolved and the work was carried on by Mr. Aldrich alone.

It is entirely fitting that this monument, erected by the generosity of a native of



The architect adopted the motives of Attica, with modern variations.

Vermont, should be composed of material brought from that state. It would be hard to find a stone that could more aptly express the message of the structure, or interpret more beautifully what one observer has called, "this melody in stone."

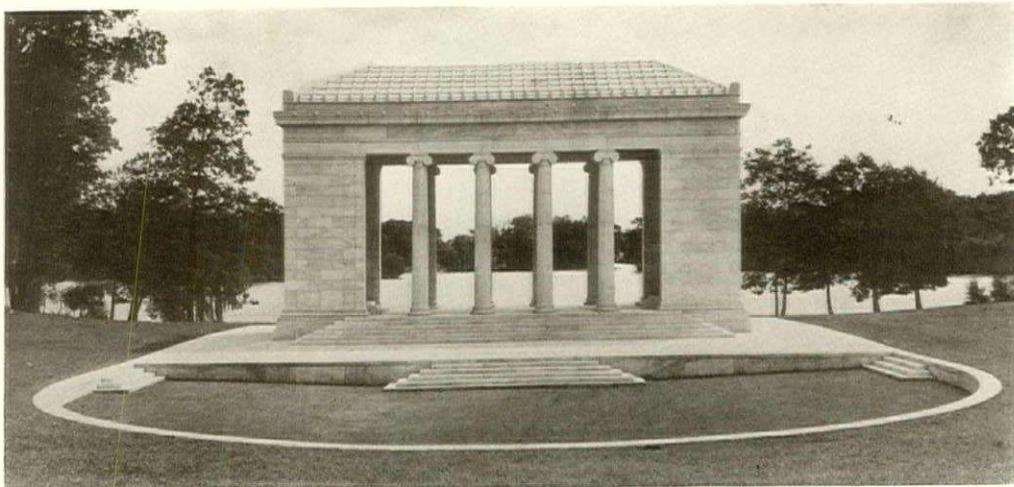
The base of the monument is set on a concrete foundation going down 14 feet to hard pan. The floor is composed of marble tile set on concrete slabs. From this floor rises the walls and columns. The columns are nearly 25 feet in height and have a maximum diameter of 2½ feet. The marble base of the structure is 73 by 53 feet, and the monument is 42 feet high. The roof is also of marble tile carried on steel trusses cast in concrete. The monument is ceiled with hard plaster which is decorated with a Greek ornament. The columns are Ionic in design.

The monument is situated on the shores of a lake, the water making a striking background for it when viewed from the shore. It is almost impossible to describe adequately the finished project. Certainly the architect has caught the spirit of those Greek artists from whose work the idea was taken.

It is designed with the utmost simplicity

of general scheme, but carried out with a mastery of proportion and detail that is not frequently surpassed. The style is a modification of the peripteral type, with the columns flush with the main walls on the sides, but with a porch having two columns enclosed between the projecting side walls of the cells, as in the type of Greek temple known as *In Antis*. From the stylobate at either side descend six steps to the ground level, which has, as above mentioned, been set with marble tile as a base for the building. On one side a second flight of steps leads to a sunken semi-circular space enclosed by a marble parapet, within which are to be placed seats to accommodate the audience. The opposite side looks to the waters of the lake.

At the dedication recently, a huge throng, estimated at over 125,000 attended the service. The program was comprised of a concert, given by a chorus selected by Mr. J. B. Archer, assisted by the United States Marine Band, and Mme. Marie Sundelius. Every vantage point within hearing of the exercises was crowded with people and the lake was dotted with all kinds of small craft filled with those who could not obtain a position on the land.



The Monument to Music, Providence, R.I. Bellows & Aldrich, Architects.



Statue of St. John the Baptist at Florence
by Donatello.

SCULPTURE IN ITALY DURING THE EARLY RENAISSANCE

IN Spain, France, Germany and in England there occurred during the fifteenth and sixteenth centuries a change from feudalism to monarchy. In Italy the transition was not so marked, since feudalism itself was antagonistic to the Italian character. There existed there a number of Republics, States of the Church, Duchies and the Kingdom of Naples. Families and individuals acquired great power, and the patronage of the arts came through them and the Popes of Rome, especially Sixtus IV and Julius II. The individual artist became more and more prominent; instead of the "school" of art receiving the attention of the historian, greater recognition began to be given to the work of the single mind.

