



THROUGH THE AGES

AUGUST, 1925

“The best of artists hath no thought to show
Which the rough stone in its superfluous shell
Doth not include; to break the marble spell
Is all the hand that serves the brain can do.”

—MICHELANGELO



THROUGH THE AGES



VOL 3

AUGUST, 1925

NO. 4

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Details of the portico, Montreal Art Gallery.

THROUGH THE AGES

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

VOL. 3

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THE MONTREAL ART GALLERY

A Well-Planned Canadian Structure Built of Marble
From the United States

AS early as 1849, several citizens and artists of Montreal banded together for the purpose of promoting interest in art and beautiful things in general. Naturally a great deal of diffidence was encountered, and it was only through the efforts and financial support of small groups of public-spirited men that the project lived and blossomed finally in 1860 into the Art Association of Montreal.

The Association was duly incorporated and its objects were declared to be the encouragement of art, and the establishment of properly equipped schools. The Right Reverend Bishop Fulford was elected President. The institution was empowered in the customary way to acquire and sell property, and its position was definitely defined by a constitution and by-laws. Though art matters were given a considerable impetus by this organization, the cost of maintenance had to be borne by a small number of the same earnest men who, by their incentive and enterprise, had sponsored the original movement. No government aid was forthcoming; the only reward was the satisfaction contained in the knowledge that they were

helping in the cultural needs of the community.

The founder of the present Art Association, Benaiah Gibbs, was one of these early philanthropists. Upon his death in 1877, it was learned that he had bequeathed to the Association a parcel of land upon which to build an Art Gallery; he had also left a sum of money and a number of oil paintings and bronzes. With this windfall as a nucleus, the Council began the building of what is known as the "Old Gallery." Private subscriptions helped swell the building fund, and the structure was opened in 1879 by the Marquise of Lorne, then Governor-General of Canada, and Her Royal Highness Princess Louise.

In 1893 an addition in Phillips Square to the Old Gallery was completed. This portion was formally opened by the Earl of Aberdeen and contained a fine picture gallery, rooms for antique and life classes and a library built entirely by private subscriptions. In 1892 John W. Tempest had given a large collection of paintings of great value, besides a bequest of money for the purpose of purchasing paintings. The completion of



The Montreal Art Gallery is built entirely of white marble from the State of Vermont.
It is of classic beauty.

the new building proved a new factor in strengthening the Art School. In 1909 another magnificent collection of paintings was received from the executors of the estate of William, Agnes and John Learmont. In 1912 the New Art Gallery of Montreal was completed and officially opened in November by His Royal Highness, the Duke of Connaught.

The Museum is located on Sherbrooke Street in the heart of the residential section. The architects, Edward and W. S. Maxwell, of Montreal, planned a building with an exterior of classic character, adapted to fit the complicated requirements of a modern Art Gallery. The lighting conditions demanded the introduction of side-lighted galleries and top-lighted studios for the School of Art.

These arrangements were decided upon after considerable data had been collected in Europe by Edmund M. Wheelwright, advisor to the building committee. Having been connected with the Boston Museum of Fine Arts, he was also familiar with the conclusions reached as a result of the experimental research previous to the erection of the Boston Museum.

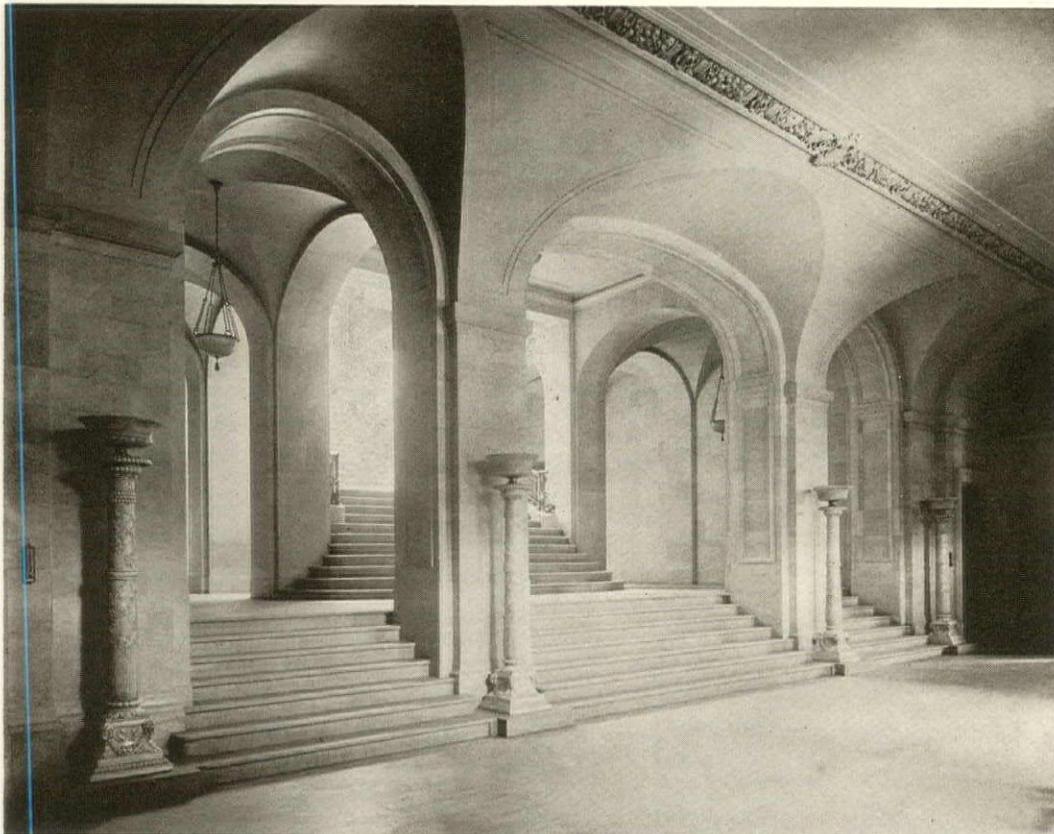
The exterior is of Dorset white marble, the same material used in the New York Public Library. The Sherbrooke Street façade is made doubly impressive by a large portico with four huge monolithic Ionic columns, the length from base to capital being somewhat over 31 feet. To either side of this portico are flanking wings, projecting slightly, in the center of each of which is one large window opening. Above this is a panel

of sculpture in low relief carried out by the Bromsgrove Guild of Canada under the architect's direction. "These panels," said *Construction*, "are conceived in the best spirit of the Art and represent the traditions of Greek and Roman art being explained to groups of sculptors, artists, painters, etc. The difficulty of obtaining unity in panels of such size and shape has been accomplished by the introduction of a colonnade in the background. This touch, rather Italian in inspiration, is successful in execution."

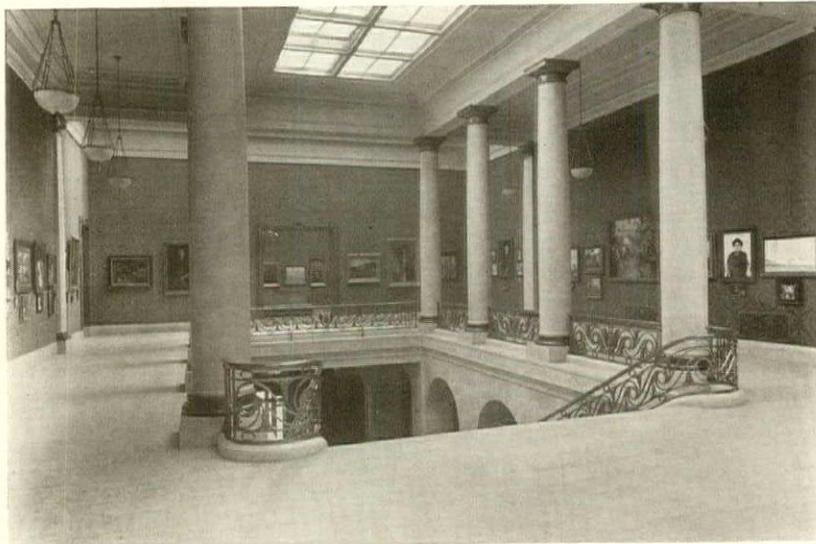
On the first floor are three galleries each with top lighting, though from the street the plain attic screens the skylights. On the Ontario Avenue side, the central wing has large windows for lighting the rooms on the ground floor; those of the first floor open into side-lighted galleries. In the Art School

studios, U-bar construction has been adopted, and with success. The curved eaves permit an abundance of light when most desirable and at the same time eliminate the snow and ice difficulties so frequently encountered with the usual cornice at the intersection of the two surfaces of glass.

