THROVGH THE AGES

MAY, 1924

"I say that if men lived like men indeed,
their houses would be temples."

—*Lamp of Memory:* RUSKIN.

THROVGH THE AGES

VOL. 2 MAY, 1924 NO. 1

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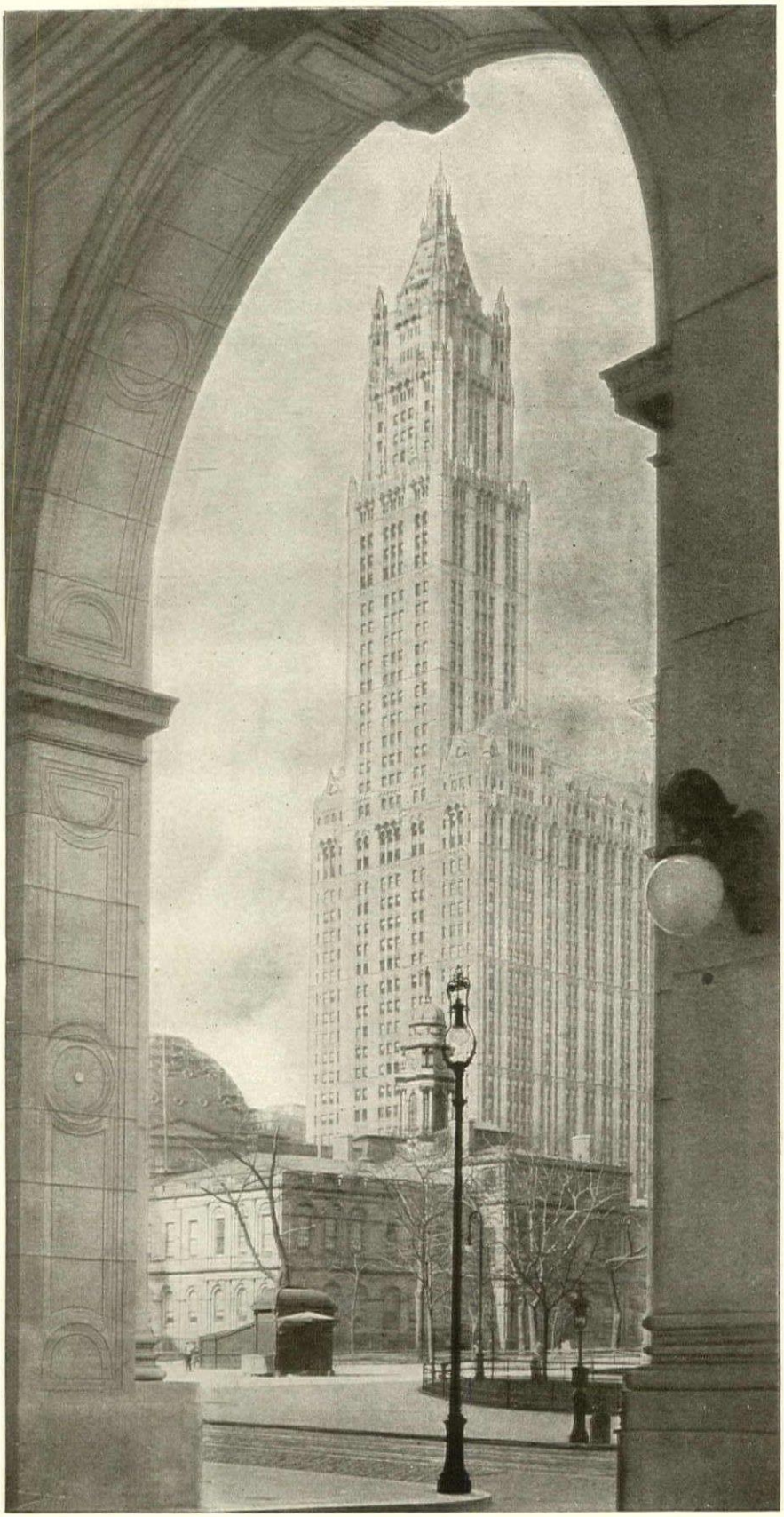

The loftiest and most beautiful building in all the world dedicated to commerce—seen through the great arch of the Municipal Building in the soft glow of early morning sunlight.

THROVGH THE AGES

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

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THE WOOLWORTH BUILDING

The Tallest Building In the World Contains Quantities of Fine Marbles

THE rapid development of New York City during the past fifty years has been almost inconceivable. Land has become so valuable, especially the down-town district that contains the City Hall, Post Office, Treasury, Clearing House, Stock Exchange and the Wall Street buildings, that it is no longer possible to spread out. The growth is necessarily upwards—into the air. In order to make room for the business population, the skyscraper has become an absolute necessity.

Before the days of the elevators, steel girders and iron frames, the builder could find no way to construct a tall building that would yield a profitable rent. Boring to any great depth was unknown and rock foundations were not generally sought. Walls were thick and costly. Even a six or eight story structure required such expensive methods that it did not pay to erect such buildings. The few that were built were not popular, chiefly because the tenants would not climb more than two or three flights of stairs and pay a fair rental. That was before the days of the elevators.

The first elevator, though patented in 1859, was not adopted until 1870, when the Equitable Building, at 120 Broadway, installed the system. In 1887, the owners built a new building of nine stories and six elevators. Following quickly came buildings of thirteen and fourteen stories in height with express elevators.

The difficulty that arose at this time on account of the increased thickness of the walls was solved by the adoption of the steel skeleton and the methods of the builders of iron bridges. Buildings of fifteen, twenty and twenty-five stories began to rise all over the city and such structures as the Times, the Metropolitan, the City Investing, the Singer and the Municipal Buildings were soon everyday sights. None of them are comparable to the famous Woolworth Building, that Gothic "Cathedral of Commerce," as it was so aptly called by Dr. S. Parkes Cadman, the noted divine.

When, on the night of April 24th, 1913, President Wilson pressed a tiny button in the White House that flashed the electric current through eighty-thousand brilliant lights in the Woolworth Building, he formally opened to the public the finest achievement

Grand Arcade of the Woolworth Building looking toward the main stairway.

that the world has known in business edifices. Not only is it the tallest office building in the world, but it is a masterpiece of art and architecture. The exterior is extremely impressive and the proportions are so carefully worked out that its extreme height is not realized from the street. It rises almost eight hundred feet above the sidewalk, the Observation Gallery being fifty-eight stories above the street.

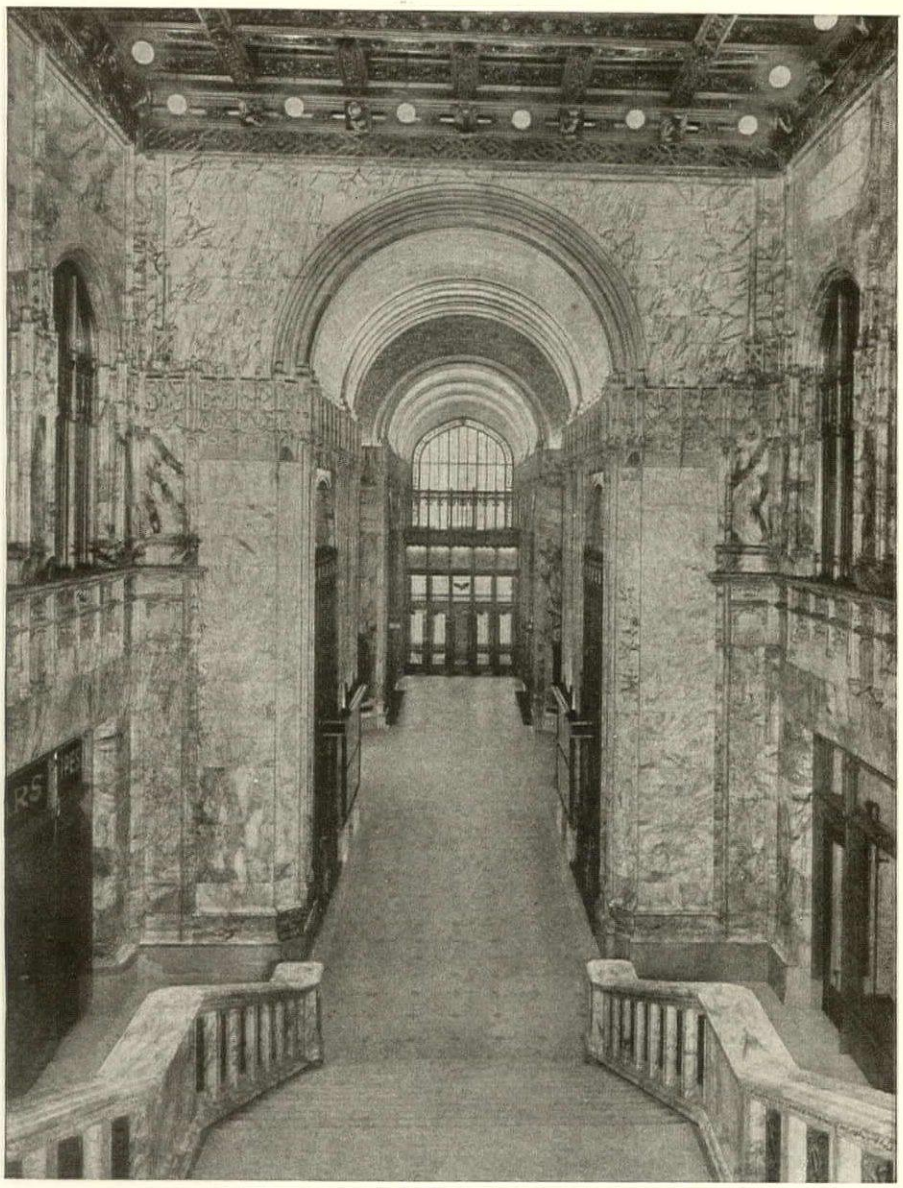
Its location, in the heart of New York City, within a step of the City Hall, the Brooklyn Bridge and the Post Office, could not be bettered. Close by are the great financial institutions of America's most important city, while one of the most famous streets in the world passes the main entrance. It is no wonder that such a building should bring the staggering price of eleven millions of dollars at a recent private sale.

Not the least of the features of the Woolworth Building is the display of wondrous marbles that are used so lavishly throughout the structure. It is a source of satisfaction to the architect of today to know that American marbles predominate although there is a wealth of imported stones used as well.

There is seen in the marble treatment a determination to outrank all office buildings in majestic embellishment. No visitor can fail to admire the polished and carved blocks and beautiful carvings of exquisitely colored and shaded stones. These materials have been chosen with very careful regard for harmony.

There are over seven hundred steps in the stairways and it is worth the while of anyone to walk up and see the product of Amer-

ican quarries so excellently displayed. The thought expressed by the architect, Cass Gilbert, has been grandly carried out. He said: "This building, which we have been engaged upon, can well be said to symbolize the unity of effort and interest of all who have had a part in its creation. This building will house thousands of tenants and within its walls will be transacted business of vast extent and importance. The wise liberality of the owner provides that the structure should be enriched and beautified so as to give pleasure to the millions of people who will see it. His effort therefore was not alone to make it a purely commercial structure but to clothe it with beauty and to make it a worthy ornament to the great city of New York."



Grand Arcade from Main Stairway looking toward Broadway.

The most important portion of the building and the most magnificent, is the Grand Arcade and the stairway leading to the Irving National Bank. The carvings are Greek in design and executed with great skill. The pink and golden veined marble that lines the walls, and forms the bulk of the grand stairway was brought from the old Skyros quarry in southern Greece. This stone blends with the fine dome-ceiling which is itself a splendid example of glass mosaic. The frieze course of intricate design is carved from the choicest blocks of Vermont marble. The bank rooms have been finished in a pleasing and mellow tone of dark cream Tavernelle.

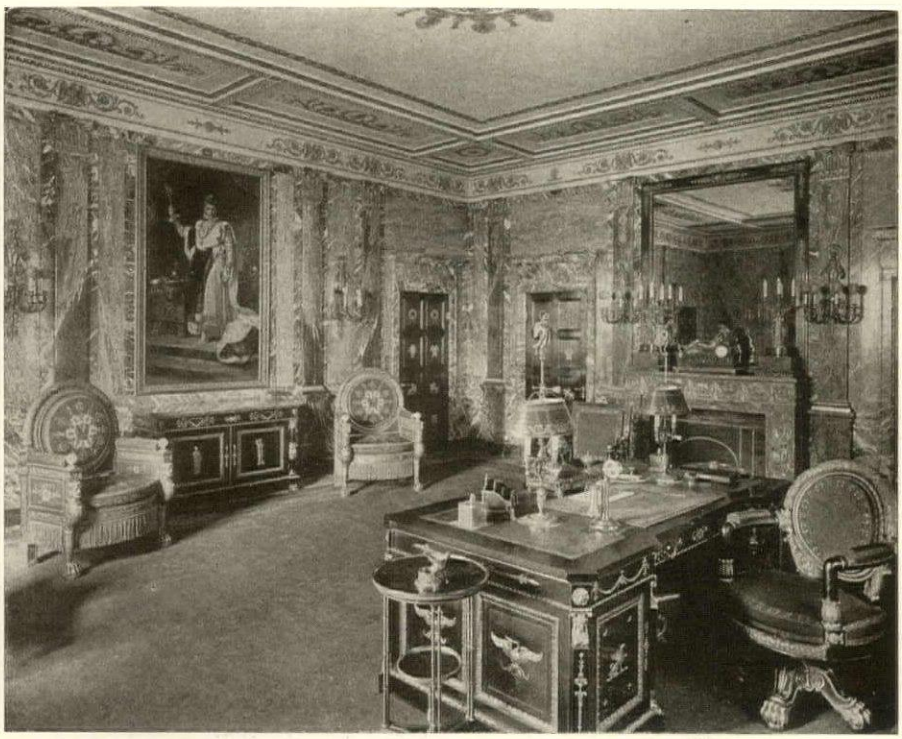
As one passes through the upper corridors, it is pleasing to notice that the usual custom of repetition has been avoided. Various marbles have been used for the corri-

North Balcony of Grand Arcade.

dor wainscot and no two consecutive floors are alike.

All the qualities of the famous Italian marbles are reproduced by the American marbles that so substantially adorn the walls and floors. The largest quantity of these is from the Eastman Quarries of West Rutland, Vermont. The Green Vein Cream Pavonazzo is easily the equal of that beautiful Pavonazzo marble which is recorded by the Romans as "opaline in its play of color." The American Siena rivals the famous Giallo de Siena in variety of shades and depth of color.

When we consider that sixty years ago the quarries at Vermont, the largest in the country if not in the world, were operated by ox teams and hand work of the crudest form, it is remarkable what a change has been wrought in such a comparatively short time. Now the American quarry employs electric cranes, derricks, channeling machines,



The Empire Room, Executive Office of the President of the Woolworth Co.

diamond saws and scores of the most modern appliances for getting out the huge blocks from the earth and cutting and polishing them into the finished slabs. Delicate chisels, automatically operated by compressed air or electricity, are used for the carving, and no contract is too intricate for the marble contractor to accept.

In a building the size of the Woolworth, there are found to be unusual features and astounding facts connected with the construction. It required, for instance, 150 skilled men six months to paint the interior, using 7,500 gallons of paint. Over two and one half million feet of surface had to be plastered, involving six million pounds of gypsum plaster; 70,000 barrels of Portland cement were used in the general construction, and 28,000 tons of hollow tile. There are 29 elevators, running at 600 feet per minute; two of them traveling to a height of 679 feet 6 inches. There are forty miles of pipe in the water system. Forty men were employed for four months gilding the top of the tower with pure gold—some 40,000 square feet of it, and part of the time the wind blowing at forty miles per hour! 3,500 metal window frames and sashes, 3,000 hollow steel doors and other metal devices used where one so often finds wood, insure protection from fire.