A second characteristic of the Early Renaissance sculpture was the enthusiasm for nature, the logical outgrowth of the development of physical and historical science, the increase of comfort and pleasure in all forms of social life. It has been called the spirit of "youthfulness"—a spirit that had the capacity for sentiment and the willingness to think. It was both poetical and intellectual. It brought forth such splendid masterpieces as the Tomb of the young cardinal of Portugal in San Miniato and the equestrian statue of the Colleoni—compositions that for grasp of character and mastery of material have hardly been equalled in modern times.

A third characteristic, implied in the name

Illustrations courtesy Thomas Machen, architect, Baltimore, Maryland.



Bas-relief by Donatello in the Museum of S. Maria del Fiore at Florence.

Renaissance, was the revival of classical forms, subjects and methods. Beginning with Niccolo Pisano, after the interruption due to German, Frankish and Lombard influences, this revival gathered force until, in the early sixteenth century, the classic spirit dominated all forms of art.

The technique of the marble workers of this period is shown by an examination of almost any tomb. They were masters of the harmonies of light and shade, and knew how to attain the greatest values in combining figure, relief and texture in panels, mouldings and drapery. It is easy to distinguish any piece of work of the Renaissance from the marbles of other times by the trade-mark of this unmistakable technique. Freeman says of this characteristic: "The Greek sculptor could no doubt have played with his chisel any trick that seemed worth while. We are not able to judge with conviction of the surface of Greek marbles nor of Greek use of color. That later Greek art begins to care more for texture than did Phidian art seems plausible from the careful and soft treatment of surface in the Hermes of Praxiteles.

The Renaissance sculptor cared overwhelmingly for surface effect, and enjoyed producing it, as all workmen like to do what they can do easily and satisfactorily. The reasons for his facility are not far to seek. They are twofold. He is the descendant of the stone carver, and the apprentice of the goldsmith. From the first he inherits a dexterity of hand which renders marble like wax to his touch. In the shop of the second, his hand has been trained to habits of accuracy and delicacy, and his eye to the love of graceful and inventive detail. His eye, however, has learned its power of discriminating niceties of light from painting. So much has he learned from that source that he seems often to look at his work with a painter's rapture rather than with a sculptor's eye, for to obtain a variety of values approaching those at the command of the former, he borrows from him linear perspective, and he plans the color of his stone, the lights of high to low relief, of polish and of texture, as does a painter the color scheme of his picture.

"It is this sort of 'picturesqueness,' this quality dependent upon surface technique,

which makes the unique sense charm of the Renaissance marbles and gives us a set of imagined sensations as delightful as rare. Delicate modelling, skillful handling of planes, subtle balance of textures, suggest through their many gradations of light and shade a sequence of refinements, of touch sensations referred to the palm and the finger tips, which seem to belong to some sense inactive in our ordinary experience, since they give us an imagined sensibility of a degree of keenness that only the blind know."

It was the churches that received the attention of the sculptors in the fifteenth and sixteenth centuries. The exteriors were decorated with figures, especially over the portals, and frequently in niches over the whole façade. Reliefs of figured and decorative design were likewise employed for exterior

embellishment and practically all of these were in marble. The interiors offered even greater opportunity for the stone worker. Sculptured altar pieces were common, as were also sculptured pulpits, choirs, fonts, ciboria, galleries and tabernacles. Statues of angels, saints and Madonnas were used freely, and occasionally these appeared in large groups. The large architectural tomb, commemorating the church dignity, the general, the statesman, the poet or the prominent private individual, was frequently the chief feature of the nave. On the floor was seen the sepulchral slab, carved in relief, with the figure of the deceased raised above the floor level or even set upon a base.

The Madonna and the Child was the most characteristic subject for ecclesiastical sculpture of the Early Renaissance. Later, she was shown accompanied by saints. Mytho-



Detail of the Monument to Baldassare Coscia in the Baptistry at Florence. Executed by Donatello.



A terra cotta by Andrea della Robbia (1508) over the main door of S. Maria della Quercia at Viterbo.

logical subjects were not often used, though decorative motives of classic origin appeared freely. Cupids were prominent, being introduced in every conceivable design, with and without reason.