Entering the Sherbrooke Street side by the marble steps and the triple archway, the entrance hall is reached through small vestibules. This entrance hall is a large vaulted chamber over 60 feet in length and about 25 feet in width, extending across the greater part of the building. At the far side is a broad flight of marble steps, with ample landings, leading direct to the first floor above, while on either side of this magnificent staircase of honor are vaulted passageways leading to the large transverse ex-



Main entrance hall, showing the Botticino marble walls and the alabaster lighting standards. The floor, too, is marble.



At the head of the Staircase of Honor.

hibition hall, beyond which is a large top-lighted gallery used for lectures and exhibitions. At the top of the grand stairway is a large rest room, provided with tables, chairs, palms and also used as an exhibition gallery. This room, by means of alcoves, affords a resting place from where one can view a great part of the first floor, the staircase, entrance hall, etc.—a view that is both comprehensive and interesting. The whole of this portion of the interior is built of solid Botticino marble, the columns having solid bronze bases and capitals, while the railing of the staircase is of a bronze wrought into a rich pattern.

The combined effect of the Botticino marble walls, the marble floors, the vaulted ceilings with their graceful decorations, is enhanced by the light that comes from eight carved alabaster bowls supported on alabaster columns placed around the main entrance hall. This light is softly diffused and is most agreeable as well as effective.

To the right of the entrance hall is a large room, 30 by 62 feet, which is used as a library. On the west is a gallery of similar size for case objects. Rooms at either side of

the main stairway provide ample accommodations for checking the wraps and hats of visitors.

Ascending the main staircase, there is reached a top-lighted exhibition hall 66 feet by 30 feet. This hall breaks the circuit of the picture galleries. The main gallery facing Sherbrooke Street is reached by passing around the staircase well through exhibition passages 12 feet wide, having on the well side columns of Botticino marble with bronze caps and bases and wrought-bronze handrail, and on the opposite side plain walls for exhibition purposes.

The main picture gallery is 63 feet by 33 feet, and is top lighted. Adjoining on both east and west are other large galleries. On the Ontario Avenue side are three side-lighted galleries for the exhibition of special paintings and water colors. "It is of interest to note," said *Construction*, "that one can make the circuit of the six galleries and hallways on the exhibition floor without retracing one's steps. There is, therefore, always a new note of interest in going from one gallery to another, that one misses in a less skillfully planned structure."



Adaptability

NO matter how beautiful a thing may be, unless it is of practical utility it can never be of real significance. "The useful and the beautiful," said Periander, "are never separated."

No structural material equals marble in beauty. Moreover, none surpasses it in its wide range of practical application. Its position in this respect is unique.



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THE MAYFLOWER

Washington's Largest and Latest Hostelry

By ROBERT F. BERESFORD

TIME is the great transmuter! When, in July, 1922, ground was broken and excavations begun for what is now The Mayflower, Washington's finest and handsomest hotel structure, it was discovered that between the surface and bed-rock—the same strata, by the way, as that on which rests the Lincoln Memorial—there lay an ancient swamp, buried under the debris of the centuries. Interest in this discovery was heightened when there were unearthed 30 feet below ground a number of huge stump remains of prehistoric trees, some of which were more than 8 feet in diameter and of an age estimated by scien-

tists to be at least 30,000 years. So were brought to view, in the palm of time, the structural materials of an ancient era. But they were of a day that is done. The wood, white when brought to the surface, on exposure to the air turned brown and promptly succumbed to the forces of decay. Like the age they served, these remains crumbled away into the dust of the centuries. Today on the ground of their origin there stands a great edifice of twentieth century construction—of marble and stone, of concrete and brick, materials produced by the very transmutations of that time whose inroads they are designed to resist, and in

Illustrations on pages 8, 11, 14 and 15 courtesy *Architecture and Building*.

the hands of man reshaped to his varying uses.

And how varied are these uses! It was but yesterday that on this same site a circle of convent walls sheltered a garden close where laughing children trooped in and out while stately sisters strolled, reverently murmuring their prayers or telling their rosaries. Today on that acreage eleven huge stories of concrete and steel stand up-reared above city thoroughfares where daily to its doors sweep an army of motor cars and a throng of people, in all the rush and turmoil of modern industrial life. Time is indeed the great transformer!

During the past ten years the population of Washington has increased from 380,000 to approximately 500,000. This increase, due to the augmented importance of the nation in international affairs and of

the Nation's Capital in domestic affairs, the constant flow of foreign representatives and visitors, and among our own countrymen the growing habit of travel to the nation's shrine, has been accompanied by a marked expansion in the business area of the city. With these inevitable changes Connecticut Avenue, formerly the fashionable residential street of the Capital, has become a business thoroughfare of high-class shops and has acquired the title, "The Fifth Avenue of Washington."

Here, of a magnitude demanded by the city's growth, is situated The Mayflower, between Seventeenth and De Sales Streets, midway between the White House and Dupont Circle, in the heart of the new business zone and adjacent to the exclusive downtown residential section. Occupying a ground area of 66,000 square feet The May-



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Lobby of the Hotel Mayflower.

flower has a frontage of 187 feet on Connecticut Avenue, 456 feet on De Sales Street and 140 on Seventeenth Street. The perimeter of the building measures nearly a quarter of a mile. On its Connecticut Avenue frontage the structure is eleven stories high, the height of the remainder of the building, governed by the city's zoning restrictions, being nine stories. Due to the presence of the ancient swamp already mentioned it became necessary to set the foundations of the building on bedrock in a "tub" of concrete 40 feet high, 13 feet thick at the base, and covering an area of about one and a half acres. In this the structure rests upon 286 columns imposed upon a foundation containing 95,000,000 pounds of concrete. In size the building is computed to equal 400 ordinary six-room city dwellings. The Mayflower represents an investment of \$11,000,000, including the land value and equipment. It contains more than a thousand guest rooms and residential suites; an entire addition devoted to state apartments and suites de luxe; three ball-rooms; three restaurants; a promenade, or gallery, a tenth of a mile long; spacious lobby; mezzanine and a palm court. The associate architects were Robert F. Beresford and Warren & Wetmore.

The Mayflower building is of the steel skeleton type of construction with tile and reinforced concrete floor slabs supported on steel beams. In order to eliminate columns as much as possible from the large public rooms a great many of the steel columns above the second floor are carried on huge steel girders which span the width of these rooms. This is one of the features which contribute to the general effect of spaciousness and noble proportion first recognized by the beholder.

The exterior of the building is of Indiana limestone in the first story. Above this is

rough texture buff brick with terra cotta trimmings to match the limestone. All entrances to the building are sheltered by handsome marquises extending to the curb.

On entering the building from Connecticut Avenue there is revealed a vista over 400 feet long extending through the hotel to the entrance on Seventeenth Street. At its narrowest point, which is the width of the gallery or promenade, this view has a width of 26 feet, broadening into the main lobby and palm court.