One important feature of the Woolworth Building is the method employed to protect not only the tower but every part of the building against extraordinary vibrations and wind forces. In the tower the inclined members of the pyramidal roof provide wind bracing from the top down to the fiftieth floor, and from the fiftieth to the forty-seventh floor the wind stresses are carried to the four interior columns, with gusset plate connections to the floor beams. From below the forty-seventh floor the stresses go down through the outer columns, with solid web knee brace connections to the wall girders.

GOTHIC ARCHITECTURE IN SPAIN

IT is popularly thought that Spanish Gothic is an interesting but overflorid edition of the style. This is indeed far from the truth. The misconception is perhaps due to the fact that the Burgos Cathedral is almost invariably mentioned when speaking of Spanish Gothic, and it is true that the west front of Burgos offers a complicated picturesqueness. But the exterior of Burgos is not any more typical of the national Gothic than is the double transept of Salisbury or the west front of Wells typical of English Gothic.

As a matter of fact, Spain unquestionably stands above either Germany or Italy in the integrity of its Gothic style and in the closeness of its adherence to the French. As Street suggests, there is much to carry out the illusion that you are indeed in France itself. Even the interior of Burgos, for example, "resembles in its piers and vaulting the best style of French thirteenth-century vaulting," according to Statham, who points out further that "Tarragona has the solid architectural quality of a French Transitional church, with shafts with square caps, and the main arches with hardly any mouldings. . . ; and, curiously enough, in the octagonal lantern over the crossing (a frequent feature in Spanish Gothic) are groups of 'lancet' windows exactly like Early English Work." Toledo, too, is French in plan, the interior representing the best type of thirteenth-century Gothic, and the west front, with a large portal, of French character.

Spain shows, very decidedly, the influence of History upon Art. Moorish history, from the first Moorish invasion in 711 A.D. down to their expulsion from Granada in 1492 A.D., is mixed up with that of the Christians, but because of the hatred which the two races had for each other, neither of them borowed to any great extent from the art of the other. The result is two distinct types of architecture in the same period and often in the same district, a situation not found at that time in any other part of Europe. The Alcázar and Giralda at Seville, in the thirteenth century, the Court of the Lions in the Alhambra in the fourteenth, and certain houses in Toledo in the fifteenth century are examples of Moorish buildings that were constructed during the very time that such structures as the cathedrals of Burgos, Valencia, Barcelona, Toledo, Lérida and Avila were being built.

The Moors were more accomplished in both art and science than the Christians,

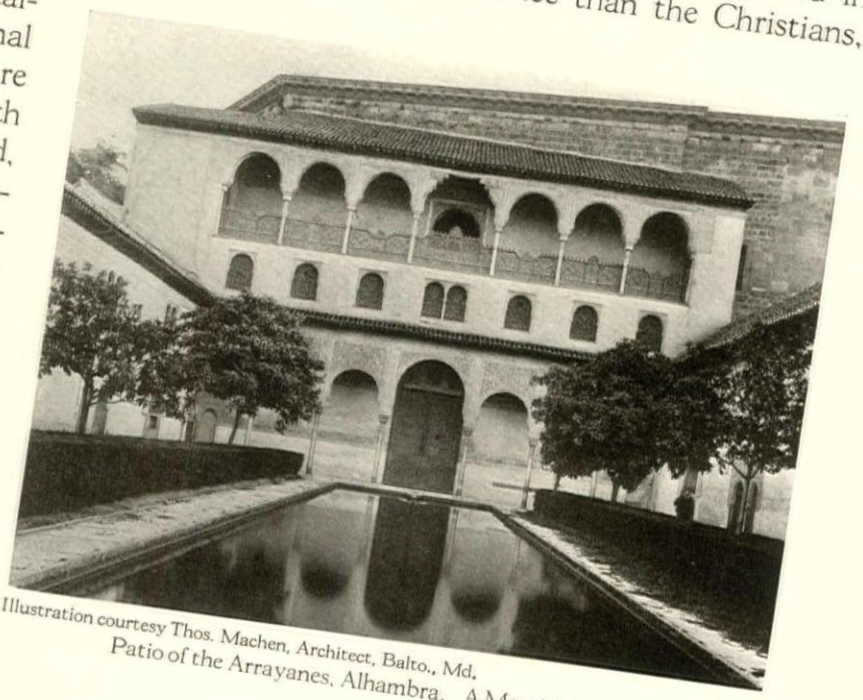


Illustration courtesy Thos. Machen, Architect, Balto., Md.
Patio of the Arrayanes, Alhambra. A Moorish façade.

Illustration courtesy Thos. Machen, Architect, Balto., Md.

Principal Façade of Burgos Cathedral.

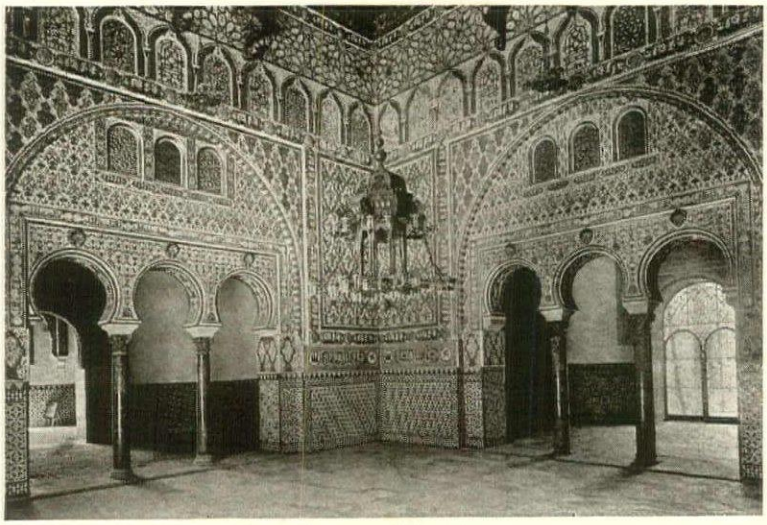


Illustration courtesy Thos. Machen, Architect, Balto., Md.

General View of the Salón de Embajadores, in the Alcázar at Seville.

due no doubt to the fact that the latter were more warlike, and were constantly engaged in strifes with their neighbors. The Moorish systems of artificial irrigation which they built in large numbers remain even today almost unchanged and unimproved, while their architectural works would not have been possible except to a very refined people.

It happened that the dates that mark the recovery of the various Spanish areas from the yoke of Saracenic domination generally synchronized with the development of Pointed Architecture in Europe. Toledo was freed by the Christians in 1085 A.D., Tarragona in 1089, Zaragoza in 1118, Lérida in 1149, Valencia in 1239 and Seville in 1248. By the middle of the fifteenth century, the country was divided into four states, Castile, Aragon, Navarre and the Moorish Kingdom of Granada. Of these, Aragon and Castile contain the more important Gothic buildings, as would be expected when their location, population and wealth are considered.

The earlier type of Spanish Gothic churches varied but little from those in Aquitaine and Auvergne, such as Notre Dame du Port at Clermont Ferrand, and S. Sernin at Toulouse. The ground plan has usually nave and aisles, transepts, central lantern and a chevet consisting of an apsidal choir with a surrounding aisle, and chapels opening into it, with spaces between each chapel. The plan of Santiago, for instance, is so much like that of S. Sernin, even to the precise proportions based on the system of the equilateral triangle, that there is hardly any room to doubt that the one is a reproduction of the other.

Other features of these French churches were copied over and over again, including the waggon-vaulted nave supported by half waggon-vaults over the aisles, and the central lantern. Gradually, the groining was varied and the pointed-section vault was adopted, afterwards developing into the quadripartite vault. To this class belong San Isadore, Leon, San Vincente and San Pedro, Avila; the old cathedrals at Salamanca and Lérida; and la Coruña at Santiago. Strangely enough, the late Romanesque style, once it had been introduced in Spain, did not develop as it did in England and France, into early Gothic. It was supplanted by the designs brought again from France in the later style, and in this respect its history was analogous to that of Germany.

There are, naturally, minor variations to be observed. San Vincente, at Avila, repeats the Segovian Eastern apses, but the walls are pierced above the nave arcades with a regular triforium and clerestory Sta. Maria, la Coruña, has narrow aisles and the three divisions of the church are covered with waggon-vaults, the central thrust being resisted by the side vaults which, due to their narrow width, exert but

a very slight pressure on the outer walls.

There is a tendency toward great width in proportion to length in Spanish Gothic. This at times is so pronounced that some of them are absolutely square, though the internal division into aisles sometimes camouflages this fact.

Usually the apses are either added against the eastern wall of the transept or, if the side apses are built on this plan, the central apse is lengthened by the addition of one bay between the crossing and the apse.

The choir was separated from the altar and the laity were admitted to the transept. The plan as seen in Westminster Abbey enables one to understand the Spanish arrangement. Its short choir, just large enough for a magificent altar, its crossing exactly suited for the stalls of the clergy and choir, its nave and transepts spacious enough to contain a large number of worshipers, are all misused as they were in Spain. The ritual arrangements were affected by the perseverance of Romanesque traditions, and Spanish church architecture from the twelfth century to the present day failed to provide the long choirs developed in France and England. The choir was merely the chapel for the high altar, and the use of the nave as the people's church was ignored.

The erection of many of Spain's Gothic churches was spread over such a long period that it illustrated very well the slow progress made by the builders' art in that country. The old cathedral of Salamanca was building from 1120 to 1178, Tarragona and Tudela were begun about 1131 and the latter completed in 1188. Lérida, begun in 1203, was consecrated in 1278. Valencia Cathedral was not commenced until 1262. Most of the features of these early churches look enough alike to be the design of the

Illustration courtesy University Prints, Boston, Mass.

Exterior of Toro Cathedral.

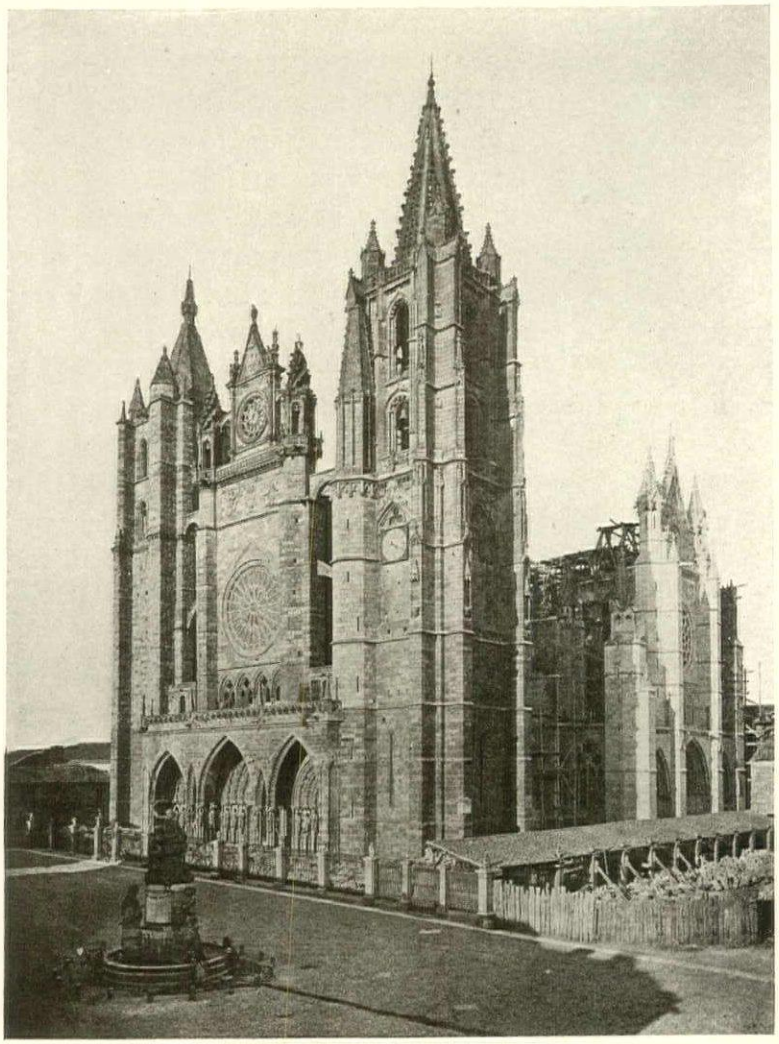


Illustration courtesy University Prints, Boston, Mass.

Exterior of Cathedral, Leon.

same man, and it is hard to understand how such works as Toledo and Burgos could have been in progress at the same time. Perhaps their much more advanced Pointed style was due to French workmen and artists imported for the construction, whose designs were developed beyond the point reached by the native plans.

In spite of their deficiencies, these early churches exhibited interiors that were impressively noble. This nobility comes, too, rather from the boldness of design, the simplicity of their sections and the solidity of their construction, than from any vast size, for they were all only of moderate dimensions. This quality was accentuated by the delicacy of the sculptured decorations on the doorways and capitals and bases of the columns. The windows usually had jamb-shafts inside and out, and the eastern apses were covered with semi-dome vaults. The roofs had rather a flat pitch and were invariably of stone. In fact the idea of permanence seems to have had an important place in the minds of the builders, and surely of all the virtues of good architecture none are greater than solidity and permanence.

In the Avila Cathedral we find a church that made an attempt to introduce more of the delicacy and refinement of the first-pointed style. There were delicate detached shafts, a double aisle around the chevet and subsequently daring expedients in the way of the support of the groining and flying buttresses.

Burgos, Toledo and Leon were evidently built by French workmen from French plans. This seems but natural when we consider that in the thirteenth century Spain was dependent upon the French Church to supply it with bishops for its metropolitan sees. At Leon, the evidences of French imitation are pronounced. At Burgos and Toledo they are plain, but not so strong.

Toledo, while it lacked in height, equalled any church in the country in the beauty and scale of its plan. The chevet contains an unusual arrangement; the vaulting bays in the surrounding aisles of the presbytery are

made of nearly the same size, by having triangular vaulting compartments introduced. Such compartments are found in Notre Dame, and at Le Mans, but the arrangement is entirely different.

Leon Cathedral is distinguished by its brightness and daring. Many stained glass windows, with gorgeous colorings, give the interior a cheerfulness that is in sharp contrast with the sombreness of Toledo. It has a five-sided chapel round the apse and a square chapel to the west, similar to the Beauvais Cathedral. One, indeed, was built within a few years of the other (about 1225).

Burgos Cathedral is somewhat inferior to Leon. The chevet plan is very similar to the latter, but local influences are seen in the triforium design. Many additions and alterations have been made to the church, but even so, the structure is quite interesting. The chief fault is the smallness of the scale and the loss of internal effect due to the placing of the Coro in the nave and the leaving of the large choir almost bare except for the altar at its eastern end.