Private houses and buildings of a civic nature had sculptured doorways, chimney pieces and figures profusely scattered around the house. The palaces had portrait statues and busts and open squares or private gardens replete with fountains, seats, vases and other beautiful subjects executed by capable and well-known artists.

The demand for delicate and refined form naturally led to an extensive rise of marble and the finer calcareous stones. Marquard, writing of this period says: "The white Carrara marble was extensively used for monumental sculpture, but was softened in color by the use of wax. Details, such as the hair, angels' wings, ornaments of robes and architectural mouldings were usually gilded. The background, when not sculptured, was commonly colored a grayish blue. Highly polychromatic marble sculpture was rare."

Glazed terra cotta began to be used as a cheap substitute for marble. When colored beneath the glaze, the polychromatic character endured for some time. This material began to be used in the country towns for altar pieces, pulpits, fonts, coats-of-arms and tabernacles. A fine stucco, made of marble dust and sand, was even cheaper and likewise took the popular fancy, so that inferior reproductions of some of the masterpieces began to find their way into the hands of the common people.

Among the leading sculptors of the first half of the fifteenth century. Ghiberti, Donatello and Lucca della Robbia were the most renowned. Ghiberti, beginning as a painter, was, as Cellini says of him in his *Orificeria*, "truly a goldsmith, not only in his graceful manner of producing objects of beauty, but in the extreme diligence and polish which he gave to his work." His chief work is the second pair of doors for the baptistry at Florence, which Michelangelo declared to be fit to be the gates of Paradise. Among his minor works are several grave slabs which

mark the resting places of distinguished Florentines, such as that of Fra Leonardi Stagi before the high altar of Sta. Maria Novella, and that of Ludovico degli Obizzi at Sta. Croce.

Donatello, the greatest of Tuscan sculptors before Michelangelo, reflects in his works the changing spirit of his age. It was after 1425 and up to his visit to Padua in 1444 that he produced his finest works. He executed orders for many tombs, altars, pulpits and equestrian statues for such widely scattered towns as Prato, Rome, Naples, Siena, Orvieto and elsewhere.

His later years, until his death in 1466, saw his work decline. By some he is regarded as even a greater sculptor than

Michelangelo, for the former made marble yield all that it was capable of yielding, both as regards technique and style, whereas the latter looked upon the stone simply as a vehicle for the transmission of his thoughts and paid practically no attention to its special qualities either in respect to surface treatment or the adaptation of his subject to its nature.

Lucca della Robbia, famous for the Robbia ware which he invented, was born in 1399. As a marble sculptor, his tomb of Bishop Benozzo Federighi in the church of S. Francesco di Paola and his choir-gallery reliefs show him to have been a master of composition and the possessor of a pure religious feeling. The school of glazed terra



Relief of Aurelio Cæsar Augustus by Mino da Fiesole, now in the National Museum at Florence.



Tomb of Francesco Tornabuoni in the Minerva at Rome, by Mino da Fiesole (1480) in collaboration with Dalmata. This is Mino's most manifest imitation of Desiderio.

cotta sculpture founded by him exercised a wide influence. The first bas-reliefs in Robbia ware were made by Lucca about 1440 for the lunettes of the doors leading into the sacristy of the Cathedral at Florence. Andrea della Robbia, Lucca's nephew, made a wider use of terra cotta and carried it into the smaller towns. Some of his work exhibits the dignity of his uncle's creations, though in the lunettes over the doors of S. Maria della Quercia at Viterbo, one of which is shown on page 30, the style lost something of its refinement and approached sentimentality.

The second half of the fifteenth century saw an increased demand for monumental works in sculpture, both bronze and marble. The outstanding figures of this period were Mino da Fiesole, Desiderio da Settignano, the Rossellini, Benedetto da Majano and Verrocchio in Florence; Vecchietta and Federighi in Siena; the Mantegazza brothers and Solari in Lombardy; and Pietro Lombardo in Venice.

Mino da Fiesole (1431-84) is classed by Vasari as the scholar and by some writers as the imitator of Desiderio, who was his in-

timate friend. But while Desiderio produced very little, Mino executed many works which, though possessed of certain charm and grace, almost weary by their sameness of type. His earliest dated work was the bust of Strozzi. His Roman productions, one of the best of which is the tomb of Tornabuoni in the Minerva, are more elaborate but inferior to his Florentine. His masterpieces are in the Cathedral at Fiesole—the tomb of Bishop Salutati and an altar piece showing the Madonna and figures of saints.