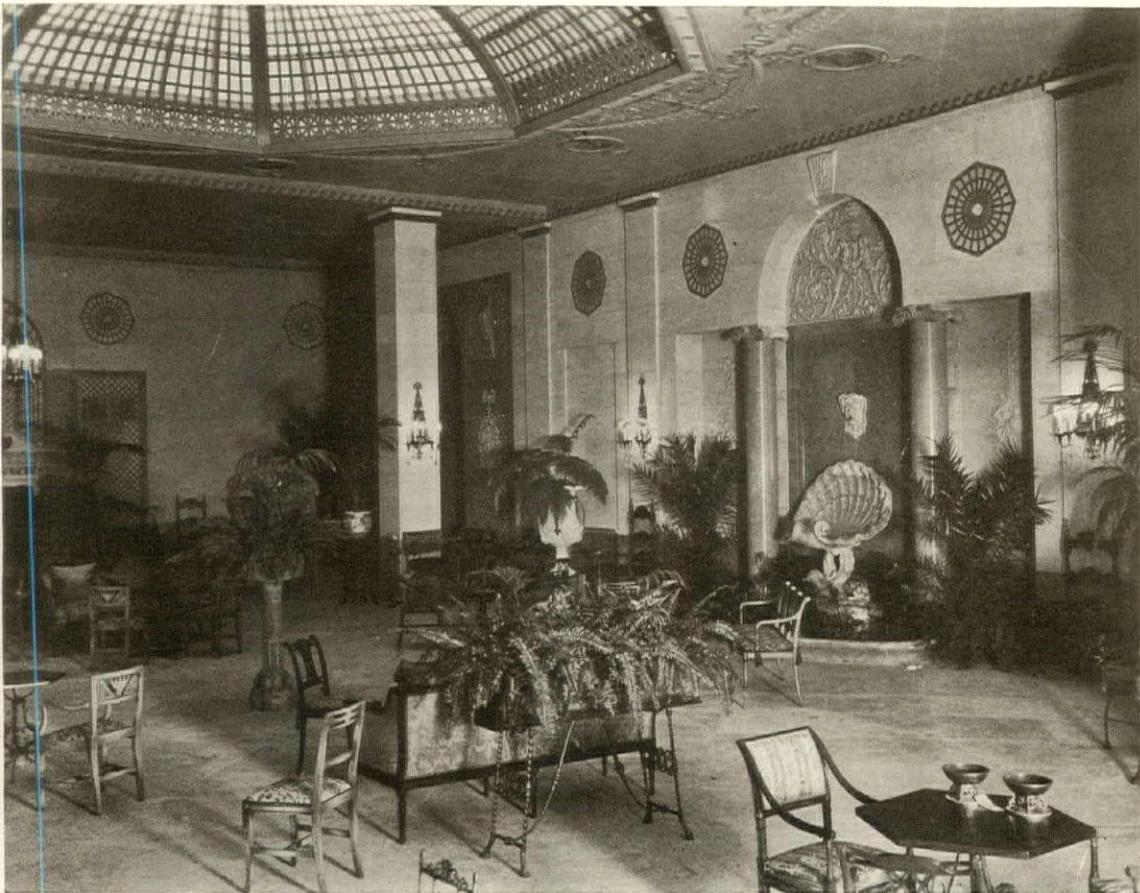
THE MAIN LOBBY

The main lobby is 56 feet wide by 87 feet long. It is lighted from overhead by a skylight glazed with a special diffusing glass. Electric lights concealed above the glass ceiling also light the lobby at night. The very pleasing color effect in the lobby is obtained by the combination of the rich hangings and furnishings with the polished Botticino marble which lines the walls and faces the columns to the full height of the lobby. The capitals of the columns are treated in Antique Gold. The floor is of pink Tennessee marble, combining beauty with durability. The stairs leading from the lobby upward to the mezzanine and downward to the garden are of St. Genevieve Golden Vein marble.

Surrounding the lobby on three sides is a mezzanine floor where are writing nooks and lounging spaces for guests. Here the window sills are of Verde Antique.

Occupying one side of the lobby is the front office. Of the fixtures here the woodwork is American walnut with marquetry trimmings, but the counter is of Verde Antique marble, recognized as one of the best material for withstanding the wear which this counter receives. A base of marble also extends along the front of the office.

The lobby is provided with two direct



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The beautiful palm court is a large room with walls of Caen stone and a wainscot of St. Genevieve Golden Vein marble. The floor is of Biesanz American Travertine.

street entrances, a ladies' entrance in addition to the main entrance from Connecticut Avenue giving access from De Sales Street.

From the main lobby opens the elevator lobby, treated in the same materials, while directly opposite the four high-speed passenger elevators a large semicircular alcove forms an attractive feature. This is lined to its full height with polished Botticino marble.

THE PALM COURT

On leaving the elevator lobby to approach the palm court a descent of four or five steps is made. From the top of these steps is an excellent vantage point from

which to see and be seen, and this was effectively made use of on the occasion of the Charity Inaugural Ball with which The Mayflower was formally opened. During the evening the Vice-President, the governors of the various states and other high officials were admitted through the Connecticut Avenue entrance after the guests had assembled in the palm court and ballroom. As each dignitary arrived he was escorted through the main lobby to the head of this short flight of stairs. Here he was halted while a fanfare was sounded by trumpeters, after which to the music of his state anthem he marched through the palm court and promenade and into the ballroom, where a box was in reserve for him.

The palm court is 76 feet wide by 86 feet long, truly a room of abounding spaces. The center portion of the ceiling is a great dome of green latticed glass, through which the daylight streams in generous measure. Surrounding the court is a wainscot 3 feet high of St. Genevieve Golden Vein marble. Above this the walls are of Caen stone and are interestingly featured at various points by the insertion of shallow niches. The perspective of these niches is so heightened by converging lines of wood lattice and Jaune Nile Fleuri and Belgian Black marble as to give an effect of considerable depth. To the middle of the south wall of the palm court the eye and ear are at once attracted by the cool splash of water in a charming wall fountain, a large and beautifully shaped sea shell of Jaune Nile Fleuri supported by two dolphins, while above it a mask spouts into it a tinkling stream of water. From a concealed spotlight in the ceiling a shaft of light plays on the fountain, flooding it, yet not spilling out upon the polished marble that serves as a background to the whole. The fountain base is of St. Genevieve Golden Vein marble. At each side of the fountain are polished marble monolith columns. The floor of the court is of Biesanz American Travertine.

PRESIDENTIAL RESTAURANT

Opening from the palm court is the main restaurant, a room 48 feet wide by 169 feet long. It is lighted by a series of nine long windows opening on the De Sales Street side. The keynote of this room is the semi-official atmosphere produced by the wall decorations, which consist of the coats-of-arms of the States of the Union and oil portraits of George Washington, John Adams, Thomas Jefferson and James Madison.

The ceiling is ornamented in low relief. As a protection to the walls and columns

there is a 4-foot wainscot of white Alabama marble. In winter the draperies at the windows are in a general scheme of red and gold, while the floor is entirely covered by a figured carpet. In summer the carpet is removed and the marble floor exposed to view. This is of white Vermont marble squares with Verde Antique dots at the corners. Around the room is a border of Italian Pavonazzo.

PROMENADE OR GALLERY

Continuing along the axis of the vista first viewed on entering the building, and crossing the palm court, one enters the promenade. At this point of entry is a set of glazed doors which permit the promenade and ballroom being completely shut off from the remainder of the first floor for the purposes of private functions. The promenade is 26 feet wide and 212 feet long. It has a coffered ceiling. All openings have molded architraves of white Alabama marble and the same marble is used for the wainscot. At intervals against the walls are lighting standards consisting of lofty pedestals of Verde Antique, fluted and carved and surmounted by elaborate metal candelabra. The floor is of white Vermont marble with squares of Verde Antique and border of the same.

BALLROOM

It is a common experience in hotels where the ballroom is situated above the street floor, to find a large ball or convention completely demoralizing the elevator service for guests. At The Mayflower this condition cannot obtain since the ballroom is situated on the ground floor. Although The Mayflower's grand ballroom has held as many as 1,800 persons, there is always freedom of access to it without disturbance to the other occupants of the hotel. En-



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The charming marble fountain in the palm court is of Jaune Nile Fleuri marble, of rich yellowish brown.