Following the period represented by the cathedrals just mentioned, comes a division of Gothic art in which the buildings are more uniform in style, while at the same time less national. They partake more of the characteristics of middle-pointed German than of French. These fourteenth century works are found in abundance. The west front of Tarragona Cathedral, the lantern and transept of Valencia, the chapel of San Ildefonso the Puerta of Sta. Catalina, the screen round the Coro at Toledo, Sta. Marie del Mar and the Cathedral at Barcelona, the chevet of Gerona, the north doorway and clerestory of Avila, and the cloisters of Burgos and Veruela afford fine examples of the designs

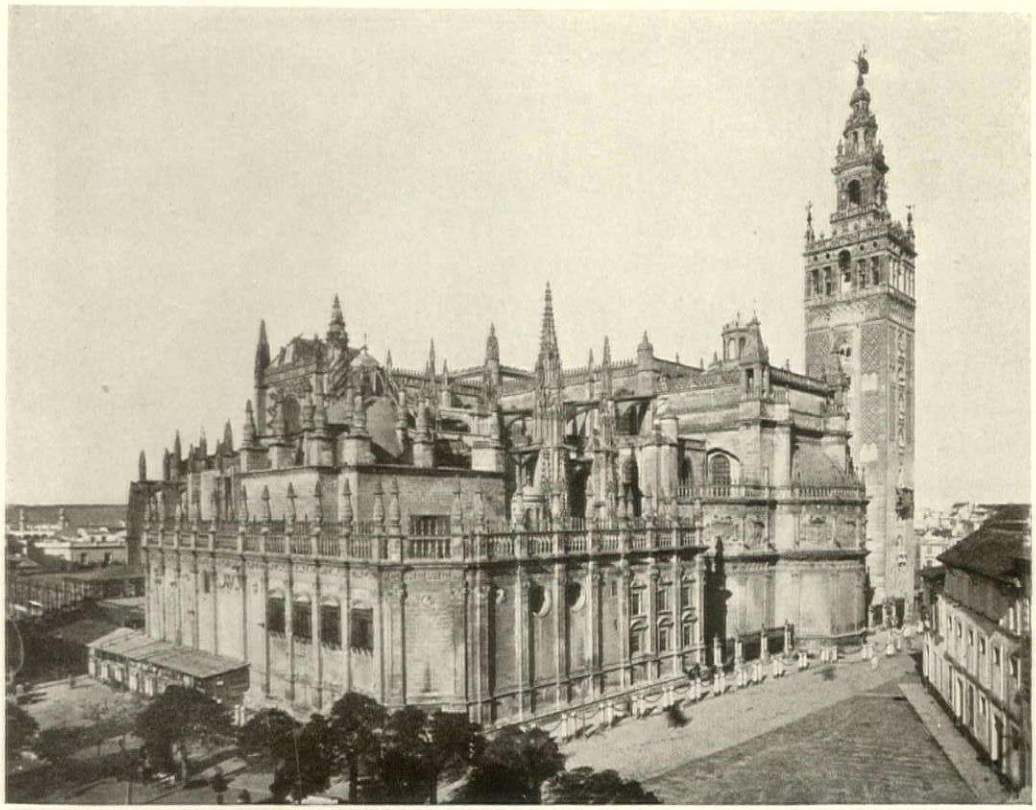


Illustration courtesy University Prints, Boston, Mass.

Exterior of Cathedral, Seville, showing Giralda Tower.

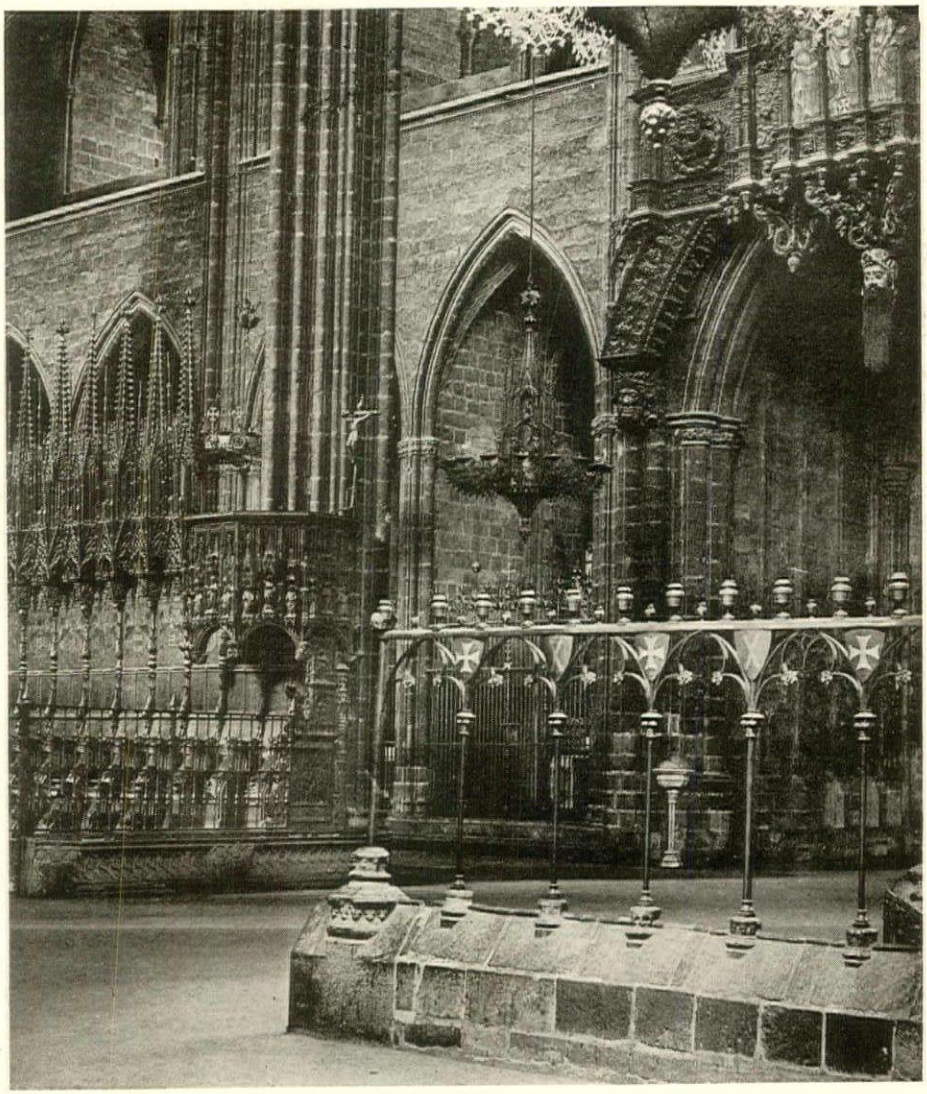


Illustration courtesy Thos. Machen, Architect, Balto., Md.

Interior of Barcelona Cathedral.

and details of the churches of this period.

Two features of this period are worthy of mention. One was the reproduction of the octagonal steeple; the other was the introduction of great, unbroken naves, groined in stone and lighted by windows high up in the walls.

Going into the fifteenth century we find the most satisfactory period of Spanish Gothic. Such churches as that at Segovia, Salamanca, Astorga, Huesca, Gerona, Pamplona and Manresa, with their magnificent size, solid construction and solemn internal effect would be sufficient to mark the period as one of the most fertile and artistic the world has ever seen.

Especially in Catalina is there a series of churches in which is most successfully met the problem of placing an enormous congregation on the floor in front of the altar and within sight and hearing of the preacher. The nave of Gerona held about 2,300 worshipers; the nave of Sta. Marie del Mar about 3,000; while Barcelona could accommodate about 2,000.

The cathedrals of Segovia and Salamanca

are the two latest great Gothic churches in Spain. Here the choir proper is very short and built only for the altar. The plan of the former church is very fine and well-proportioned, but that of the latter is rather spoiled by the erection of a square east end, in place of the apse that was at first intended.

In some respects it is remarkable that the Gothic style should have clung so tenaciously to the imagination of Spanish builders. Even while such a man as Berruguete was designing in the most thoroughly Renaissance style, Juan Gil de Hontanon was painfully superintending the erection of a great Gothic cathedral.

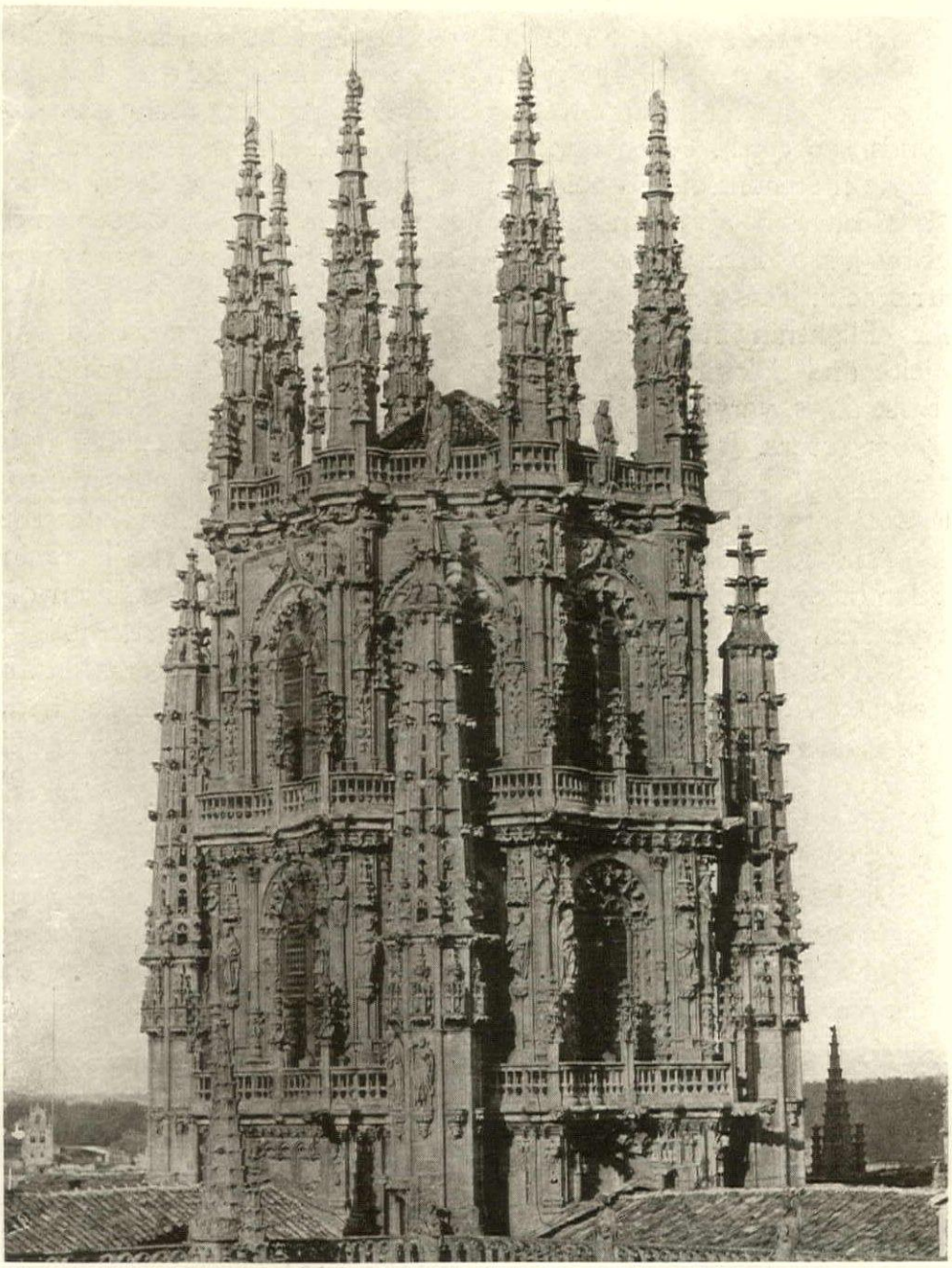


Illustration courtesy Thos. Machen, Architect, Balto., Md.

Detail of Central Tower, Burgos Cathedral

WEATHERING OF MARBLE

The Reasons for the Variation in Durability of Exposed Marbles

THERE are several factors that control the weathering of marble, chief among which are the two following: the amount of humidity in the atmosphere, the general character of the climate, and the physical properties of the marble. Since carbonic acid is found in considerable quantities in the upper reaches of the air envelope that surrounds the earth, every raindrop contains a certain amount of this acid. In addition to this, rain also contains, as pointed out by Joseph Henry, another substance—nitric acid. This acid is generated by the flashes of lightning in the clouds.

Both calcite and dolomite marbles are soluble in these acids, varying in degree according to the structure. It therefore follows that the durability of marble exposed to the weather depends directly upon the amount of rainfall. Among available stones, the records for durability are slightly in favor of the calcite marbles.

T. N. Dale, in his report on the Commercial Marbles of Western Vermont, says: "It has been thought that a fine-textured marble, by offering the rainwater a greater length of grain boundary than a coarse-textured one, would weather more readily, but on the other hand a coarse-textured, loosely compacted marble will weather readily because acid water, once admitted between the grains, will travel more rapidly. Marbles containing silicates in large flakes or crystals are more susceptible to weathering, for acid water gains free access along the boundaries of the silicates.

"It is generally known that carvings in European marbles will stand exposure in the climate of southern Europe much better than in that of our Eastern States. Vogt states that in the dry atmosphere of Egypt, Greece and Italy marble statues after an exposure of 1,000 years lose some of their fine lines but become coated with a fine protective crust. Lepsius found that this protecting film on ancient Greek monuments was ferruginous and that it was formed only on the marble containing a small percentage of Fe O H. On the other hand, Vogt refers to a number of Norwegian churches built party or entirely of Norwegian calcite marble which have stood six or seven centuries exposed to the raw, windy and cold climate of northern and western Norway with but very little if any weathering. In contrast with this Hirschwald reproduces a thin section of marble, presumably Italian, which had been exposed in a monument in Berlin for 192 years and which shows the erosion of the grain surfaces, the loosening of their cohesion, and the deposition of an ocher-like substance between them."

There are other factors that must be considered in studying the weathering of marble. The atmosphere in the neighborhood of a large city, especially one that is the center of such manufacturing industries as have occasion to use soft coal, contains sulphuric acid that arises from the smoke of railroads, factories, foundries and steam plants. This acid affects marble. The soot that accompanies the use of soft coal rapidly blackens all light marbles, and this effect is increased by elaboration of ornamentation, since its natural removal by rain is thereby prevented.

A. Geikie, in his notes on the weathering of marbles in and around Edinburgh, shows two thin sections of white marble, probably Italian, one taken from fresh stone in a marble-worker's yard, and the other taken at

right angles to the surface of an urn that had been exposed for 87 years in a neighboring cemetery. The latter shows that the acid had eaten between the grains and along the cleavage and twinning planes. This acid had also formed a crust, by combining with the calcite, of calcium sulphate that appeared along the surface and in the openings. This crust was full of dust and soot particles.

On the other hand, there was taken from a building near South Dorset, Vermont, in 1910 a block of white marble that was probably quarried in the hills nearby and which bore the inscription "A.D. 1831." In this the edges of the letters and figures were quite sharp, having stood 79 years without perceptible weathering.

H. Seipp in 1911 published a work on the weathering of various marbles in Italian buildings and monuments. His observations showed that the blackening so frequently seen in the exterior marbles in that country was due to a coating of lichens impregnated with particles of soot and dust, and to a film of humis arising from the decomposition of these lichens.