Desiderio (1428–64), the most distinguished of Donatello's pupils, added to his master's best manner an elegance distinctly his own. His marble tabernacle in S. Lorenzo is a miracle of beauty, and his busts of children show a strength and character in the faces that remind one of the boys on the Cantoria.

Benedetto da Majano (1442–97) was trained as a stone mason and his works, while reflecting the spirit of the time,

showed no marked individuality. The fine pupil in S. Croce, given by Mellini, prove him to have been an accomplished architect. The finest of his sculpture from the Pallazzo Vecchio, the statues of the Baptist and of Justice, and angels with garlands and candelabra, are now in the Bargello, at Florence.

Andrea del Verocchio (1435–88), trained as a goldsmith, was the greatest metal worker of his day. His bronzes were original and independent. The best known is the statue of Bartolommeo Colleoni in Venice, the great Free Captain, which stands by the Church of SS. Giovanni e Paolo, finished in 1496 after his death. Water says of this masterpiece: "Vigor and movement have never been more adequately expressed; and though the dominant impression is that of strength, the consummate grace and balance, with which horse and rider seem to move together, mark perhaps the subtlest touch of genius." Leopardi's pedestal for this creation is a fine work and drawn ex-



Monument of Ludovico Moro and Beatrice d'Este, in the Certosa Pavia; by Cristoforo Solari the Milanese (1497).

actly on the scale to display the statue to the best advantage.

Lorenzo Vecchietta (1412-80) followed in the footsteps of della Quercia, and his work, though excellent, had a hard manner that is at times repellent. Antonio Federighi (1415-90) was affected by the Pisan traditions. The two beautiful Holy Water Stoups, among the finest and most original of the Renaissance sculptures, and the reliefs on the font in the Chapel of the Baptist at Siena, and the tomb of Bishop Bartoli in the right aisle of the cathedral are best known. His draped statues were less successful than these and do not show as complete a grasp of technique.

The Mantegazza brothers, who with Cristoforo and Antonio were the chief sculptors of the Certosa di Pavia, had a hard con-

ventional style. They were among the first to represent drapery in the cartaceous manner, so called from its resemblance to wet paper. Cristoforo Solari is noted chiefly for his monument in the Certosa of Ludovico Moro and Beatrice d'Este. These effigies are exquisitely modeled but are carried out in the conventional style of the period. Probably much of the best of the interior sculpture on the Certosa is by Solari.

Pietro Lombardi (1435-1515) was trained as an architect. His sculpture showed less originality than that of the contemporary Florentines, but nevertheless reveals ideas that were richer and more poetical. His finest work is the tomb of Pietro Mocenigo in SS. Giovanni e Paolo; the decorative sculptures, too, at S. Maria dei Miracoli in Venice exhibit an exquisite charm and fancy.



Equestrian statue of Colleoni in Venice by Verocchio.



A CHAMBER OF COMMERCE BUILDING

The Structure on Brandford Place, in Newark, New Jersey, is
Embellished With a Variety of Marble

BEAUTY and usefulness are combined to such a nicety in the ten-story Chamber of Commerce Building at Newark, New Jersey, that it is not difficult to understand why its suites have been so much in demand in that city among those who consider it of importance to have business offices furnished with all the conveniences that modern ingenuity can devise and pervaded with an artistic atmosphere to lend the proper tone. Since its completion in May, 1923, the building has been occupied by the most exacting tenants.

Aside from its utilitarian and æsthetic

attractiveness, the building, or more properly the building site, is linked with the past. There is a connection with the historic and perhaps more romantic Newark of the days of Robert Treat, the stalwart New England leader who brought a little band of seekers after religious freedom to the banks of the Passaic River and founded Newark. For the Chamber of Commerce Building site once was a part of the expansive churchyard of the historic old First Presbyterian Church, which has played such a vital part in the life of the Newark community.