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The ballroom wainscot is St. Genevieve Golden Vein with a Black and Gold base.

trance to it is had through the promenade on one side, and at one end through the foyer, or small ballroom, and to this entire section a separate street entrance of five doorways, reserved exclusively for functions, is provided on the Seventeenth Street side of the building.

The ballroom has a richly ornamented vaulted ceiling. This ornament is carried down the sides of the columns until it reaches the top of the wainscot of St. Genevieve Golden Vein marble. Below the wainscot the base is of Italian Black and Gold marble. These two marbles form a very rich and effective color combination. The floor, for dancing purposes, is of patterned maple, specially selected for color. At one end of the ballroom is a stage which, by concealed apparatus, may be extended several feet into the room and when not in use retired to the wall line. At

the opposite end of the ballroom is a motion picture booth, a unique feature of whose complete equipment is a periscoping device by which pictures are projected to the screen from the balcony without interference from the huge crystal chandeliers that hang from the ceiling. The ballroom is also equipped with a battery of high-power lights which permit the taking of motion pictures without the use of the usual flash-lights.

The entrances to the ballroom are of such width as to permit the use of this great salon for automobile exhibition purposes. The steps leading from the promenade into the ballroom are supported on each side by curved monoliths of Italian Black and Gold marble, chosen for their permanence and stability, as well as for their beauty.

FOYER

At the east end of the ballroom an dserv-

ing as an assembly hall as well as a room for private dances, luncheons or banquets, is the foyer, or small ballroom. The decorative treatment of this room is striking and unique. In the French Chinoise style—the French interpretation of Chinese art—the walls are of vivid blue with Chinese murals in gold, the ceiling being in the form of a large oval dome decorated with Chinese figures. The floor is of maple, the base of Verde Antique marble.

THE GARDEN

Washington society is enthusiastically patronizing the tea, dinner and supper dances that are a feature of The Mayflower's entertainment. These are held in the garden, a spacious room situated beneath the main

lobby and easily accessible by elevators and broad staircases. The garden has a large dance floor of maple with a border of Belgian Black marble. The table spaces surrounding the dance floor are of American Kato stone in irregularly broken slabs. The walls, of rough stucco, are softly tinted. One side of the room consists of a series of alcoves suggestive of latticed arbors, each alcove seating about a dozen persons. The ceilings over the table are handsomely coffered, that over the dance floor giving an outdoor effect by crossed latticed beams from which lanterns are hung, the spaces between being painted to represent the evening sky. At the farther end of the garden a latticed colonnade encloses a charming figure fountain of St. Genevieve Golden



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The garden, though below the street level, has an out-of-door aspect.

Vein marble, with a mural background representing the city of Washington and surrounding country including a glimpse of Mt. Vernon, all quaintly conceived in landscape effect. The entire atmosphere of the garden is suggestive of the open air, although the room is in reality well below the street level under the main lobby floor. In summer the garden is a delightful spot, cooled by a special refrigerating system by which the warm air is drawn from the room and replaced with a stream of fresh air that has been washed and cooled by forcing through hundreds of jets of ice water. The air is thus kept constantly in motion and is fresh and exhilarating. Entering the garden on a hot summer day one will soon be so comfortably cool that dancing has an irresistible appeal. By a special lighting apparatus the garden is bathed in a flood of varied hues while in the center a revolving crystal ball reflects a kaleidoscopic play of colors upon the dancers.

MAIN KITCHEN

A hostelry of such proportions as The Mayflower demands, of course, a kitchen of commodious size. The main kitchen is 130 feet wide by more than 200 feet long. In this is installed the finest equipment and finish that money could buy. The kitchen has a capacity of 6,500 meals a day. It is electrically equipped throughout, special apparatus performing many of the manual labors of the establishment. Vegetable peelers, ice cream freezers, bread mixers, meat choppers, drink mixers, subveyors and endless belts for conveying soiled dishes from the serving pantries to the dish-washing machines, bread and meat slicers, etc.—all are electrically operated. For the service of employee cafeterias are maintained, one each for white and colored help. There are also separate locker rooms, shower baths and lavatories

for each of the various classifications of help. The shower partitions are of pink Tennessee marble chosen for sanitary reasons for its impermeability. Toilet partitions are of White Vermont marble. The Mayflower has its own completely equipped laundry for its own purposes and the service of its guests. It maintains also its own valet establishment.

MECHANICAL PLANT

Accomplishing the entire work of heating the building in winter and air cooling it in summer, furnishing steam and power to the main kitchen and laundry, manufacturing all the ice used in the hotel as well as refrigerating all ice boxes throughout the building, supplying hot and cold water to all fixtures and running ice water to all guest rooms, supplying artificial ventilation to all public rooms, operating a central vacuum cleaning department, and numerous other services, The Mayflower's mechanical plant is a huge and complete affair. The boilers for heating and power are fired by fuel oil burners.

Throughout the building the interior finish is of the highest quality material. All rooms and corridors have moulded plaster cornices and paneled wall mouldings. The corridors are broad and well lighted. The main corridor continues through to the exterior wall where two large windows afford light and air. All corridors and floors are carpeted with a heavy figured carpet to within 2 feet of the walls, where borders of polished white Alabama marble carry to the wall bases. All windows throughout the building are glazed with plate glass. All partitions are of fireproof materials, the door frames and trim being of steel as a further precaution against the spread of fire.

As a public hostelry The Mayflower is unquestionably unique in one important re-

spect: the luxuriousness of its appointments. Its furnishings are the selections of an impeccable taste and discretion ranging without stint among art collections and the products of factories famous for the authenticity of their reproductions of period styles and museum pieces. The rooms and apartments are not "furnished" with "sets"; no two alike, they are appointed with carefully chosen individual pieces, each having its special interest for grace, beauty and refinement, and in careful harmony with the color schemes of the rooms. These, with their drapes and bed-hangings of silk, many with over drapes of satin damask; bed lamps and boudoir lights with silken shades; objects of art in harmonious colorings; original water-colors, mezzotints and etchings on the walls—have all the distinction and charm of private dwellings. Each guest room has outside exposure and private bath, with circulating ice water. In the more than 100 semi-housekeeping suites including living-room 26 feet long, dining-room, bedrooms and baths, perfectly equipped kitchens with individual ice machines, electric ranges and complete service of china, linen and silver, is given every facility for the comfort and convenience of permanent guests. An unusual feature of these apartments are the open fireplaces designed for a real open fire and faced with Italian Botticino marble. Special attention to requirements for quiet has designed these rooms with air spaces between the walls for deadening the sound. No entrance door opens directly from the corridor to the room, a small private lobby being provided in every case at the entrance. A private elevator and entrance lobby serve these apartments.

Occupying the entire ninth and tenth floors of a million-dollar annex just completed are the two state apartments, the

Presidential and Vice-Presidential suites, the most sumptuously appointed hotel apartments in the world. Nothing to equal them is to be found anywhere in Europe or the Western Continent. Each a suite of thirteen rooms planned and equipped for permanent residence with drawing-room, dining-room, library office, five guest rooms each with private bath and glass-enclosed shower with silver fittings, kitchen and servants' rooms, they are as luxurious as any Old World palace, together with all the modern conveniences inseparable from American ideals of comfort. With their Oriental rugs, tables, consoles and cabinets of painted lacquer and marquetry, chairs upholstered in hand-woven tapestries and satin damasks, crystal, cloisonné and bronze and marble objects of art, original oils and engravings on the walls, satin and taffeta hangings to carry out the color harmonies, these are rooms indeed fit for the royal and other distinguished guests of the nation for whose entertainment they are designed. On the remaining seven floors of this annex, one to a floor, are the suites de luxe consisting of drawing-room and five bed chambers, but little less superbly appointed than the Presidential and Vice-Presidential suites above, and designed for guests who demand the ultimate in luxury and privacy.