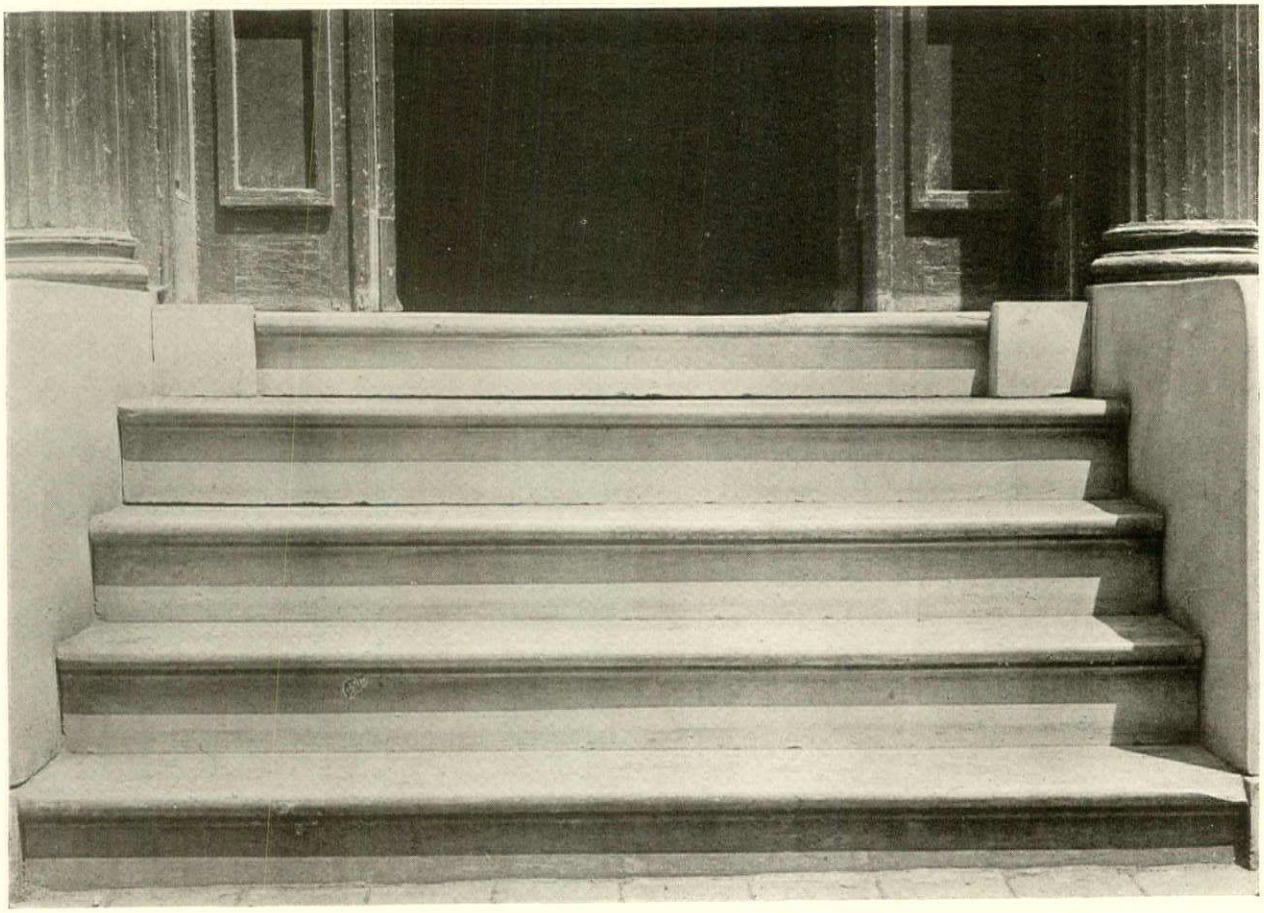
"The rate of decomposition by weathering," says Oliver Bowles in The Technology of Marble Quarrying, "is somewhat dependent on these physical features. (Solubility, porosity, permeability, chemical composition, hardness, texture and state of aggregation of marble.) For example, a soluble rock weathers more rapidly than one that is relatively insoluble, and an open-grained porous rock decomposes more readily than one that is more solid and impervious. Owing to the direct dependence of the rate of weathering on the physical properties of marbles, tests of the various qualities of a given stone are of great value in estimating the probable rate of weathering." Bowles adds that the durability depends also on temperature, and that whereas practically no weathering takes place at 0° C. or lower, solution increases at higher temperatures until we find a continuous action the year round in tropical regions. Rapid changes of temperature, aside from the effects of frost, affect marble. These changes produce differential expansion and contraction, resulting in shearing stresses that cause flakes to split off. This rupture is less in the porous than in the non-porous rocks, since there is in the former a necessary adjusment between the grains. "As a rule," says Bowles, "the finer-grained rocks weather less rapidly than do those of coarser grain." Van Hise declares that "this is a consequence of the closer interlocking of the mineral particles of the fine-grained rocks, and of the fact that the differential expansion and contraction by changes in temperature is less with fine particles than with coarse particles." Actual experience has shown, in spite of these statements by such authorities, that there is not a great difference in durability between coarse grained and fine grained calcite exposed to the weather.

As we have mentioned before, humidity is a big factor in decomposition. In the absence of water, chemical action is retarded. Cleopatra's Needle, after standing for thousands of years in the dry climate of Egypt, immediately began to disintegrate when removed to Central Park in New York City. In order to prevent its destruction it had to be coated with paraffin.

When Parks conducted his series of experiments to test the relative durability of various stones, it was shown that the change in color of the surfaces of different cubes of material when a stream of carbon dioxide was passed through the distilled water in which they were submerged corresponded closely with the color modification brought about by many years of weathering. It is obvious that such tests are useful in deter-

mining the probabilities of color changes in rocks intended for exterior construction. Actual observations of the rate of weathering and the changes in color may often be made first hand in old buildings or in the quarries themselves from which the marbles came, and these give, after all, the best and most dependable information. The stone that is the most enduring will easily be recognized. Soundness can also be most easily seen in this manner, because weathering brings out in relief all the cracks and lines of weakness.

The builder should be very careful in choosing marbles for exterior use. Those that weather unevenly, or are easily stained, or lose their polish rapidly, are not suitable for such construction. In this regard, especial caution should be exercised in the selection of colored marbles, for these are more apt to disintegrate under the action of sun, rain and frost; the colors are likely to fade; and the softer parts show a disposition to break away from the harder layers, in course of time, leaving an ugly surface.



The illustration shown here represents the front entrance moulded marble steps of the Century Office Building at 211 North Calvert Street, Baltimore, Maryland. According to the best information obtainable, this building was erected about 1805. At this early date records of building operations in Baltimore were not kept. The marble is from Cockeysville, as was so much of the marble used for the thousands of steps seen in Baltimore. These particular steps have given 119 years of service — a striking evidence of the enduring qualities of marble.

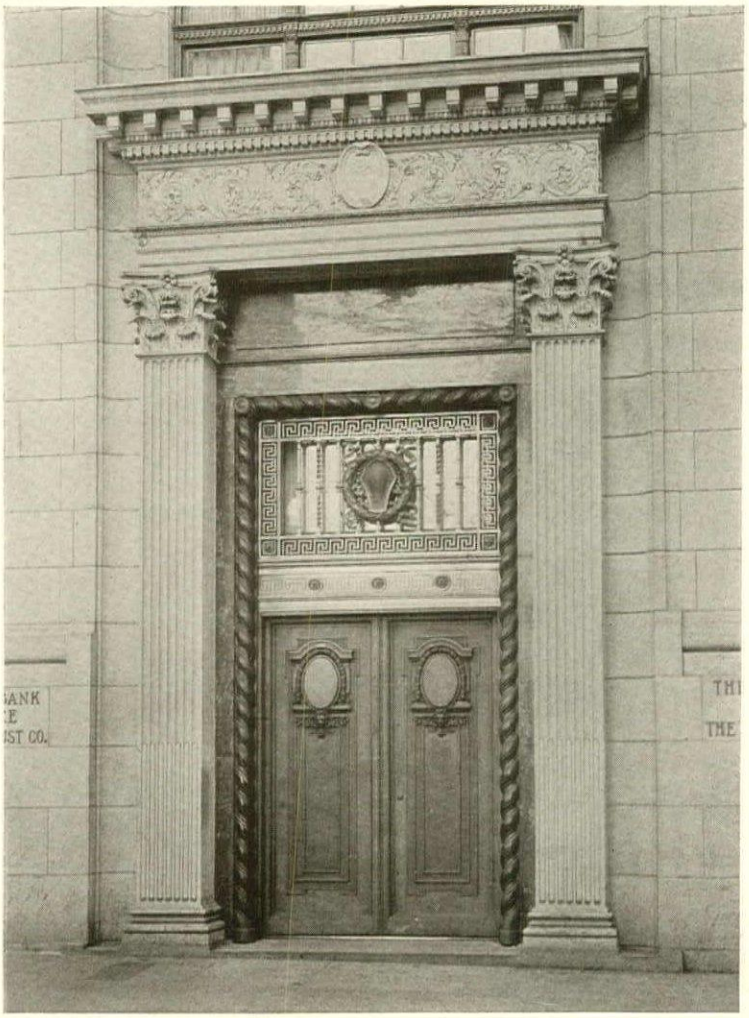
THE OLDEST BANK IN MARYLAND

BEFORE the War of 1812, and even before "Baltimore Towne" was incorporated, there was granted a charter for a bank which opened its doors at what is now Baltimore and St. Paul Streets in Baltimore, Maryland. This was in 1795.

The bank is still there. The building is the fourth one on the same site which the oldest bank in Maryland has occupied in the last 129 years. Except for the periods when new building operations were in progress and temporary quarters were absolutely necessary, it has been one of the landmarks of the city through the times of stress in the early years of the American Republic down to the present day.

The new building which now so adequately houses the bank's affairs has a frontage of 81 feet on East Baltimore Street and extends along St. Paul Street a distance of 103 feet. The plot formerly occupied was a portion of this area, comprising the strip at the corner that fronted 36 feet on East Baltimore Street.

The previous building was not entirely demolished when this new home was built; parts of the old structure were retained, owing to the necessity of keeping the cost of



Main Entrance, National Bank of Baltimore.

building as low as possible. The walls on St. Paul Street and Bank Lane (on which the rear abuts) were only slightly altered, while some portions of the original floor and roof were also used. The front on East Baltimore Street is altogether new and it harmonizes with the architectural style of the old building.

The plans for the new bank and its equipment were prepared by Mr. C. B. French, of the firm of Morgan, French and Company, Inc., architects and bank engineers of New York, and Mr. Theodore Wells Pietsch, architect, of Baltimore. The builder was Fred T. Ley and Company, Inc., of New York.

The exterior of the building offers simple lines, almost severely dignified, but relieved by the richly moulded cornice with attic story above. The large arched windows and the heavily rusticated groins at the corners give unusual scale and lend charm to the whole design. The handsome door piece in the center of the East Baltimore Street front, with its fluted pilasters and beautifully carved Corinthian caps surmounted by a richly moulded and carved door head, is of Asbury Pink Tennessee and black and gold marble embellished with bronze mouldings. The Tennessee marble pilasters are unusual because, in spite of their height, which is 14½ feet, they are built of one solid piece of stone. The cornice also is one piece almost 15 feet long. Heavy bronze entrance doors lead onto a platform, midway between the first floor and the basement. From this platform a beautiful Botticino marble central staircase with gray Tennessee marble steps leads to the main banking room on the first floor, and on each side similar staircases lead to the basement banking room and the Safe Deposit Department.

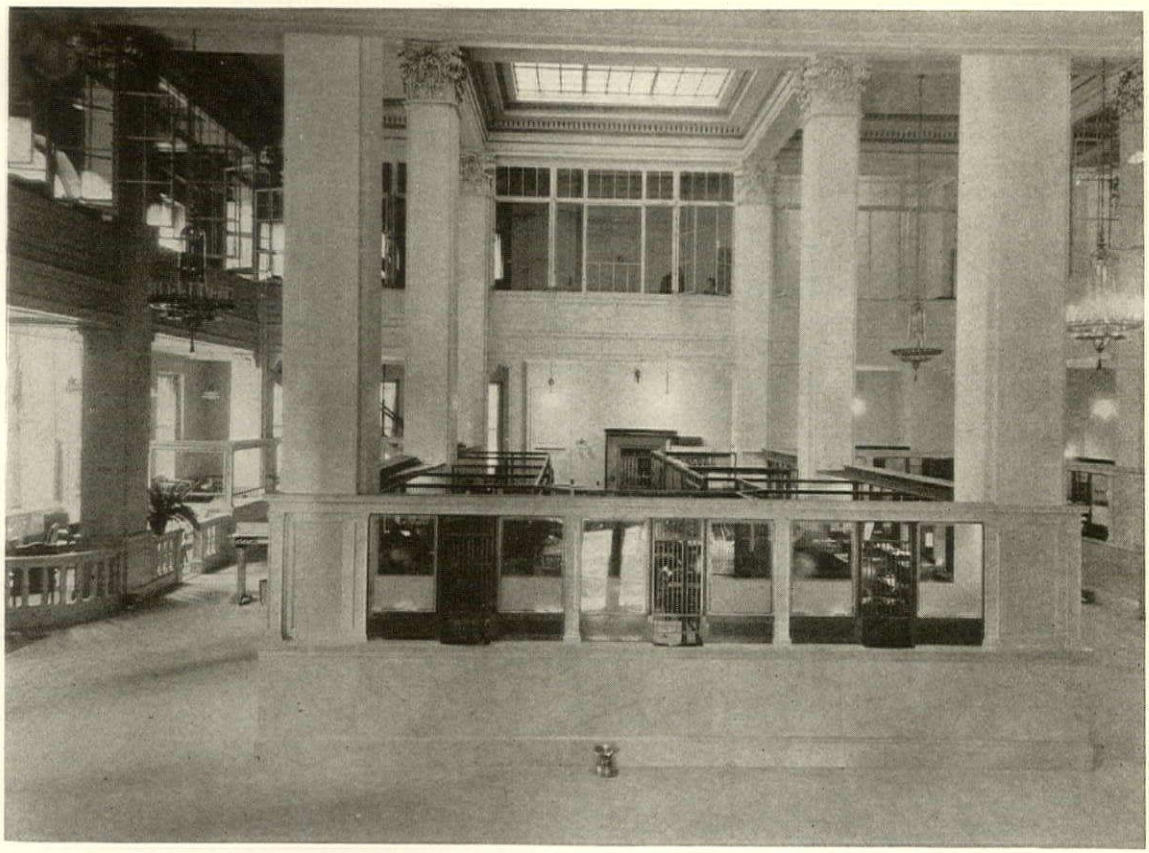
The main banking room is 97 feet long, 76 feet wide and two stories high in the center, and is entered direct, through a double door on St. Paul Street or by a wide marble staircase from the entrance platform on East Baltimore Street. It is well lighted by windows on three sides, and a large central ceiling light. Tennessee marble staircases lead to the raised platform along the East Baltimore Street side, overlooking the banking

room, and on which is located the Officers' Space, President's Room and Conference Room. A glass-enclosed gallery extends around all four sides of the banking room.

The Public Space is "V" shaped with the curved end facing the East Baltimore Street entrance. The space in the center behind the counterscreen is divided into tellers' cages. Around the outside of the Public Space on the St. Paul Street side, starting at the rear, is the Savings Department, behind a marble and glass counterscreen; the Ladies Writing Room, the St. Paul Street entrance and the New Business Space. The Ladies' Writing Room and New Business Space are separated from the Public Space by an open marble balustrade. On the opposite side of the room, at the front, is the Cashiers' Space, behind an open balustrade; and at the rear, behind a counterscreen, cages for tellers.

The Botticino marble and bronze counterscreen is simple in design, depending for the effect on its delicately moulded pilasters and cornice and the beauty of the material, rather than upon useless ornamentation. The twenty-two tellers' windows have bronze wickets, thick Carrara glass deal plates and bronze cash guards. The Savings Department screen has a 9-inch high continuous open space above the marble counter, which provides space for six tellers. The lower 12 inches of the plate-glass panels in the counterscreen are obscured, and are held in place by bronze frames. Mahogany is used for all counter work, except in the Savings Department, where it is quartered oak.

The floor of the Public Space is Champion Pink Tennessee marble. Cork tile is used for the floor of the Officers' platform and in all spaces separate from the Public Space by



South Side of Banking Screen, Banking Floor.