The building faces Brandford Place, also



The entrance is carved of Pink Tennessee marble.

famous in old tales of the city, a short half-block from Newark's 100-foot thoroughfare, Broad Street. It is on a plot 80 by 100 feet, built of a cream-colored brick with terra cotta trim. The base course is of polished granite, and the main entrance feature is cut in Pink Tennessee marble, and is of real interest in that the meeting of Robert Treat, founder of Newark, with the Indians is portrayed over the entrance on either side of the globe, which is surmounted by the American eagle. The wave motif, with the plunging dolphins, forms the base of this group. The design around the entrance itself is neatly carved with medallions representing the twelve signs of the Zodiac. In

the spandrels of the arch are two medallions representing two methods of transportation—the sea and land. The doorway is the work of Mr. Maxfield Keck.

At the upper portion of the building a band of Levanto marble runs around between the columns of the ninth and tenth floors, thus letting the two stories count as one for the column treatment and making a most effective cap to the building, as seen from Broad Street. The building has been fully tenanted from the very first and is one of the much desired office buildings of the city.

Entering the main hall or lobby, one is struck with the beautiful Botticino marble

which faces the walls. The base is of Levanto marble. The floor is checkered with blocks of York Fossil and light Pink Tennessee marbles with a wide border of Levanto and a small border of Westfield Green.

Above the wainscot springs a vault of gold with bas-reliefs modeled in the spandrel arches, representing the several modes of transportation. There are two interesting lighting fixtures in the vestibule and main hall. One in the vestibule is the ancient globe in colors with a border around it horizontally, cut in bronze, with bas-reliefs of the early American explorers. The center

fixture in the main hall is of a very delightful design, showing the old vessel of discovery under full sail. The elevator doors are of polished bronze.

All of the corridors in the building are of Botticino marble with terrazzo floors.

The entire third floor is utilized by the Chamber of Commerce of the city of Newark. Here are the Chamber staff offices, reception room, assembly hall, committee rooms, board of directors' room, and built-in vault for valuable records. These are the center of an intense civic activity that spreads throughout the city and beyond.



Botticino, Levanto, York Fossil, Tennessee and Westfield Green marbles in the lobby of the Newark, New Jersey, Chamber of Commerce Building.

A LIST OF THE WORLD'S MARBLES

By J. J. McClymont

Note—In a past issue, Mr. McClymont proposed, for the sake of convenience, to divide the different marbles into four groups. These arbitrary groupings were as follows:

GROUP A — Any marble or stone sold to the trade in fair-sized slabs or blocks of commercial size, rectangular shape and guaranteed by the seller to be sound, free from natural defects, that can be finished at a minimum cost, and sold to the consumer as sound marble.

GROUP B — Any marble or stone sold to the trade in slabs or blocks of fair or medium size, generally rectangular shape, guaranteed to be sound and free from natural defects, the finishing of which, because of texture, the size of slabs, the shape and size of blocks, is somewhat more expensive than those in Group A.

GROUP C — Any marble or stone that cannot be sold as sound but contains a minimum amount of natural defects, such as dry seams, old fractures, partially or completely healed surface voids, etc., to be treated by the manufacturer in the most approved manner, reinforced where necessary by liners on back or metal inlays and sold to the consumer as semi-sound marble.

GROUP D—All marble, stone and so-called serpentine marbles, and Onyx, which, by their peculiar formation are known to be fragile, such as Breccias and nearly all highly colored marbles and serpentines, and that are sold to the trade in irregular shaped blocks or slabs without a guarantee as to their soundness, treated by the manufacturer in the most approved manner, reinforced where necessary by liners on back or metal inlays and sold to the consumer as unsound marble.

Lunense Marble—Ancient for Carrara marbles—See Luna.

Luni—See Luna.

Luxullianite (Porphyry)

Quarried at Luxullian near Lostwithiel. Dark brown to bluish-black dotted with pinkish crystals.

Lychinites or *Lychnites*

Parian marble was known to the Ancients as *Lychnites*, probably due to the fact that it was quarried by lamplight. Some ancient writers assert that it was so named because of its large sparkling crystals.

Lycopolis

Ancient city on the site of the town of Assiut—See Egyptian Onyx.

Lyme Regis—Same as Cotham.

Lychneus or *Lychnites* or *Lygdos*—Same as Parian.

Lydia or *Lydian*—See Marmor Lydium.

Lynnfield

At Lynnfield, Essex County, Massachusetts, according to Hitchcock's Geology of Massachusetts, occurs an important bed of noble or precious serpentine.

Lyonnais or Red Champlain

Barney Marble Company's Quarries, Swanton, Vermont. Brownish-red with spots and lines of white. Takes high polish.