The lighting features of the hotel, of elaborate and beautiful design, are striking and effective parts of its interior furnishing. Throughout the length of the promenade, in the palm court with its tinkling fountain, the Presidential restaurant and main lobby, the lighting effects are elaborate and beautiful. The wiring in The Mayflower was installed at a cost of \$250,000. High-tension current entering through the sub-basement supplies the entire hotel through several groups of large transformers. Several hun-

dred motors, ranging from $\frac{1}{4}$ to 150 horsepower, operate the various electrical mechanisms throughout the hotel. To this end almost 100 miles of wire were utilized and six carloads of conduit were employed.

In the first few months of its existence The Mayflower has scored an unqualified success. The luxuriousness of its appoint-

ments and the completeness of its service have appealed instantly to travelers. It is a concrete expression of the principle that the artificial and the commonplace are not necessarily germane to the equipment of American hotels, and that the discriminating public does not need to compromise with unbeautiful surroundings when it travels.



One of the marble statues in the promenade of the Mayflower Hotel, Washington, D.C.



THE SEARS ACADEMY OF FINE ARTS AT ELGIN, ILLINOIS

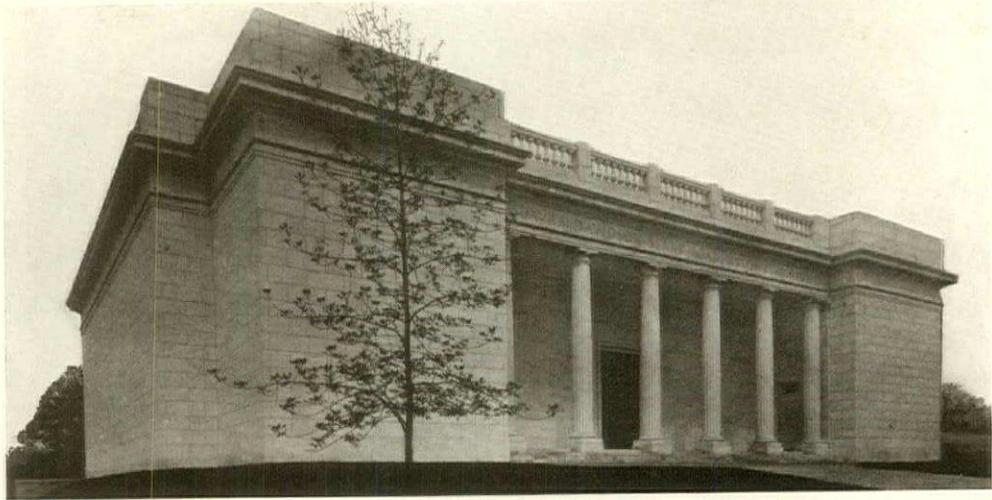
AT Elgin, Illinois, there has existed for a number of years the Elgin Academy and Junior College. This institution has lately attracted considerable attention in the world of art because of the dedication, a little over a year ago, of a splendid new building intended to house a collection of representative American paintings.

This structure—the Laura Davidson Sears Academy of Fine Art—bears the name of the wife of the donor, Judge Nathaniel C. Sears, of Lake Geneva, Wisconsin, and formerly of Elgin. As it stands today, it realizes a long-cherished dream of Judge Sears, to build a monumental home for his collection of paintings and present it to the Elgin Academy in the name of his father, mother and wife. Judge Sears is chairman of the Board of Trustees of the Academy, and Mrs.

Sears is a member of the Board. Moreover the Judge is a former student of Elgin Academy; his father was the first principal; his mother the first dean of women, and his wife a former student and teacher. The building is, therefore, truly a Sears Memorial.

During the years that Judge Sears dreamed over the project, and when his plans were nothing more than nebulous imaginings, he had made up his mind definitely to one thing: that he would not consider as worthy of his brain child any material other than white marble. The finished structure justifies his vision.

The building was begun in the spring of 1923, and was erected under the supervision of Harry F. Rich and his associate, Harry F. Robinson, architects of Chicago.



The north front, showing the main entrance and portico.

It is a huge imposing structure of white Georgia marble, rectangular in shape and artistic in its simple decorative details. Every piece of the marble that was used was shipped to Elgin carefully crated, after selection had been made at the quarries. Uniformity of tone was the end aimed for, and the consequent lack of variation between the blocks, as well as their sparkling and almost iridescent whiteness, has a great deal to do with the beauty of the exterior.

The end walls are unbroken; the sides, one of which contains the main entrance, are adorned by marble balustrades over the cornice. The marble facing of the walls is 3 inches thick.

The building fronts east, facing the old Academy Main Hall directly opposite. Marble walks lead to the entrance portico, or loggia, the floor level of which is reached by ascending a short flight of four low, broad steps, leading between six massive monolithic columns of the Grecian Doric order, gracefully fluted. The architrave above is inscribed, in bold letters, with the name of the Academy.

Within the marble porch the floor has Creole marble borders with white panels. Above the simple main doorway is a hand-

some frieze, extending around the three sides of the loggia. This is a copy of the Elgin marbles of the frieze of the Parthenon and forms the chief decorative feature of the east façade. Its position, however, high up on the walls, and half hidden by the monoliths, only affords a greater contrast to the severely dignified lines of the design.

There are five exhibition rooms and a curator's office, the latter with a mezzanine floor reached by a winding steel stairway. All the exhibition rooms are top lighted, with powerful reflector units for night lighting. The interior is finished in mahogany with neutral gray canvas (Monk's cloth) walls. The basement contains shipping room and lavatories.

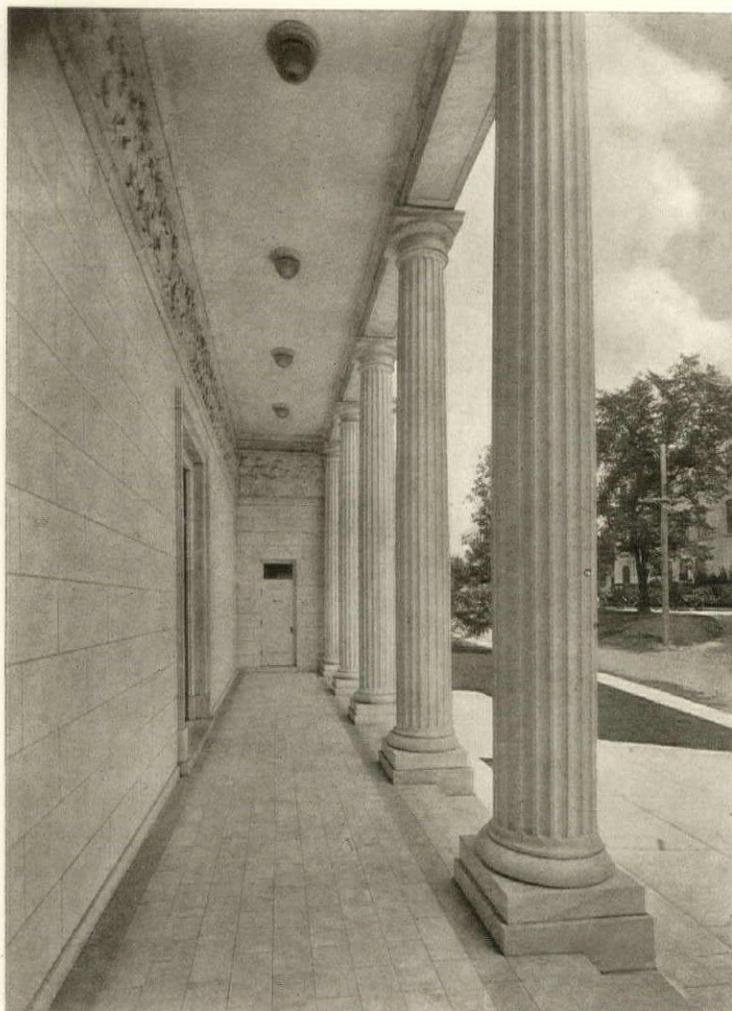
As mentioned before, the gallery is devoted entirely to American art. It houses, chiefly, the Sears collection of 127 paintings by American artists, and this fine display includes the work of practically every great artist since the growth of American art attained a degree of development worthy of recognition as such. No new paintings are allowed to appear in the gallery until their authors have gained sufficient reputation to command notice in contemporary books of criticism.