Ramp and Twist Stair, Banking Room Floor to Officers' Quarters.

low Botticino marble rails. The walls of the banking room are wainscoted with similar Botticino marble up to a height of 3 feet 5 inches. Check desks of bronze with heavy plate-glass tops and carved Botticino marble seats are conveniently placed. Directly back of the central working space is the Bank's Security Vault, with a heavy door and a half-inch steel lining, surrounded by concrete walls 1 foot 6 inches thick, reinforced with steel rods. Steel lockups are provided for cash and securities.

The upper walls of the banking room are painted imitation Caen stone of a warm tint. There is a feeling of restraint in the decorative scheme, the effect being obtained by the dignity of simple lines and proper proportions.

Chandeliers of bronze, carefully chosen for their decorative value, furnish the illumination. Individual fixtures for the desks and reflectors over the counters afford what artificial light may be necessary for the room. A large skeleton dial clock of bronze is placed in a prominent position on the rear wall.

At the foot of the basement stairs is a spacious lobby, wainscoted with beautiful Botticino marble and with a gray Tennessee marble floor. A door at the rear of this lobby leads into an attractive suite for the ladies. At the right and separated by an open marble balustrade, is a large room used by the Bond Department. On the opposite side is the basement banking room with a counter-screen and floor similar to that in the main banking room. At the front is the entrance to the Safe Deposit Department through a gate in a heavy polished steel grille.

The Safe Deposit Vault has a massive door of circular type, with a total thickness of 35 inches and a 2-inch thick steel lining,

surrounded by walls of concrete 1 foot 6 inches thick, reinforced with steel rods. The outside front wall and the interior walls and ceiling are finished with polished steel panels. An observation space is carried under and around the vault. The vault has a total capacity of 8,000 boxes, of which 3,000 have been installed. Facilities for box holders are conveniently placed, comprising twenty-three spacious coupon booths and two committee rooms.

The walls of the Safe Deposit Department are wainscoted with Botticino marble. The floor is of gray Tennessee marble. The remainder of the basement is used for coal storage and mechanical equipment. The Trust Department, Stenographers' Rooms and Stationery Room are located on the gallery. On the second floor is located an attractively decorated and furnished Directors' Room; in addition there is an ample working space. Here also are the locker rooms and toilets for men and women clerks. The fourth floor contains the officers' and clerks' dining-rooms, serving-room, kitchen and storage space.

The building is equipped with three push-button elevators, intercommunicating telephones, electric call-bell system, a daylight hold-up system and electric vault protection, and altogether is as modern a structure as present-day methods can effect.

Marble Stairs from Basement to Entrance Floor Level.

MARBLES AND MARBLE-WORKING IN BELGIUM AND FRANCE

SOME of the quarries in Belgium and France are equipped, though with rather crude apparatus, to supply blocks of marble of specified size. The wire saw so frequently used for general quarrying of rough blocks is very easily adapted to this purpose. Broadly speaking, however, the working of marble for most of the purposes for which it is used is a matter that is in the hands of other concerns than the quarry-owning companies. Of course, where there is a steady demand for certain kinds of work that require only a moderate amount of machinery and an unskilled type of worker, it is often economical for the owners to finish their own products.

The largest number of sawn slabs shipped direct from quarrying localities to Great Britain and the United States come from the Carrara sections of Italy, but even here the imposition of tariffs on manufactured or partly manufactured materials has resulted in a lessening of such exportation. Certain quarries in Brittany and the French Pyrenees also export moderate amounts of this kind of marble.

In Belgium, the price for rough slabs is but little less than the cost of polished work. Since in that country the quarry owner is most often the finisher, it is profitable to him to keep up the price of the raw material. In that way, he secures the contract for the manufactured product, gives employment to a working force in both quarry and workshop, and secures either a small profit on each of the operations or, when his works are idle, a large profit on the quarried material.

The industry in Belgium is characterized by a specialization of various shops. One firm will, for instance, work on shop fittings almost exclusively; another will go in for the manufacture of marble clock-cases; a third will devote practically all of its efforts to the production of marble tiles. Nearly every large town will have its shops that are able to care for the local demands.

When it comes to filling a contract that calls for more involved decorative schemes, it is necessary to call on any one of the very few large establishments that may be found. This is only to be expected, however, since in almost any work of considerable magnitude, there will be used marbles from many different localities or even countries. For a single interior there will perhaps be specified five or six marbles from countries that lack the facilities for working their own products. Then, too, the quarries from which these stones come, are often unfavorably situated as regards the transportation of finished slabs.

It is important that the various portions of an interior be done in the same shop. If sub-contracts were entered into, such as would prevail were the smaller shops given consideration, the difficulties of working would be tremendously increased. Under a time contract, it would not be hard to imagine the chaos that would prevail during the task of assembling, fitting and fixing the various parts of the work. Effective supervision could not possibly be exercised.

As said before, the bulk of the owners of these Belgium marble-working establishments are also quarry owners. The amount of marble handled is, due to the large quantities of foreign marbles passing through the plants, much greater than local production. The activity in the working of colored mar-

bles, for instance, is out of all proportion to the quarrying of such stones. It is strange that the principal factories for such work are not in the countries that produce the material but in a country without natural facilities and remote from the production centers.

The remote position of Belgium during the convulsive times that shook the other Continental nations during the times of the First Revolution probably was responsible for the establishment of the industry. The development has been slow, but of such steadiness that Belgium practically dominated the trade for the last half of the nineteenth century. She still holds a very prominent position, and this despite the fact that (1) Belgium marbles themselves are not of the highest class and are only used for decorative purposes where price is the principal factor of determination; (2) the chief factories are situated at such distances from the loading ports that the finished work has to bear a very heavy double impost for transportation.

The explanation of such a situation is the systematic organization of the industry and the accumulated experience of years of handling marble.

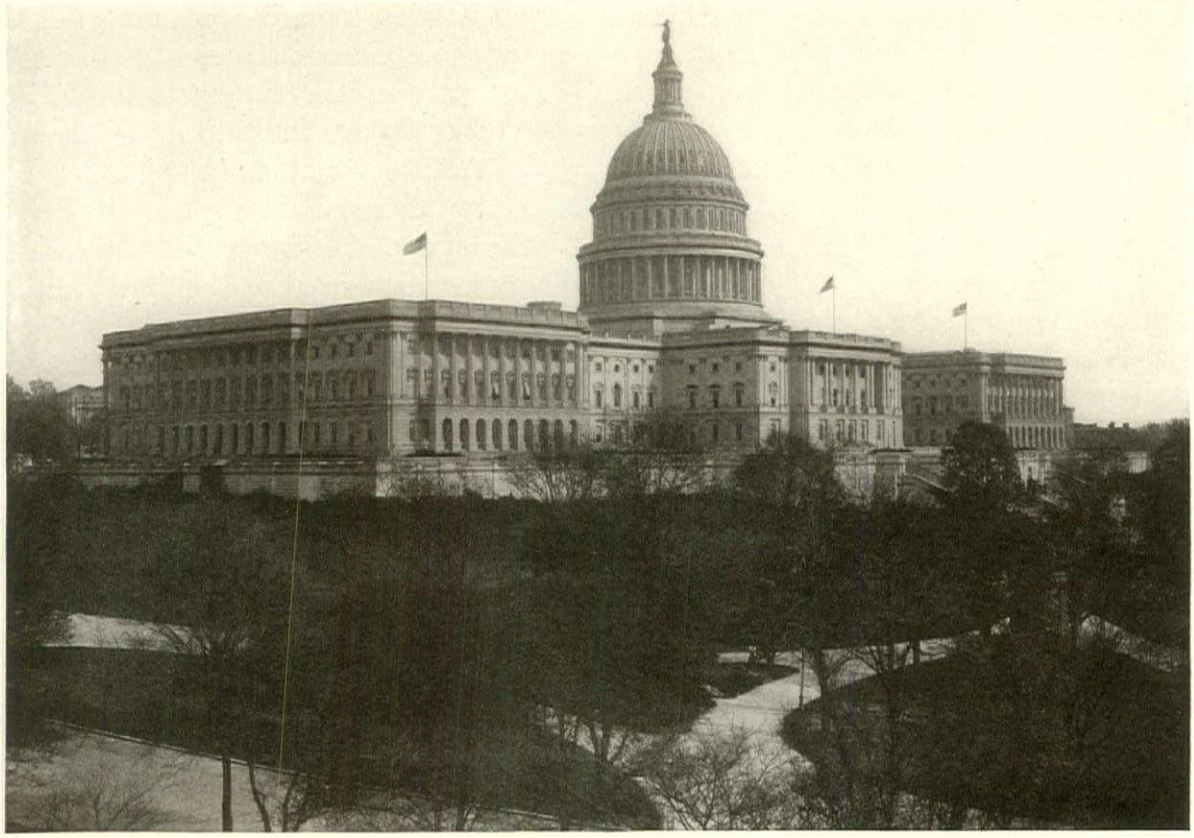
The foremost French establishments, while not the equal of the chief Belgian houses, occupy places of importance in the trade. One firm, for instance, has sawing machinery taking up to 840 blades in one factory at Quemont, and more than this at their Sable plant. The French establishments do not bear as high a reputation for reliability as do those of Belgium; their words are usually better than their deeds, and exasperating delays are experienced, which, with better management, might be avoided. On the other hand, the work itself is of very high calibre and is executed with a fine artistic feeling.

The Belgian marble deposits are of Devonian and Carboniferous Age, and the largest part of the supply is utilized for cheap shopfitting, table tops and sanitary work. Among the best of the Belgian varieties is one that is unusually sound—Belgian Black—and of all the black marbles it is the most widely used on the Continent and in Great Britain. Another variety, misnamed "Belgian Granit," is in high favor for building purposes. Bleu Belge or Belgian Grand Antique is used for floor bases; and Saint Anne's, a nearly black marble with light gray markings, was, for a time, looked upon as the soundest colored stone to be had.

Among the red marbles are such well-known varieties as Rouge Imperial, Rouge Royal, Rouge Fleuri and Rouge Byzantine, but they differ from each other mainly in the color-tone, which varies from a brownish-red with white veins to a light brown with irregular veinings. The soundest of these "Rouges" is "Rouge Griotte" and it, as well as some of the best of the others, is occasionally used for the better class of interior constructional work.

Deserving of special mention is Rouge de Rance from a quarry that was reopened in 1900 after being closed for nearly 200 years. Some of this material was used in the large columns of the Palace of Louis XIV at Versailles and in the Antwerp Railway Station.

In France, most of the marble is found in the south, bordering the Pyrenees. The Haute Gironde, Hautes Pyrenees and Pyrenees Orientales are especially rich with marble-bearing strata, and the provinces of Ariège, Var and the Hautes Alps are known for their products. From near Molinges, Jura, come some fine breccias, and from Aude comes a richly colored red marble.



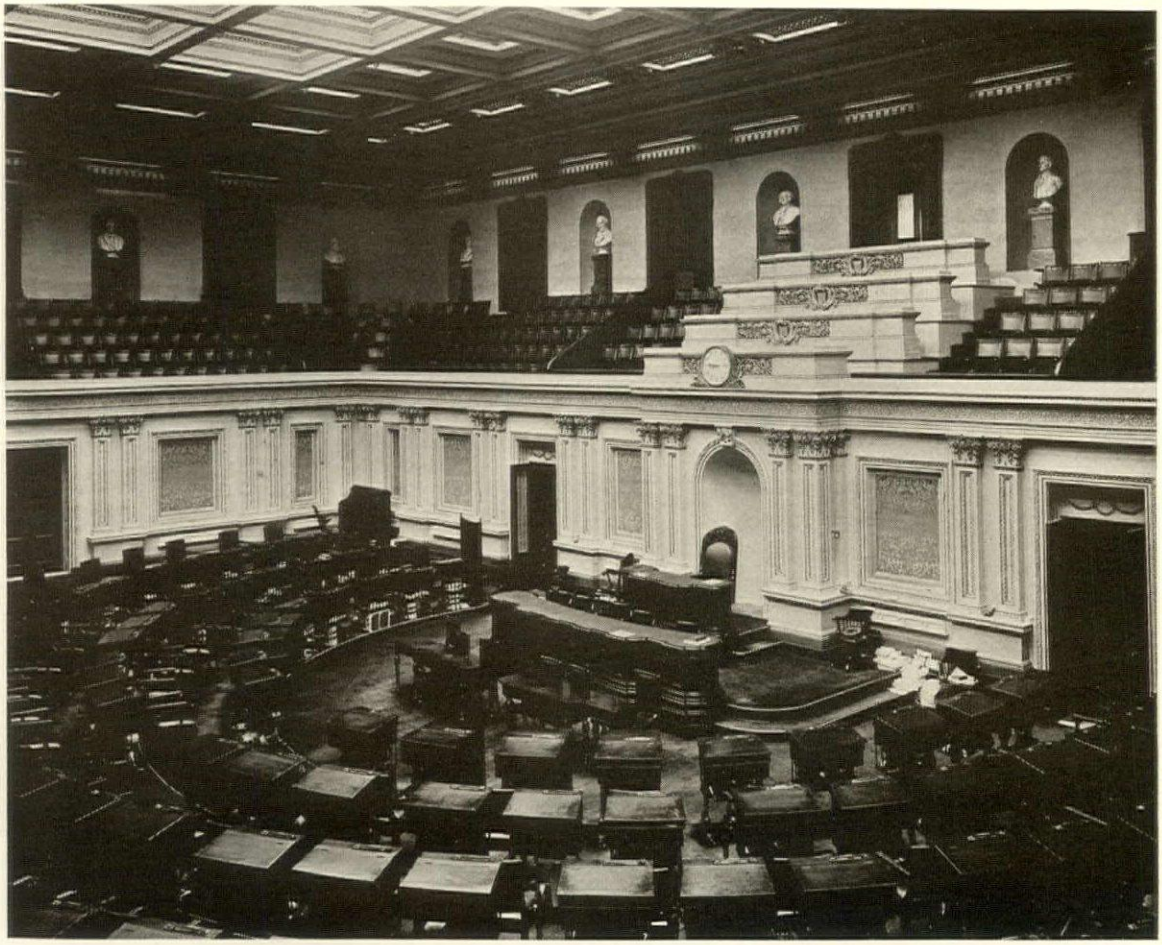
THE NATION'S CAPITOL

WASHINGTON is the only city designed for the capital of a nation which has been projected, practically in a wilderness, with prearranged plans. It is true that the plans have miscarried, but had their ultimate fulfillment been realized, it is doubtful if the capital of today would have been as beautiful or as interesting as it now is.

Certainly no other city is so dominated by one or two individual structures as is Washington by the Capitol and the Monument; nor does any city so successfully and constantly keep before the eye the fact that it is the seat of a mighty government.

It is not unusual to see in Europe a noble cathedral in the midst of tumble-down buildings. For many years a similar situation threatened our Capitol. Lately, circumstances have caused the clearing away of the unsightly and incongruous shacks and shanties; and now, as you approach the city, Capitol Hill is seen surrounded by buildings, few of which detract to any great extent from the beauty of the Capitol itself.

When the first Commissioners of the district advertised in March, 1792, for plans for a suitable building, they offered a "premium of a lot in this city to be designated by impartial judges, and five hundred dollars, or a medal of that value at option of the party" as a reward for the most approved plan. Only sixteen answers were received and, of these, the most favored was



View of Senate Chamber.

that from Stephen Hallet, a Frenchman recently come to Philadelphia. Before actual acceptance of his design, however, the President was shown another plan by Dr. William Thornton, an Englishman, which excited his enthusiasm. Parts of each plan were adopted and each received the advertised award. Bitter feeling soon developed between Hallet and Thornton, and Hallet in a few months was dismissed. The question of credit is now only one of secondary importance, since the conceptions of their successors have completely overshadowed their ideas.