Mabre Vierge

Quarried at Bayonne, Lower Pyrenees, France. Pure white statuary. (Blagrove.)

Macael Blanco

Comes from several quarries near the village of Macael in the Almazora Valley at the foot of the Sierra de Las Filabres, Almeria, Spain.

Is classed as a white marble, but is not pure white, and occasional gray bands traverse the mass. (Watson.)

Macchiato Nerastro—See Bigio Antico Macchiato Nerastro.

Macchiato Scuro—See Bigio Antico Macchiato Scuro.

Macclesfield Cream

All of the Macclesfield marbles are quarried near Macclesfield, about six miles from Mount Barker, South Australia. Light fawn color with a few brown veins. (Watson.)

Macclesfield Dark Gray

Dark gray slightly marked with brownish veins.

Macclesfield Gray

Gray with white bands and alternating bands of darker and lighter shade.

Macclesfield Pink

Light pink.

Macclesfield Red

Light pink with dark gray veins.

Macedonia

Name given to some of the ancient Grecian marbles.

Maceiro—See Almiscado Amerello, Almiscado Escuro, and Vidraco.

Machurea Magna

Name of fossils occurring in some marbles.

Maclura

An extinct marine gastropod in which the whorls of the shells lie in one plane. Some of the maclureas of the Lake Champlain region attain several inches in diameter.

Macon—See Framayes.

Madison County

A true crystalline variegated marble occurs in limited quantities in Madison County, Missouri, of which no developments have been made.

Madre Cream Alabama—See Alabama Madre Cream.

Madrepore

Name given to marbles containing fossils which produce the effect of white and gray spots, in the middle of which are small dots or stars. (Blagrove.) Some of the Petitor marbles consisting entirely of fossil corals are known as Madrepore.

Madrepore Marble or Fossil Coral or Coral Marble.

Quarried near Charles City, Floyd County, Iowa.

Light drab with abundant fossils varying from yellowish to deep mahogany brown.

Maen Midgee Serpentine

Quarried at Maen Midgee, Kerwith Sands, England.

Deep reddish-brown studded with crystals which shine with a metallic lustre. (Blagrove.)

Magdaline Quarries

Near Etna, Oaxaca, Mexico.

Produce a Mexican Onyx known as Etna Onyx, which has been extensively used. It is a delicate transparency of tints from the softest colors to the brightest hues.

Maggiore Lake Marble

At Candoglio on the River Toce, which runs into Lake Maggiore, Candoglio Marble is quarried.

Magharah—Quarry.

Magnesium

A silver white metallic element.

Magnetite

A black metallic mineral known by its strong magnetism and its black streak—one of the principal ores of iron.

Mahogany

Upper Quarry near Freedley, Vermont.
Milk-white. (U.S. Geological Survey.)

Mahogany Red or Red and White.

Quarried near Burnet, Texas.
Dull red with netted veins of lighter shade. Not available.

Maidstone—See Hassock.

Maine Marbles

As far as we are informed, no marbles are now available from this state.

Majorca Island—See Mallorca.

Makrana—See Gray Makrana, Pink Makrana, and White Makrana.

Malachite

A hydrated basic carbonate of copper. The finer varieties are used for decorative stones and generally known as marbles. See Russian Malachite, Australian Malachite, and Rhodesian Malachite. Malachite is found in most copper mines, but the varieties useful for decorative purposes are of limited occurrence. In Russia ornaments made from this stone were supposed to protect the wearer from lightning, contagion and witchcraft.

Malaga—Same as Breche Rose Spanish.

Malay Marbles or Malay Peninsula or Malay States—See Veined Perak and White Perak.

Mallorca (Breccia)

Quarried near Santany, Island of Majorca, in the Balearic group, off the coast of Spain.
Red ground with angular fragments of white and green. (Watson.)

Malpas

Quarried near Malpas, Doubs, France.
Light pink spotted with red—takes high polish. (Blagrove.)

Malplaquet

Quarried at Malplaquet, Belgium.
Pale reddish-yellow sprinkled with irregular patches of lighter color, the edges of which are of a darker tint.

Malplaquet Premiere Qualite or Malplaquet First Quality.

Quarried at Malplaquet, Belgium.
Black covered with large reddish-gray patches with shaded edges.