That the \$350,000 spent by the donor on the gallery and paintings has been wisely disbursed is proved by the favorable notices in art circles. Typical of these comments is the following extract from the *Baltimore Sun*:

"Retrospective exhibitions which tend to gather from distant corners of the land hitherto unknown as well as works of Early Americans have been steadily increasing in number and efficacy. The work of Benjamin West, at the Philadelphia Art Alliance in 1920, became the forerunner of comprehensive exhibitions of canvas by Thomas Sully and the three Peals staged in successive years at the Pennsylvania Academy of Fine Arts.

"And now as a new idea in the collection of Americans, the Sears Academy of Fine Arts at Elgin, Illinois, has inaugurated a historical sequence of American Art, and is endeavoring to obtain an example of the work of every American painter, be he master or apprentice."

Whether the last assertion is literally true or not, certainly the Sears Academy possesses a representative showing of the work of many painters in history, from Pieter Vanderlyn to Gardner Symons and Jane Peterson. In addition, the Octagon contains marble copies of six statues, including Canova's Venus and Dannecker's Ariadne.



Details of the portico of the Laura Davidson Sears Academy of Fine Arts, at Elgin, Illinois.



A LOS ANGELES STORE FRONT

A Black and Gold Marble Treatment that Suggests
Many Artistic Possibilities

THERE will probably be at the end of the next ten years at least ten cities in America with a population exceeding the two million mark. One of these is almost certain to be Los Angeles.

Los Angeles is growing rapidly. Every resident is a booster for his city and with very good reasons. The climate, the natural advantages of location, the rich soil, furnish incontrovertible arguments for a residence in the coming metropolis of the West.

Added to these is the spirit of progressiveness displayed by the people of the city. An interesting evidence of this spirit is the new jewelry store of Feagans and Company pictured above. This building is located on the corner of Seventh and Olive Streets, the center of the finest shopping district in the city, and the most exclusive.

The store occupies the first floor corner under the Los Angeles Athletic Club, and the remodeling of the space ran considerably in excess of \$200,000. The material used in the exterior of this building was Black and Gold marble, in combination with very elaborately designed statuary bronze, the latter for the show-window frames and pilasters, and for the pilaster bases and caps. The architects were L. and E. Emanuel, of San Francisco.

The shop has attracted considerable attention, and has been pronounced one of the most artistic jewelry stores in the world. When asked for the inspiration which prompted and supported them in the planning and conception of this splendid store. Mr. George E. Feagans, the president of the company, said: "First, we chose our archi-

tect-designer and with him made a complete tour of America and a careful survey of America's finest stores and shops—and we say proudly that America has the finest shops and stores in the world. After a careful analysis of all this gathered and tabulated data, we started our drawings and specifications, this consuming well over a year, for we made many changes and rejections.

“When our plans, therefore, had progressed far enough so that we knew definitely the motif and foundation for our treatment, we went then to Europe and to Paris and to the Louvre—that great museum of art, and architecture and painting, the equal of which no other city in the world can offer. There we found the color scheme for our ceiling—soft, rich golds, together with subtle Gobelin blues, with here and there for added interest a bolder dash of color.

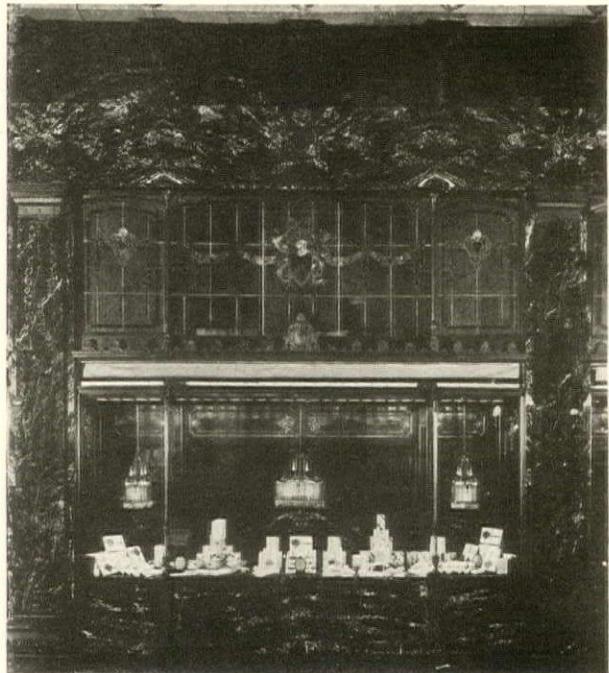
“In the palaces of Versailles we found crystal pendant candelabra chandeliers, hung there in the extravagant days of the Louis periods, and we found manufacturers in Paris that could not alone duplicate them but improve on them and make them for us more beautiful and more practical than the original.

“French display tables and display cases, richly embellished were also sought and found in Paris.

“Again we found in Paris marble of every hue and texture from quarries dating back, some of them, to the days of Babylon. There seemed but one marble suitable for our adopted motif to combine with real bronze for our outside work and that was the Black and Gold marble of Italy. This marble is quarried on the Isle of Palmaria, in the Gulf of Spezia and at Partovenere, near Spezia, in Liguria. It is known as Portoro or, more familiarly as Black and Gold. But our total of window frontage was 141 feet,

to be solid plate glass, bronze and marble from sidewalk to upper window coping, requiring therefore many tons of marble. So special shipment from a foreign country at first seemed prohibitive. However, we found this marble right here at home in Los Angeles. As a result, we have a marble exterior in perfect harmony with our interior; and when we consider the size of our exterior, 141 feet, with every single bit of marble matched and fitted carefully to place, then we believe that it is without parallel in America.”

Feagans and Company were not the first to make use of this very colorful material for shop fronts, not even in Los Angeles. It has been held in very high regard among the architects of this country for a number of years; of late, however, it has begun to enjoy a very much increased vogue, being used frequently for interior work as well, notably in the lobby of the fine new American Radiator Building in New York City.



Detail of one of Feagans and Company's display windows, showing the marble.



David, by Michelangelo. Finished in 1503, it stood in the Piazza at Florence for 369 years, the marble undamaged by exposure to the air.

MICHELANGELO AND CELLINI

The Foremost Sculptor and the Most Gifted Goldsmith
of the Renaissance in Italy

PART I

“THE apotheosis of Italian sculpture,” wrote Ernest H. Short, “connects itself as inevitably with Michelangelo as the topmost peak of Elizabeth drama—Shakespeare—connects itself with the dramatic hills and hillcocks which led up to it.”

Michelangelo alone was able to give to marble the power to express the profoundest thoughts of nature and humanity which were conceived during the Italian Renaissance. Not to be mentioned in the same breadth with Michelangelo as a sculptor,

but nevertheless the leading goldsmith of his time, was Benvenuto Cellini, the Florentine swashbuckler.

Any attempt to offer here anything more than a brief mention of some of Michelangelo's extant works and a few pertinent incidents of his career would be impossible. We can only hope to show, in a general way, the high lights of his life, and his connection with the political factors of his age.