The cornerstone of the National Capitol was laid on the 18th day of September, 1793, by George Washington. The ceremony was conducted by certain of the Masonic lodges of Maryland and Virginia, the soldier-president himself being a member of that craft. After the speech-making, "the whole company retired to an extensive booth where an ox of 500 pounds was barbecued, of which the company generally partook, with every abundance of other recreation."

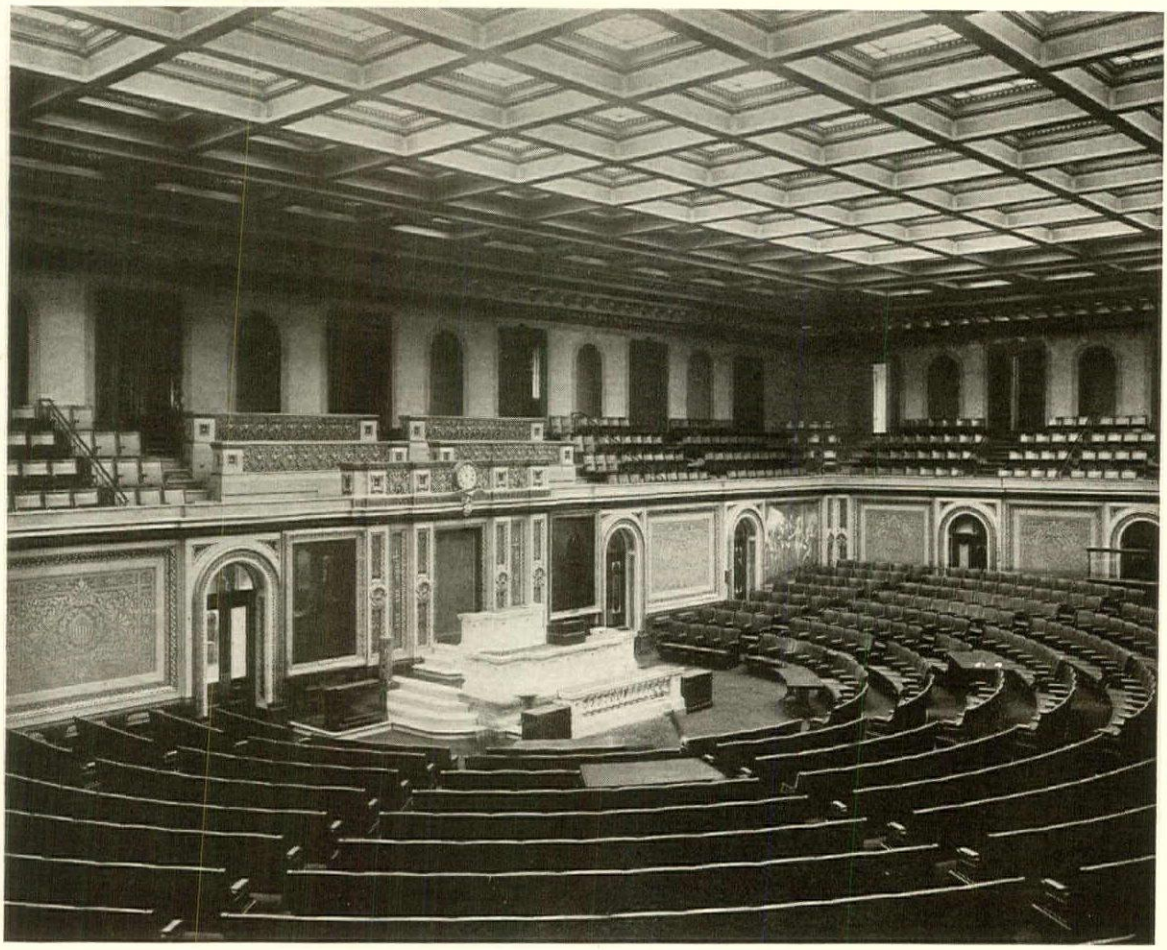
By 1800 the north wing was completed and Congress met for the first time in Washington on November 21st. At this time there were but 109 houses of brick and 263 of wood in Washington, according to the Commissioners' report of May 15, 1800. Lots were sold southwest of Massachusetts Avenue at an average price of $343; and northeast for $105. Lots "binding on" nav-

igable water brought $12.71 the "foot front." Pennsylvania Avenue leading to the Presidential Mansion was "a deep morass covered with alder bushes."

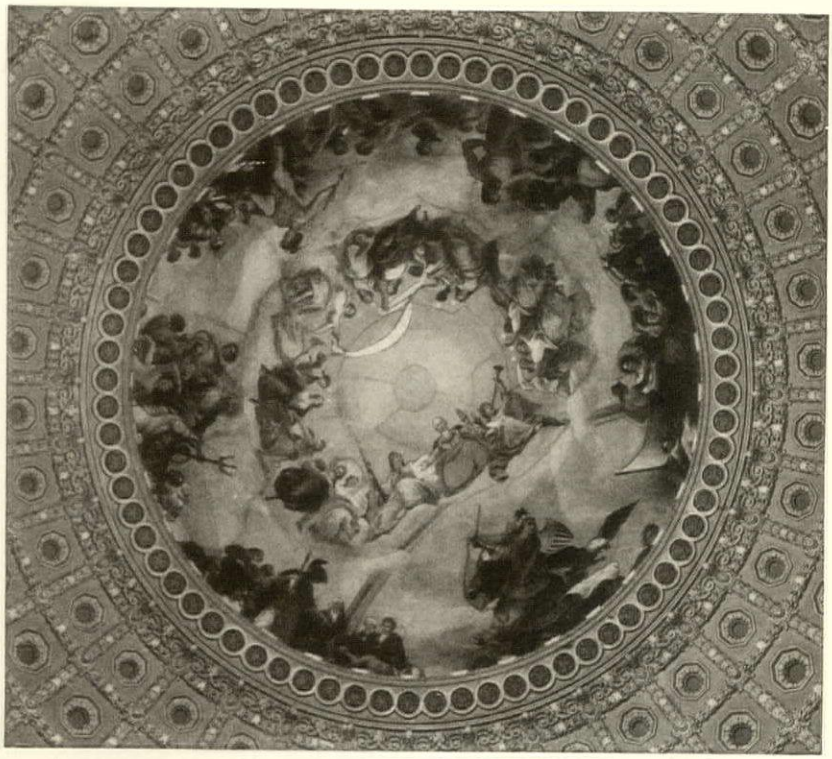
In 1807 the south wing was so far completed as to be occupied by the House of Representatives. Various changes and additions were made and during all this time the members of Congress suffered many almost ludicrous inconveniences. Idlers crowded the building, plaster fell on their heads and the roof continually leaked because the lead flashings were stolen. From 1803 to 1819, $491,194.19 was the net expenditures on the old buildings out of Congressional appropriations. In addition, Maryland contributed $72,000 and Virginia $120,000 towards a fund for the erection of public buildings in Washington, which was partly diverted to the upkeep of the Capitol.

In August, 1814, occurred the destruction of the Capitol by the British. On the ill-fated 24th, the English sailed up the Patuxent River, debarked at Benedict, and marched on to Washington, routing the Americans at Bladensburg on the way. Admiral Cockburn ordered the Capitol burned, together with other buildings. Following his retreat the next day, Congress reassembled in an old house on 7th Street, where the General Post Office now stands.

In 1817 the Capitol was restored under the direction of Benjamin Latrobe. The blue marble which is conspicuous in the cor-



View of House of Representatives.



The Ceiling of the Rotunda, painted by Brumidi, said to show caricatures of the leaders of the Confederacy, though denied by the painter.

ridors and in Statuary Hall was substituted for the Dunville marble or freestone that had been the main material heretofore. Latrobe designed the ground plan for the wings and was also responsible for the two legislative halls. His place was taken later by Charles Bullfinch, of Boston, the first native American among the Capitol architects. Bullfinch, following Latrobe's plans, built the rotunda, the old dome and the library. The glacis and terraces on the west side, which added an equilibrium previously lacking, were his work also. When he retired in 1830, the Capitol was virtually completed.

For twenty years the building was practically unchanged. Less than three millions had been spent up to this time, and even today the cost of the building alone has not exceeded fifteen millions, a reasonable sum when compared with the amounts laid out for similar buildings in Albany and Harrisburg. The growth of the nation, however, made the old structure inadequate to the increased representation. It was decided to replace the old wings with greater ones upon the same plan. Thomas V. Walter, the first classical architect of America and the designer of Girard College, was entrusted with the task.

This was the first important occasion on which the United States Engineer Corps took part in the erection of a public building in Washington, though such work is now largely in its hands. Walter's improvements include the beautiful dome, the finest feature of the edifice. By the end of 1867, the building was brought to practically the state in which it now stands.

"It is doubtful if any building produces so imposing an effect as the Capitol at Washington" says Forbes-Lindsay in "*Washing-*

Supreme Court Room.

ton." The hill upon which its base rests is nearly 100 feet above the adjacent street levels. The dome, which is surmounted by Crawford's Statue of Liberty, which is 16½ feet high, is itself 287 feet 5 inches above the basement. It has the aspect of graceful lightness, although it weighs more than eight million pounds. Indeed, it is more imposing to the eye than the somewhat similar domes of St. Peter's at Rome, St. Paul's in London or the Pantheon at Paris. About the building extends a setting of fifty acres of lawn and park, relieving the massive bulk of any appearance of heaviness.

The total length of the Capitol is a little over 750 feet, with a maximum breadth of nearly half that distance, so that it covers about three and a half acres of ground. The main portion lies between the basement and an attic story. Ranks of pillars rise to an entablature, which is surmounted by a marble balustrade. The walls of the beautiful extensions are of white marble from the quarries at Lee, Massachusetts, and are not inharmonious with the walls of the old building, which are of yellowish freestone, painted white. Fifty Corinthian marble columns from quarries at Cockeysville, Maryland, are distributed about the exterior of each wing and its connecting corridor. The shafts are fluted monoliths, and the capitals and pedestals are carved from solid slabs of marble. Each column weighs twenty-three tons and cost in position $1,550. The architraves, entablatures, ornamented pediments, cornices and portico-ceilings are composed of massive blocks of marble, in many cases finely carved. Porticoes extend along the west side of each extension, and the ends of each wing, while double porticoes are formed in each to the east. The general style of the old Capitol was Corinthian and this was carefully preserved by Walter. The net cost of the extensions was $8,075,229.04, according to the official records.

The dome of the original central building was constructed of wood, covered with copper. The new dome of cast iron, begun in 1856, was completed in 1865. Great engineering skill was required in its erection. "The walls had to be trussed, bolted, girded

This view was taken at 2.30 A.M., April 6, 1917, while Congress was considering war against Germany. A few minutes later, war was declared.

and clamped in every conceivable way to hold in position the immense super-structure" (G. C. Hazleton, Jr., THE NATIONAL CAPITOL). The dome is composed of two shells, one within the other, between which winds a stairway. The shells allow for expansion and contraction due to variation in temperature. The greatest diameter at the base is 135 feet 5 inches. The rotunda is 97 feet 6 inches across with a height from floor to canopy top of 180 feet 3 inches.

About the lower portion of the dome are thirty-six columns, each representing one of the states in the Union at the time the plan was drawn. Encircling the lantern above the tholus, are thirteen columns, one for each of the original states. This lantern, over 24 feet across, is about 50 feet high and its light is a signal, for miles around, that there is a night session in either House. During the day an American flag above either chamber signals a session in the House beneath.

To the north of the rotunda extends the Senate side of the building and to the south the House side. On the north flank lies the old Hall of the Senate, now occupied by the Supreme Court. The opposite flank contains Statuary Hall, once the House of Representatives.

The rotunda is lighted by a circle of windows under a frieze. This frieze, about 75 feet above the floor, is the work of two foreign-born artists, Brumidi and Costaggini, and represents scenes in the history of the New World from the time of its discovery. Brumidi's work included the events depicted up to Penn's Treaty of Peace with the Indians in 1682. Costaggini took up the work and carried it forward almost to completion. At present, Charles Ayers Whipple, of New York, is engaged in this same work and on the mural decorations in the Senate Wing.

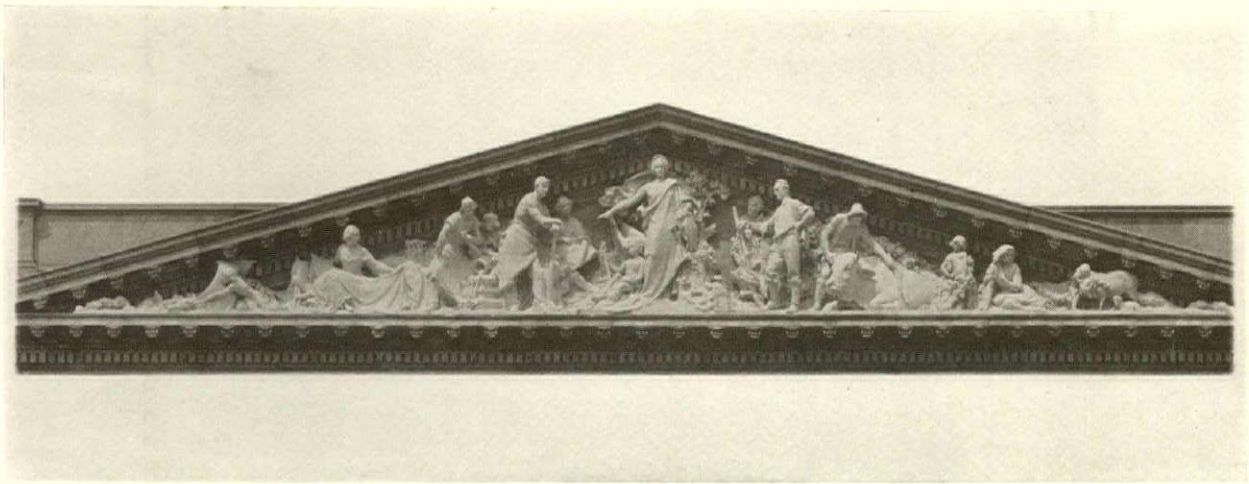
On the walls are panels that contain large oil paintings of historic events. Especially noteworthy are the four Trumbull canvases on the western wall, representing vital scenes connected with the Revolutionary War. In these, the figures shown are actual portraits of the characters themselves.

Around the room are statues of famous men, sculptured from various materials and mounted on marble pedestals of many shapes and hues. Overhead, the dome forms the ceiling of the room, the central portion containing a huge painting by Brumidi depicting the beatification of the spirit of George Washington.

The Hall of Statues is a fine semi-circular chamber, embellished with most unusual Brecchia marble columns. And such columns! There is nothing else like them elsewhere in the building. They cost over $8,000 apiece and there are twenty-four of them. The marble is from Loudoun County, Virginia, and Montgomery County, Maryland, and the polished surfaces show weird and curious patterns. On the column to the right of the door leading to the office of the Clerk of the House is a perfect head of a deer. On the column behind Ethan Allen's statue is a Turk's head and on other columns are heads of well-known men.

The Hall contains a collection of statues of the great men of the country, Congress having invited each state to send "the effigies of two of her chosen sons in marble or bronze, to be placed permanently here." Among them is one woman, Frances Willard, whose statue is the work of another woman, Helen F. Mear.