Malplaquet

Quarried in the Valley of Biros, Ariege, France.
Bluish-gray with large black and pinkish-white spots. (Blagrove.)

Malta Onyx—Same as Albatre de Siena.

Manaria—See Noir Beini.

Manche

Quarried near Iles Chaucey, Manche, France.
White speckled with varied shades of gray with white and gray crystalline zones. (Blagrove.)

Manchester Blue

Upper Quarry near Freedleyville—one of Vermont's oldest quarries.

Very light bluish-gray. (Vermont State Geological Survey.)

Manchester Breccia—Group D

From Dyer Quarry, Manchester, Bennington County, Vermont.

The cement is brick-red and the fragments of very unequal size are of three sorts—light pinkish or cream colored, a deep reddish, and light bluish-gray.

Takes good polish. (U.S. Geological Survey.)

Mandalay White

Sagyin Quarries, near Mandalay, Upper Burma.

Dull white, distinctly translucent, very fine grain.

Takes good polish.

Large quantities of this marble are used for making images of Buddha.

Another variety from same quarry is snow white, fairly crystalline, exceedingly hard, but coarse grained.

Mandelato

Quarried at Luggezzana, in the Veronese. Light red with yellowish-red spots. (Blagrove.)

Mandolato Cippolino—Same as Campan Vert.

Mandolato Verde Cippolino—See Cippolino Mandolato Verde.

Mandolato Verde Giallastro—See Cippolino Mandolato Giallastro.

Mandolato Chiaro Cippolino—See Cippolino Mandolato Chiaro.

Mandolato Lionato Cippolino—See Cippolino Mandolato Lionato.

Mandolato Rosso Cippolino—See Cippolino Mandolato Rosso.

Mani—See Rosso Antico.

Mankato Stone or Kato Stone.

Quarry at Mankato, Blue Earth County, Minnesota.

No. 1 Buff Variegated, No. 2 Gray Variegated.

Mannersdorfer

Similar to Hundsheimer.

Manziana or Lapis Anitanus.

An ancient stone composed of feldspar and mica, and presenting the appearance of a granite rock which has been exposed to fire, for which reason it is sometimes called "Granitica." Corsi says that all of the fire hearths in Rome are made of this material.

Maragha Marble or Tabriz.

An Onyx marble found at Dash-Kesen, near the main road from Tabriz to Maragha—about 28 miles from Maragha, Persia.

Clear, almost transparent, and when cut into thin slabs is used for windows in various parts of Persia.

Marathonisi Quarries—See Green Porphyry (Greece).

Marbach or Marbacher

Quarried near Marbach, Lower Austria. A coarsely crystalline limestone, mottled with light and dark gray.

Used chiefly for monumental work. (Watson.)

Marble

In the trade the term "marble" is applied to any calcareous rock capable of taking a good polish. Breccias, conglomerates, and even serpentines, although capable of taking a polish and generally marketed as marble, may or may not be, strictly speaking, true marbles.

A true marble is a granular aggregate of crystals of calcite or dolomite, chiefly the former. Usually the crystals are of uniform size in the same marble, but may vary widely in marbles from different localities or from different beds. Variegated marbles owe their special properties to variation in color and size of crystals in different areas. All true marbles were originally limestone and pure white. Most limestones were formed by a sedimentary deposit on the bed of the sea. Subsequent physical and chemical changes render them suitable for use as marbles.

The variations in character of marbles are the result of difference in the sediment of original deposit and the different changes that followed.

Marble, Colorado

Colorado Yule and Crystal River Quarries are located near this town.

Marble Dale

The first American marble quarry—See Connecticut.

Marble Falls

On Flat Rock Creek, Burnett County, Texas.

Unclassified marble deposits are reported.

Marblehead—See Kootenay.

Marble Hill, Georgia

One of the Georgia quarries is located at this place.

Marble Hill, New Jersey—See Jersey Green.

Marble Island, Alaska—See Gravena and Tokeen.

Marble Island, Norway

With an area of about 20 square miles which is chiefly composed of crystalline limestone, is one of the Spitsbergen group off the west coast of Spitsbergen or New Friesland, Norway.

It is sometimes known as Hop Island. See Spitsbergen Breccia, Dove, Fawn, and Red.

Marble of Carystus or Marmor Carystium—Same as Cippolino Greek.