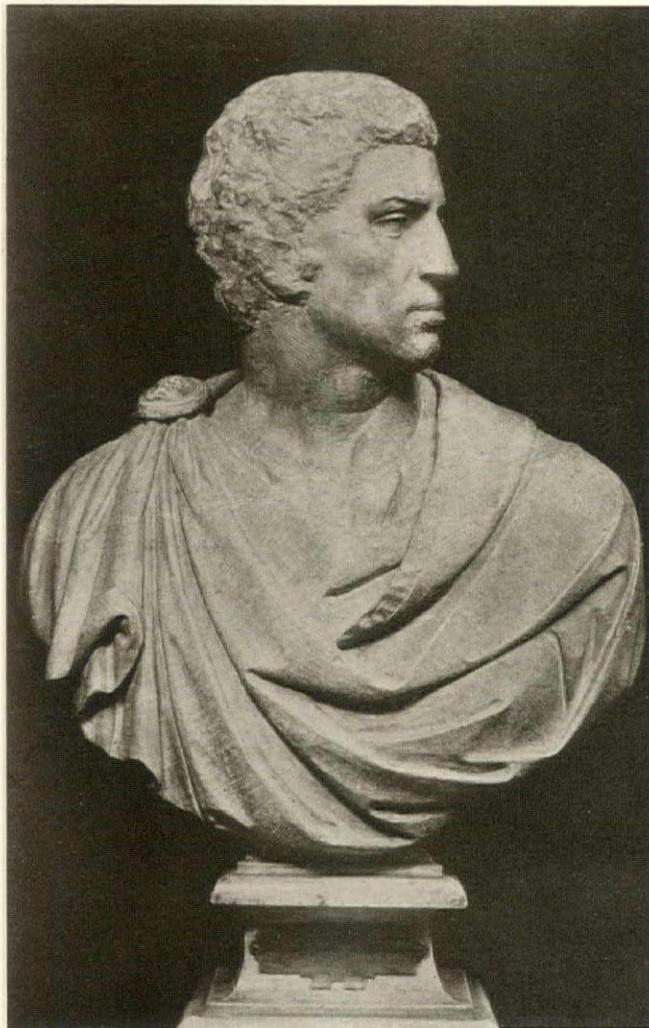
Born at Caprese, near Arezzo, in 1475, he grew up in the village of Settignano, three

Illustrations courtesy Thomas Machen, architect, Baltimore, Maryland.

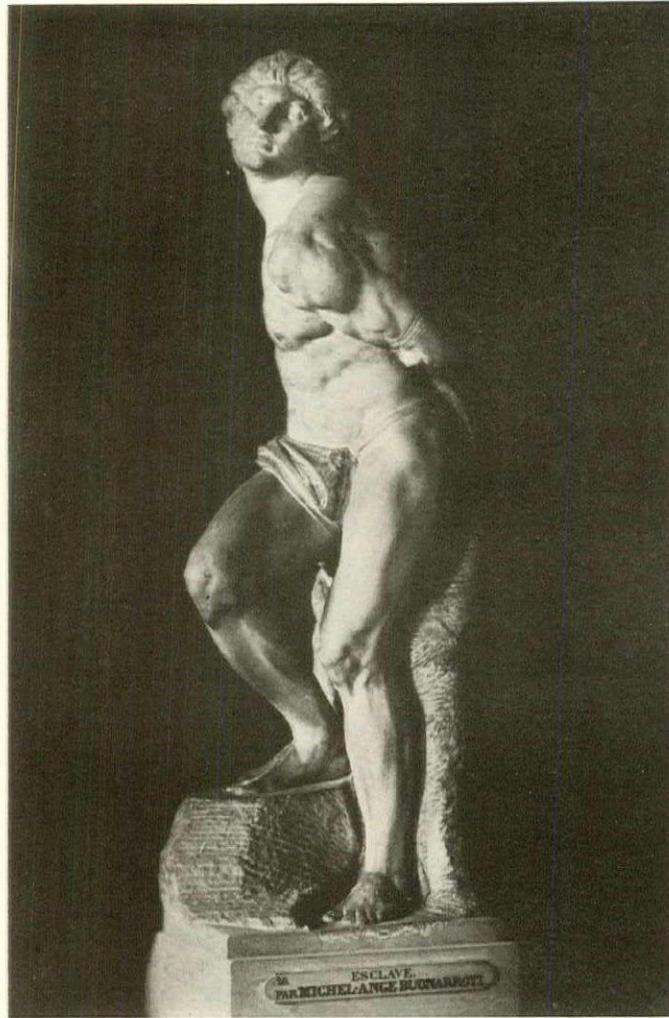
miles from Florence. His nurse was the daughter of a stone-carver and the wife of a stone-carver, so that it was small wonder he early delighted in the use of the chisel. A youthful friendship with Grenacci, a painter, a pupil of Domenico Ghirlandaio, one of the most famous painters of the day, also encouraged him in the use of the brush.

A painted wood panel which he made at this time drew considerable attention to his ability. When this was followed by such a faithful copy of a drawing of a head that the two could not be told apart, his reputation

began to spread. It happened one day that Granacci took him to the gardens of the Medici at San Marco, where Lorenzo had collected many antique statues. He was struck by their beauty, and spent many days copying them. One in particular, the head of a faun, he determined to reproduce in marble. He secured a piece of this material from some masons engaged on the premises and, having borrowed a chisel, set to work and soon had it completed. His imagination supplied such details of the face as were missing in the original antique, and this



The bust of Brutus, begun by Michelangelo for Cardinal Ridolfi in 1534 and finished by Calcagni. It is now in the National Museum, Florence.



One of the "Bound Captives" presented by Angelo to Roberto degli Strozzi. They were intended for the tomb of Julius. They are now in the Louvre Museum.

with such fine effect that the work attracted the attention of Lorenzo himself. He was taken into the household of the Magnificent and stayed there for two years, meeting many notables and persons of nobility and working constantly in the gardens, pursuing his studies.

Following the death of Lorenzo in 1492, he returned to his father's house. He is reputed to have bought a large piece of marble, that had for many years been exposed to the wind and rain, and carved a Hercules out of it that was ultimately sent to France. Nothing is now known of this. Another

work, a crucifix in wood for the high altar of Santo Spirito in Florence, has also disappeared, though Condivi, a friend and pupil of the sculptor, speaks in detail of both of these.

He left Florence for Bologna about the time that the House of Medici was hunted out of Florence, and lived a little over a year with Gian Aldovrandi, a gentleman of means and a member of the Sixteen. Here he did the marble figures for the Ark of San Domenico, a San Petronio and a kneeling angel.