The chamber of the House of Representatives is an imposing spacious hall, 139 feet long and 93 feet wide. The members' desks are arranged in parallel, diminishing semicircles converging upon the speaker's rostrum of white marble. The Senate chamber



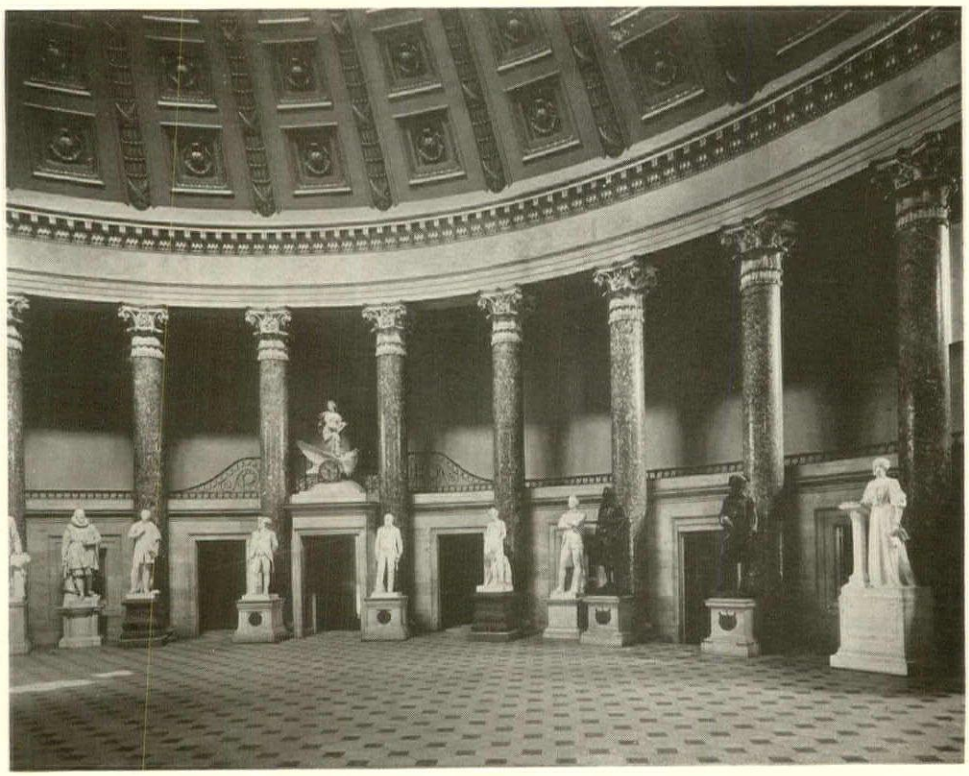
Carving on Portico of East Wing.

is somewhat similar in general plan, but smaller. The walls of both these rooms are finished in buff and gold and embellished with statuary and paintings. Along the diameter of the House is a row of marble columns, screening a loggia above which is a gallery. Galleries surround both the House and Senate chambers, but the former are more spacious. Opening off the lobby in the rear of the Senate room is the beautiful and richly decorated marble room used by the Senators for the reception of callers. Nearby is the President's room, occasionally used by the Chief Executive when he comes to sign bills in the closing hours of a session.

The Supreme Court room is a semi-circular space 75 feet long by 45 feet wide and high. To the east is a small gallery supported by columns of dark, variegated Potomac marble, with Ionic capitals of Italian marble fashioned like those in the temple of Minerva. White marble fireplaces are placed beneath the gallery.

There is very little marble, comparatively, in the rooms occupied by the House and Senate. This is all the more noticeable because of the extent to which this beautiful material is used elsewhere, especially in the columns of Statuary Hall and on the stairways leading to the galleries. These latter are universally admired, but it is strange that three of them should be of the same material—Tennessee marble. It is certainly beautiful, but so is the white polished marble of the stairs leading to the west gallery of the Senate. In the rooms appropriated to the President and Vice-President, marble is very lavishly used, and the Senators' retiring-room is all marble, the gem of the building. It is directly east of the President's room. The ceiling, pilasters and four fluted Corinthian columns are of veined Italian marble; the walls and wainscoting of native dark-brown marble from Tennessee.

The hallway which forms the eastern approach to the Senate chamber owes most of its beauty to the sixteen fluted columns of Italian marble that support a ceiling of the same material. The capitals of these columns have a very original treatment, the classic acanthus being gracefully surmounted by the native corn and tobacco leaves. It is said that Jefferson Davis suggested the innovation. This is not the only place where similar boldness has been shown in departing from regularly prescribed orders. In the south extension beneath the Representatives Hall is a fine row of monolithic col-

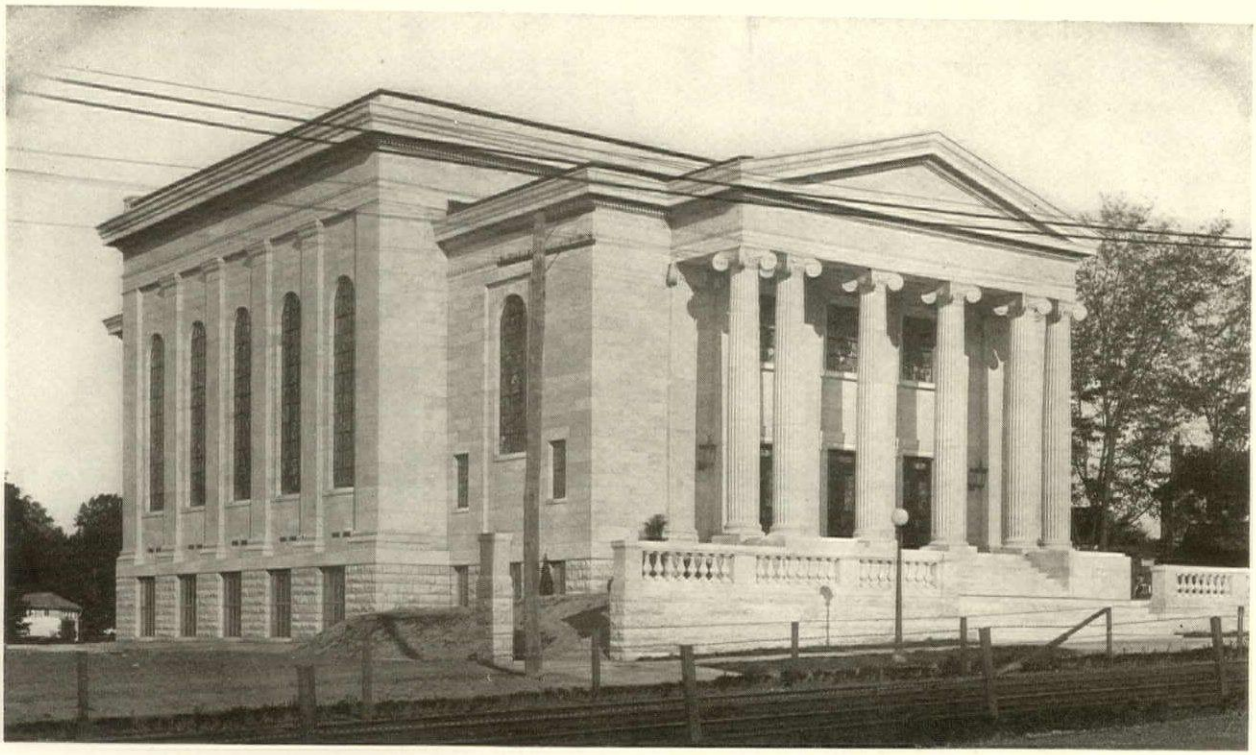


Statuary Hall

umns with capitals composed of tobacco and thistle-leaf designs. The twenty-four columns and forty pilasters in the grand vestibules are equally original. Here, the designs of the capitals are fashioned from corn-leaves, tobacco and magnolias. The columns as well as the pilasters show on each face a magnolia of different form, and each made from casts of the natural flower. The ceilings and cornices in the House and Senate are ornamented from designs drawn from the natural products of the country.

On the ground floor, however, are to be seen the most unique designs in any capitals in the building. In a vestibule formed by the widening of the main corridor on the west, just beyond the Law Library, are six columns, whose Americanized capitals might well be as typical of a "Columbian" order as the acanthus of Greece or the lotus of the Nile. The shafts of the columns are composed of bundles of stalks of Indian corn rising out of a circlet of pointed leaves, the joints of the stalks being arranged to wind spirally to the top, gracefully blending into the designs of the capitals, which are ears of corn half covered by the leaves symmetrically disposed.

Not the least of the exterior beauty of the capitals is due to the splendid treatment of the grounds about the building. The approaches were begun in 1882; the terrace on the west front was not started until two years later, nor finished until 1891. It was designed by Edward Clark of Washington, who succeeded Walter as the architect of the Capitol. This esplanade extends along the entire north, south and west fronts of the building and is built principally of Vermont marble. A large amount of interior space was secured by means of this addition which was immediately given over to the electric plants, the furnaces and engines which heat the building.



A BALTIMORE CHURCH

The First Church of Christ, Scientist, is One of the Show Places of the City

THE men who propose and the architects who design a really beautiful building are the creditors of the world at large. Their efforts will live longer, both in fact and in memory, than other achievements of their period. The true value of these monuments is not in stone, but in the spiritual aspirations which they embodied and expressed. Dull materials, their density removed, have been lifted in the skies to compete with their loveliness.

The followers of the teachings of Mary Baker Eddy have earned an enviable reputation for the beauty of their houses of worship. Christian Science Temples all over the country are generally among the handsomest religious structures in their localities. Not among the least of these is the First Church of Christ, Scientist, in Baltimore.

The congregation that now posesses such a fine home formerly gathered together in a small stone building in the down-town part of the city. They were soon surrounded by automobile showrooms, and they were forced to consider another locality. Plans were made to move into that section of North Baltimore that was evidently destined to be the most desirable. A lot was secured on University Parkway, opposite Homewood, the site of the new home of Johns Hopkins University. Mr. Chas. E. Cassell, of Baltimore, an architect who has since died, was commissioned to prepare the designs.

The corner-stone of the new church was laid on October 23, 1911, and the basement

was occupied by the Sunday School Department on December 24th of the same year. The building was not finished, however, until 1913.

Balcony and part of Auditorium.

The structure is built entirely of White Beaver Dam Marble and its architectural style follows closely the Grecian Ionic. From the front it appears that the mass rests upon a podium, and this effect is partly carried out by the different finish of the upper and lower walls. A handsome marble wall topped by a balustrade extends to either side at the foot of the steps leading to the portico. Upon the podium rest six large marble columns 27 feet high with voluted capitals, their fluted sides tapering in a graceful entasis. These columns vary in width from each other, the center pair being 4 feet 2 inches in diameter at the base, the ones on each end slightly over 2 feet and the other two each 3 feet. Upon the architrave is an inscription, giving the name of the church.

The portico is nearly 50 feet across and from here an entrance way leads to a fine vestibule over 40 feet wide, with a graceful wide-arched ceiling. Passing through the vestibule one enters the auditorium of the church, an unusually striking room whose width is greater than its length. It measures about 81 feet from face to face of pilasters and 63 feet from the platform to the rear wall. The ceiling is of heavy square-panelled type and it contains on each side five large round-arched windows filled with glass patterned by Tiffany. The room is lighted indirectly; and the steam radiators are built in the walls behind iron grills. Behind the speaker's platform, and on either side but out of view, is an Austin Organ with chimes and 1300 pipes, and costing $10,000. Behind the organ, on either side of the rear of the church are Readers' Rooms on the first floor, and a Trustees' Room on the second, the latter room with a separate gas-heating plant.

The church basement contains the Sunday School, Library, Secretary's Room, Cloak Rooms, Janitor's Room and Toilets. A balcony seating about two hundred and fifty placed above the vestibule overlooks the main auditorium, so that the total seating capacity is about one thousand. The cost of the building was about $165,000, though it has been estimated that if built today it would cost not less than $300,000. It is now over ten years old and though its outer walls have never been cleaned other than to be showered with water from a hose, its marble stands today as white and gleaming as if newly built.

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.

Ecton—Group B.

Quarried at Ecton, Staffordshire, England.

One variety is a brownish-gray, with a net of white veins.

Another is of pale, warm brown, with brown shell spots.

Edelfels Dark—Group C.

Lahn Quarries, Wetzlar, Nassau, Germany.

Brownish-buff, with fragments of fossils (Encrinite and corals).

Takes high polish.

Edelfels Light—Group C.

Lahn Quarries, Wetzlar, Nassau, Germany.

Delicate fawn, with light and dark coral fragments.

Takes good polish.

Edenderry—See Irish Drab.

Egina or Egena or Eginitian.

An island in the Savonic Gulf.

Among the ruins on this island was found a beautiful white marble which has been referred to as Eginitian Marble, but was probably from Mt. Pentelicus in Greece, as no traces of marble deposits are found on the island.

Eglier Du Roi—Group D.

Quarry at St. Maurice, near Gap in the Upper Alps, France.

White, pink, red and yellow.

Egyptian Alabaster—Same as Egyptian Onyx.

Egyptian Granite or Egyptian Syenite or Syenite.

Quarried near ancient Syene, now called Assouan, Egypt.

A red granite.

According to Merrill, this granite was supposed to have been used in the construction of the various obelisks of the Egyptians.

Elsden & Howe in the "Stones of London," page 126, state that the obelisk (see Cleopatra's Needle) now standing on the Thames Embankment is not a true Syenite in the strict sense, but a hornblende granite.

Prof. Hull, however, describes the Egyptian granite as being composed of red and whitish feldspar intermixed with clear glassy quartz, and coal black mica and hornblende.

According to Merrill, quartz is an essential constituent of granite. Without the quartz the rock becomes a syenite.

Egyptian Green or Vert d'Egypte—Group D
Quarried at Pigli, near Genoa, Italy.
Dark green, nearly black, brecciated and infiltrated with white calcite, causing light green veins and occasional white threadlike markings. (Watson)
Takes a high polish.
According to M. Darras, this Egyptian name for an Italian marble is believed to have arisen from the fact that Napoleon caused it to be used extensively in Paris shortly after returning from his campaign in Egypt.
This marble is sometimes sold under the general name of Alps Green.
Egyptian Red or Rouge d'Egypte comes from the same quarry.

Egyptian Onyx—Group D.
Quarried on the Assiut Mountains, about 20 miles from the town of Assiut, which is on the site of the ancient Lycopolis, Upper Egypt, and at Gebel Oorakam (Waldy Sanoor), east of Beni-Souef, and 75 miles south of Cairo in the valley of the Nile. Also, at Syout, farther to the south, but in the Nile Valley.
This Onyx or Onyx Marble is a cave Onyx and in that respect differs from the Algerian Onyx.
Light amber or straw-colored slightly translucent.
Takes good polish.

Egyptian Porphyry—Same as Red Porphyry.

Egyptian Red or Rouge d'Egypte or Alps Red—Group D.
Quarries at Pigli, near Genoa, France.
Greenish, with dark reddish-brown spots.

Egyptian Steatite or Soap Stone.
Quarries at Limbue, on the east coast of Lake Nyasa, Central Africa.
Light grayish-green.

Egyptian Syenite—Same as Egyptian Granite.

Elba (Island)—See Cipollino Italian.

Elban Marbles
Quarried on the Island of Elba, according to Blagrove. Are mostly white, with blackish-green veins.

El Buix (Statuary)—Group A.
Quarried at El Buix, Eastern Pyrenees, France.
Creamish-white.
According to Blagrove, this is one of the best French Statuary Marbles.

Electric Blue—Group B.
Vermont Marble Company's Quarry, West Rutland, Vermont.
Dark blue.
Takes high polish.

Eleusis
An ancient city in Attica, Greece, which was located about fourteen miles northwest of Athens.
In the building of one of the ancient temples at this place Pentelicon Marble was used exclusively and it is reasonable to suppose that Nero Antico from Cape Matapen, Southern Greece, was also extensively used. Hence the black marble from Eleusis, mentioned by various writers, was perhaps Nero Antico from the ruins of this city of the past.