Marble, Oklahoma—See Oklahoma Marbles.

Marble Onyx or Onyx Marble—Same as Onyx.

Marbre Marble

Marbre a Hippurites—See Izeste.

Marbre de Cassis

Quarried near Cassis, Bouches du Rhone, France.

The ground mass is granular and the numerous sections of Lamellibranchs and other shells render it attractive as marble. (Watson.)

Takes good polish.

Marbre de Turbie—Group C.

Limestone quarries at Turbie, not far from Nice, Alpes Maritimes, France.

Is used principally for building stone but occasionally for decorative work.

The light variety is of varying shades of light buff. A darker variety from the same quarry is of varying shades of buff with patches of colorless calcite and marked with slender red and white veins. Does not take high polish. (Watson.)



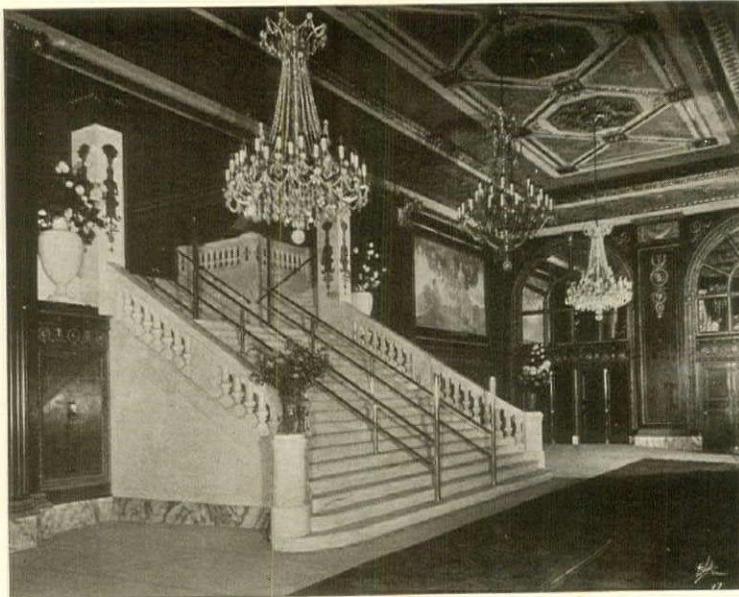
INTERIOR OF WAR MEMORIAL, BALTIMORE, MD.
 LAURENCE HALL FOWLER, Architect

This imposing hall, rich in color and semi-classic in its lines, depends largely for its effect upon the marbles used. The lower walls are of Rose Tavernelle, in sharp contrast with the Belgian Black topping the parapet and stairways. Red Ark Fossil appears on the inner side of the parapet and Travertine in the floors and stairs.

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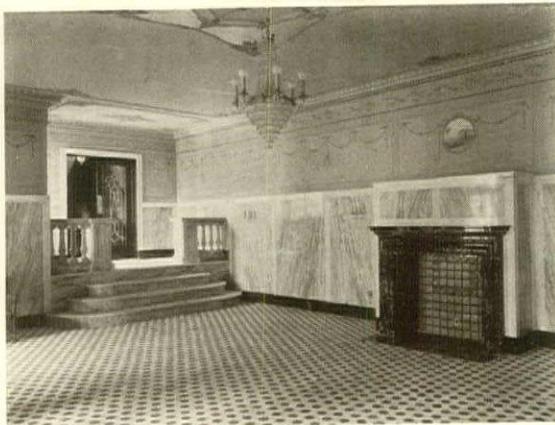
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Entrance Lobby of Apartment Building, at S.W. Cor. Woodward and Moss Avenues, Detroit. Robt. J. West, Architect.

A rich effect obtained by the use of Vermont Mountain White for cap, trim and stiles; Royal Antique for the panels and balustrade; and Florence for the steps. The mantel is Black and Gold. These marbles were installed by

THE DETROIT MARBLE CO.
 9045 LIVERNOIS AVE. DETROIT, MICH.



Lobby of the Capitol Building (Old Masonic Temple), Chicago, Illinois

This sumptuous room is a huge expanse of marble. The floor is Napoleon Gray, laid diagonally, with a border of Curley Green. The wall panels and trim at elevators and cigar stand are Breche Violette. The massive fluted columns are Black and Gold with Curley Green bases.

WALTER W. AHLSCHLAGER, Architect

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