Elgin Marbles
Lord Thomas Bruce Elgin, while acting as British Envoy at Constantinople during the years 1799 to 1802, removed from Athens, Greece, the celebrated sculptures, which are now in the British Museum at London, and known as the Elgin Marbles.

Elinguehen
Quarry in Pas de Calais, France.
Red, gray and white. (Blagrove)

Elmentier
Elmentier Quarry, in Correze, France.
Red, with semi-transparent silver-gray mottling. (Blagrove)

El Mogote—A non-producing Mexican Onyx Quarry.

El Llop (*Statuary*)
Quarry at El Llop, eastern Pyrenees, France.
According to Blagrove, this is one of the best French Statuary Marbles.

Els Gitanos (*Statuary*)
Quarried at Els Gitanos, eastern Pyrenees, France.
According to Blagrove, this is one of the best French Statuary Marbles.

Elvan Porphyry
Quarried in Cornwall, England.
Mostly dark gray, with black and white specks. (Blagrove)

Emboicum—Same as Greek Cipollino.

Emerald Curley Green
American name for a green serpentine marble. Local name or location of quarry not disclosed.

Emerald Green Jade
From the Tawmaw Mines, Myitkyina District, Upper Burma.
White, with light green veins and patches.
According to Watson, this variety of Jade is most esteemed, especially among the Chinese, who draw their chief supplies from Burma.

Empress Red or Emperors Red, Encarnado, or Rose Perle.
Pedra Furado Quarries, Pero Pinneiro, Estremadura, Portugal.
Red, with pink and white markings and indications of fossils.
Takes high polish.

Encarnado—Same as Empress Red.

Encarnet de Villefranche
Villefranche-de-Conflent Quarries, Pyrenees-Orientales, France.
Rich red, intersected with white calcite patches and slender veins.
Takes high polish.

Encrinital
Name given to marbles that contain fossil encrinites, crinoids, or stone-lilies. These, with their stems and arms, are sometimes called wheel-stones.

Engelsberg or Engelsberger.
Quarry near Engelsberg, Lower Austria.
Bright red, with white patches and few dark brown markings.

English Alabaster—See Alabaster, English.

English Pencil Veined Italian
A vague term used by American Importers for the veined Italian marbles which show well-defined veins and which, for that reason, are classed as better than the English Veined Italian. Known as No. 1, E.V. Italian.

English Serpentine—See Cornish Serpentine.

English Veined Italian or English Vein Italian.
The numerous veined white Italians, not including Statuary Vein, are known to the American trade as English Vein Italian.
Marble from various quarries are graded in three more or less distinct groups:
Grade No. 1—White or bluish-white background, with well-defined veins, either fine or heavy.
Grade No. 2—Bluish-white, with veins and clouds.
Grade No. 3—Bluish-white, with clouds and veins of varying width and shade.

Entrevaux
Entrevaux Quarry, Var, France.
Gray with white veins. (Blagrove)

Entrochal—Same as Encrinital

Eocene Limestone—Limestone belonging to the Eocene System.

Eolian
Name given by Hitchcock to the marbles from the Dorset and Danby Quarries, on the flanks of Mt. Eolus, Vermont.

Epidote—This mineral is a common constituent of many granites.

Epinal Serpentines
Quarried at Epinal, Vosges, France.
Varies from red to green and contains iron ore.
Some Noble Serpentine is said to occur here. (Blagrove)

Equinox Marble—Same as Dyer Breccia.

Erquelinnes
Near this village marble also known as St. Anne is quarried, but according to Watson the marble from the Gougnies District is stated to be more valuable.

Escalette—Group C.
Quarried close to the Spanish Frontier, near the Pass of Escalette, Ariege, France.
Pink and white, with violet, red and brown markings.
Takes a high polish.
Can be obtained in large blocks.

Escalia—See Hauteville

Esperanza—Group B.
Vermont Marble Company's Quarry, West Rutland, Vermont.
Dark bluish-gray with lines of darker shade.
Takes medium polish.

Espiadet—See Campan Marbles.

Essex County Serpentine
Hitchcock says: "Perhaps the most interesting and important bed of this rock that has as yet been found in the state (Massachusetts) is that at Lynnfield, in Essex County."
This deposit is undeveloped.

Estellante—Group D.
Lahn Quarries, Wetzlar, Nassau, Germany.
Brown with a few light gray patches and numerous fossils.
Takes high polish.

Estendar—Same as Isabelle Du Var

Esthonia
Wassalem Quarries, near Reval, Esthonia, Russia.
Gray with white fossils. (Not exported)

Estival (Serpentine)
Quarry near Estival, Lot, France.
Deep green with clear green crystals. (Blagrove)

Estour—See Vert d'Estour

Estremadura Marbles—See Abancado Das Lameiras, Almiscado Amerello, Almiscado Escuro, Arrabida, Empress Red, Lios Das Lamerias, Payalvo, Preto De Cintra.

Estremoy
Quarry near Estremoy, Portugal.
White (coarse crystalline).

Etla or Etla Onyx—See Mexican Onyx.

Etowa (Georgia)—Group A.
Quarry at Tate, Georgia.
Light reddish-pink, with few clouds of darker shade.
Takes high polish.

Etroeugt—Same as Breche D'Etroeugt.

Etruria—Old Roman name for Tuscany.

Euboea or Euboeian—See Cipollino Greek.

Euclid Blue Stone
(Not suitable for interior decoration.)
Quarries in Newburgh and Euclid, Cuyahoga County, Ohio.
Deep blue-gray.

Euphotide Serpentine
Quarried at Matarana and at Beverone, near Genoa.
Varied green and white. (Blagrove)

Euvilel—Group C.
Quarried at Euville, Marne, France.
Gray, buff and rose-colored stone.

Evora—See Borba Red and Borba White.

Exmouth Marble—See Cotham or Landscape.

Extra Dark Albertson—Group B.
Albertson Quarry, near West Rutland, Vermont.
Medium bluish-gray, with thin, closely placed black bed veins with cross veins of white and black.

Extra Dark Blue—Same as Dark Blue Rutland.

Extra Dark Royal Blue—Group B.
Quarry located at Pittsford, Vermont.
Gray blue with veins of darker shade; few white spots.
Not available.

Extra Dark True Blue—Group B.
TrueBlueQuarry, WestRutland, Vermont.
Dark blue.

Extra White Rutland—Group B.
Quarry at West Rutland, Vermont.
White background, few dark markings.
Not large supply; slabs only.

Faccia—Clear face.

Fadjonia
Name of one of the many Italian Marbles.

Falcovaia
Quarried at Serravezza, Italy.
Uniform creamy white.
Blagrove rates this as the best Italian Statuary.
Takes high polish.

False Cervelas
Quarried at Taveau, Nievre, France.
Combining yellow, red, gray and blue. (Blagrove)

False Griotte
Quarried near Dole, Jura, France.
Variegated red, with white veins and spots. (Blagrove)
Takes high polish.

False Portor
Quarried at Marches-les-Demes, Namur, Belgium.
Yellow with deep gray spots and yellow veins. (Blagrove)

Famosa—See Formosa

Fantastico or Fantastico Vert and Fantastico Viola.
Quarried at Seravezza, Italy.
Cream ground with large green to purple curly markings.
Takes high polish.

Fantiscritti
Near Carrara is a famous ancient quarry where a clear white marble of a delicate pearly tint is found, which ranks with the best for architectural purposes.

F.A. Pink
Quarried at Kizer, Blount County, Tennessee.
Light pink with uniformly colored fine specks, crowfeet light and rather far apart.
Takes high polish.

LIST OF QUARRIES AND MARBLE MANUFACTURERS

REPRESENTED IN THE MEMBERSHIP OF THE NATIONAL ASSOCIATION OF MARBLE DEALERS

City and State	*Company*	*Representative*
Akron, Ohio	Flower Marble and Tile Company	Jas. T. Flower
Atlanta, Ga.	Reeves Marble Company	Alex. Reeves
Baltimore, Md.	Hilgartner Marble Company	A. H. Hilgartner
Baltimore, Md.	Jos. B. Dunn & Sons, Inc.	Chas. Scheidt
Baltimore, Md.	P. B. and W. Marble and Tile Co., Inc.	Richard T. Salter
Birmingham, Ala.	Alabama Marble Company	John S. Sewell
Boston, Mass.	Troy Bros. & Company	M. W. O'Brien
Buffalo, N.Y.	Geo. W. Maltby & Son Company	Wm. C. Maltby
Buffalo, N.Y.	Lautz Marble Corporation	R. K. Glass
Carthage, Mo.	Arnosti Marble Co.	A. Arnosti
Carthage, Mo.	Carthage Marble and White Lime Co.	Geo. S. Beimdiek
Carthage, Mo.	Consolidated Marble and Stone Co.	Millard Bryan
Carthage, Mo.	Ozark Quarries Co.	T. R. Givens
Carthage, Mo.	F. W. Steadley & Company, Inc.	K. D. Steadley
Carthage, Mo.	Lautz Missouri Marble Company	F. J. Lautz
Carthage, Mo.	Spring River Stone Company	John E. O'Keefe
Chicago, Ill.	American Marble Mill Company	T. J. Murphy
Chicago, Ill.	Black & Gold Marble Company	J. J. Bauer
Chicago, Ill.	C. N. Marthens Marble Company	C. N. Marthens
Chicago, Ill.	Corley-Meservey Marble Company	B. F. Meservey
Chicago, Ill.	Davia Bros. Marble Company	Humbert Davia
Chicago, Ill.	Enterprise Marble Company	Thos. A. Knudson
Chicago, Ill.	Flavin Marble Mill	F. A. Flavin
Chicago, Ill.	Frank P. Bauer Marble Company	Frank P. Bauer
Chicago, Ill.	Henry Marble Company	H. K. Townsend
Chicago, Ill.	Jas. B. Clow & Sons Company	Jos. Little, Jr.
Chicago, Ill.	M. Keating & Sons Company	Thos. F. Keating
Chicago, Ill.	Naughton Marble Company	Thos. Naughton
Chicago, Ill.	Peerling Marble Company	Frank J. Peerling
Chicago, Ill.	Standard Mosaic Tile Company	C. R. Borchardt
Chicago, Ill.	Taylor Marble Company	Geo. W. Bower
Cicero, Ill.	National Mosaic Tile Company	George Wilde
Cincinnati, Ohio	Cincinnati Marble Company	H. L. Pike
Cleveland, Ohio	Allen Marble Company	R. M. Allen
Cleveland, Ohio	Empire Marble Company	Frank C. Smith
Cleveland, Ohio	Haworth Marble Company	W. J. Haworth
Cleveland, Ohio	Interior Marble and Stone Co.	E. M. Fritz
Cleveland, Ohio	Prospect Mantel and Tile Company	S. J. Weingarten
Cleveland, Ohio	Roy-Cliff Marble Company	L. G. Yeau
Columbus, Ohio	Wege Marble and Tile Company	C. F. Wege
Dallas, Texas		J. C. Bruggen
Dallas, Texas	J. Desco & Son	J. Desco
Dallas, Texas	Southwest Marble Company	William Jessop
Denver, Col.	McElhinney Tile and Marble Co.	D. C. McElhinney
Denver, Col.	Denver Mantel and Tile Company	W. D. Watson
Des Moines, Iowa	Des Moines Marble and Mantel Co.	J. R. Golden
Des Moines, Iowa	Holbrook Marble and Tile Company	H. F. McAdow
Detroit, Mich.	Christa-Batchelder Marble Co.	E. L. Leavenworth
Detroit, Mich.	Detroit Marble Company	B. L. Cummins

City and State	*Company*	*Representative*
East Cambridge, Mass.	Johnson Marble Company	T. J. Johnson
Fort Worth, Texas	Good Marble Company	H. G. Good
Houston, Texas	Salt Lake Marble and Supply Co.	Geo. E. Rieder
Indianapolis, Ind.	F. E. Gates Marble and Tile Co.	F. E. Gates
Kansas City, Mo.	Kansas City Marble and Tile Co.	G. F. Keller
Kansas City, Mo.	Phenix Marble Company	Mastin Simpson
Kansas City, Mo.	Sutermeister Stone Company	C. O. Sutermeister
Kasota, Minn.	Babcock & Willcox	Tyrell S. Willcox
Kasota, Minn.	Breen Stone and Marble Co.	Tyrell S. Willcox
Knoxville, Tenn.	Candoro Marble Company	T. O. Couch
Knoxville, Tenn.	Gray Eagle Marble Company	E. F. Klein
Knoxville, Tenn.	Gray Knox Marble Company	J. B. Jones
Knoxville, Tenn.	John J. Craig Company	John J. Craig
Knoxville, Tenn.	Knoxville Marble Co.	John M. Ross
Knoxville, Tenn.	Ross & Republic Marble Co.	W. E. Moses
Knoxville, Tenn.	Salomone-O'Brien Marble Company	Walter O'Brien
Knoxville, Tenn.	Tennessee Producers Marble Co.	B. L. Pease
Little Rock, Ark.	Southwestern Tile Company	R. E. Overman
Long Island City, N.Y.	Clarendon Marble Company	Alexander Thomson
Louisville, Ky.	Peter & Burghard Stone Co.	Jos. E. Burghard
Memphis, Tenn.	Central Mosaic and Tile Co.	Louis B. Marus
Milwaukee, Wis.	Andres Stone and Marble Company	Edgar Andres
Milwaukee, Wis.	Breidster Marble Company	Fred. W. Breidster
Milwaukee, Wis.	McClymont Marble Company	J. J. McClymont
Minneapolis, Minn.	Twin City Tile and Marble Co.	F. O. Streed
Minneapolis, Minn.	Northwestern Marble and Tile Co.	Chas. Gramling
New Orleans, La.	Albert Weiblen Marble and Granite Co.	Albert Weiblen
Oklahoma City, Okla.	Taylor Marble and Tile Company	G. W. Taylor
Omaha, Neb.	Sunderland Bros. Company	J. P. Williams
Peoria, Ill.	Peoria Stone and Marble Works	H. A. Farley
Pittsburgh, Pa.	American Marble Company	Max Weiner
Pittsburgh, Pa.	Iron City Marble Company	George L. Sibel
Pittsburgh, Pa.	Pennsylvania Marble and Mosaic Co.	John A. Fiore
Somerville, Mass.	Phil. H. Butler & Son Company	P. H. Butler
St. Louis, Mo.	Bradbury Marble Company	I. P. Morton
St. Louis, Mo.	Pickel Marble and Granite Co.	H. A. Feldman
St. Louis, Mo.	St. Louis Marble and Tile Co.	R. C. McDonald
St. Louis, Mo.	Shaw Marble and Tile Company	A. Coerver
St. Louis, Mo.	Union Marble and Tile Company	W. C. Fox
St. Louis, Mo.	Weis & Jennett Marble Company	Joseph Weis
St. Paul, Minn.	Drake Marble and Tile Company	W. E. Andrews
Tate, Ga.	Georgia Marble Company	Sam Tate
Wichita, Kan.	Hawkins Interior Marble Company	M. K. Hawkins
Wilmington, Del.	Geo. W. McCaulley & Sons, Inc.	C. W. McCaulley
Winchester, Mass.	Puffer Mfg. Company	A. W. Puffer

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Vermont Marble Company, Proctor, Vermont.

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OZARK Gray Marble was used exclusively for this Banking Room and throughout the office building portion. The marble work was fabricated by the Lautz Missouri Marble Company from stock furnished by the Ozark Quarries Company, of Carthage, Missouri.

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