Returning to his native town, he set out

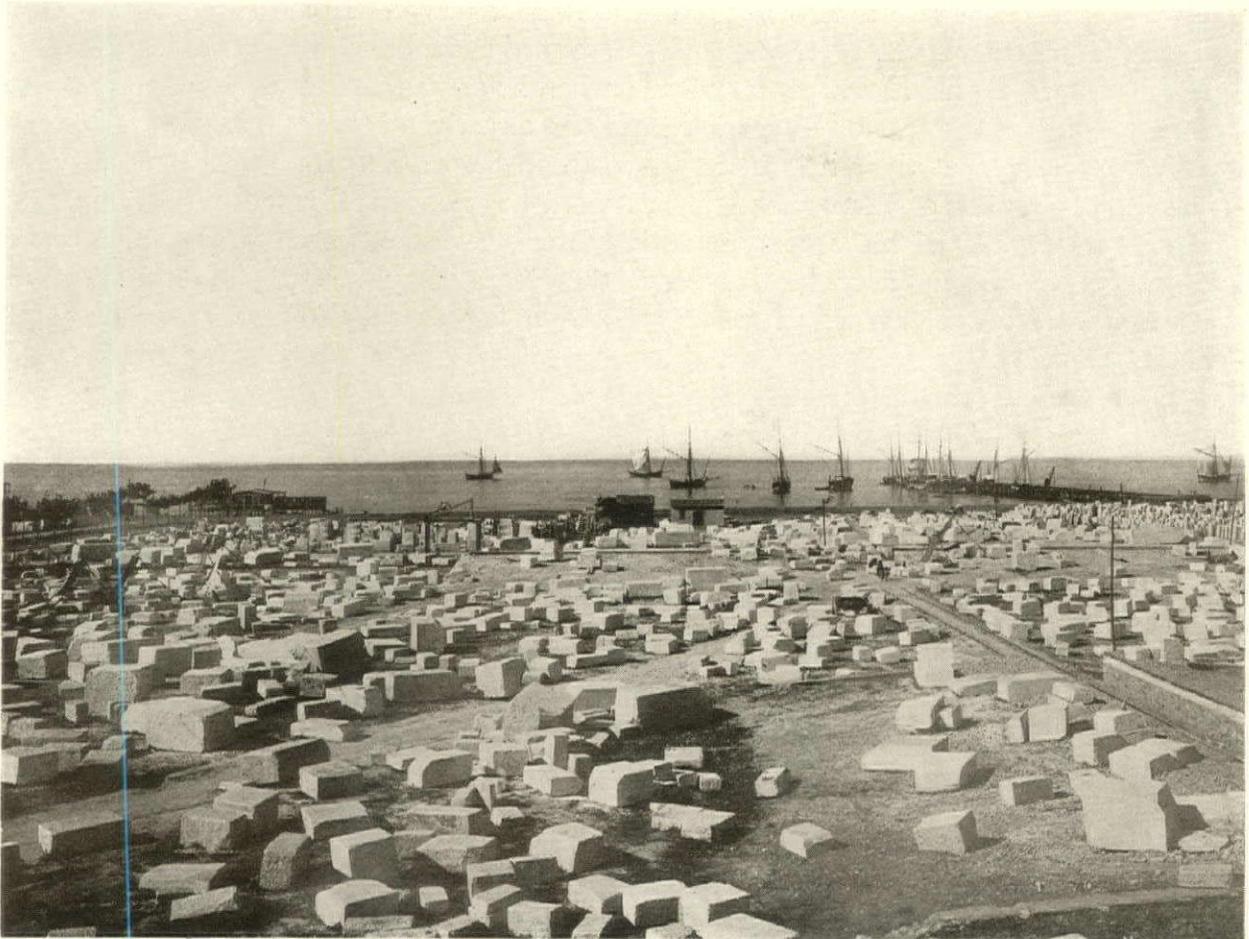
to carve a marble God of Love. He was persuaded by Lorenzo di Pier Francesco to give to this cupid an appearance of age, so that it could be passed off as an antique. The trick was successful and the statue was bought by a dealer and sold to Cardinal di San Giorgio for 200 ducats.

In 1496 he went to Rome and had no difficulty obtaining commissions for work. For Jacopo Galli he carved a marble Bacchus, of merry aspect, with squinting eyes, and holding a cup in his right hand and a bunch of grapes in his left. An impish and alert little satyr at his feet furtively nibbles at these grapes. This work in form represents the decadent Græco-Roman execution of the later empire. Jacopo also had

Michelangelo carve for him a cupid, now in the Victoria and Albert Museum.

A short time afterward he carved for the Cardinal Rovano, from a block of marble, that splendid statue of Our Lady, now in a chapel in the nave of St. Peter's. The Madonna is seated on the stone upon which the cross was erected, with her dead son on her lap—the story of a divine grief of a mother for an all-perfect offspring.

Family affairs compelled his return to Florence and while there he carved the colossal David, now in the Accademia delle Belle Arti of Florence, where it was placed for its better preservation in 1873. It was completed in 1504 out of a block of marble brought from Carrara by Agnostino di



Marble blocks at Marina, taken from Italian quarries, awaiting shipment.

Duccio. In this endeavor to save labor in the shipping, Agnostino had roughed this block out on the quay itself in such a clumsy way that "neither he nor any one else had the courage to put their hands to the block to carve a statue out of it, either of the full size of the marble or even one much less" (Condivi). The Office of Works had come in possession of this stone; they had sent for Michelangelo and offered it to him. He accepted it and extracted from it the statue above mentioned, "so exactly to size that the old surface of the outsides of the marble may be seen on the top of the head and in the base."

Michelangelo also executed, about this time, a marble group of the Madonna and Child, now in the Cathedral at Bruges; and a series of Madonna reliefs, strongly reminiscent of Donatello's style.

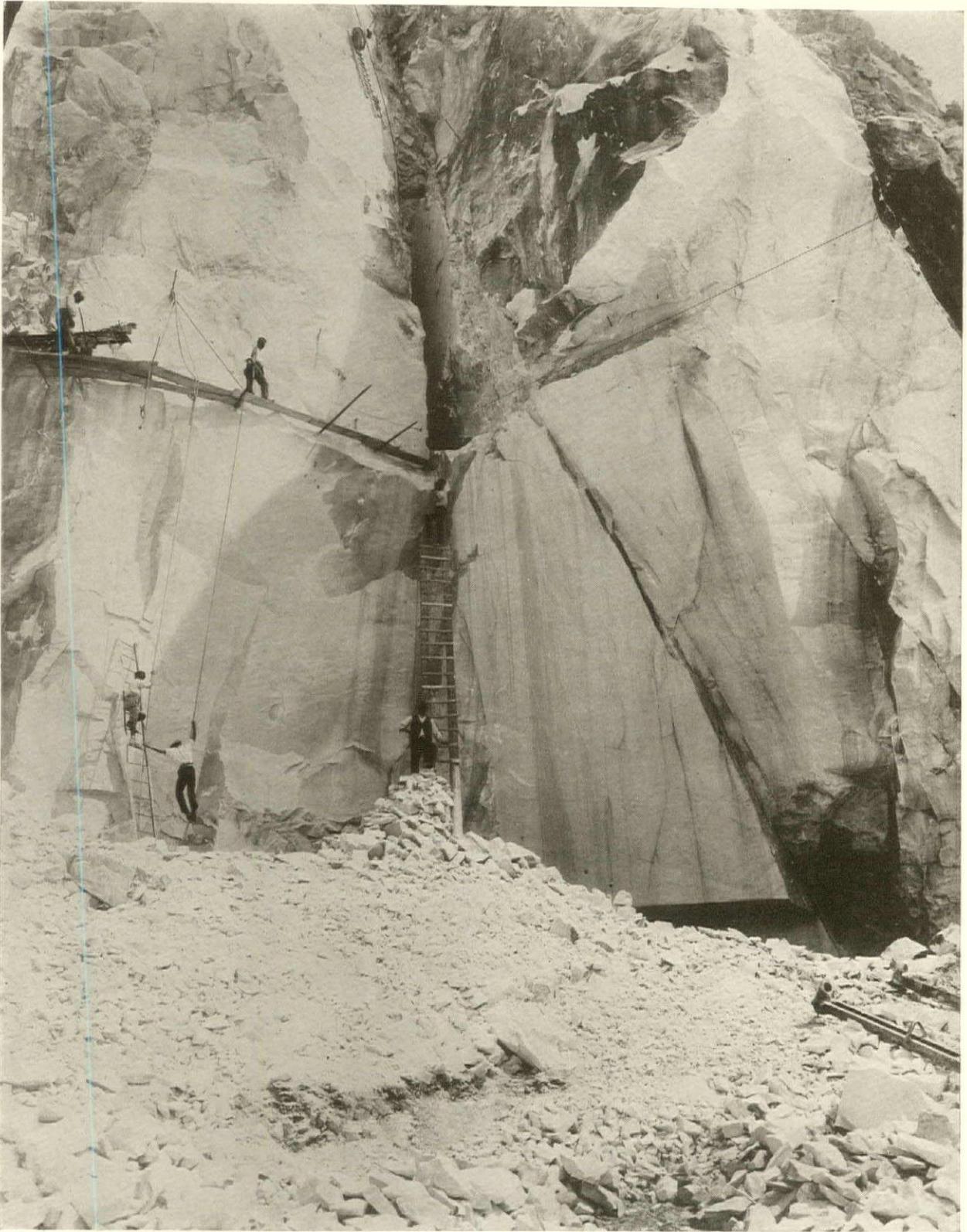
The Pieta and the David are typical works of Angelo's first period—a period in which may be seen at their height the influences of the spirit of humanism. It is, however, the works of his second period that indicate a deep philosophical poetry that inspired his most characteristic labors—the monuments in the Medici Chapel at Florence and the Tomb of Julius II. Neither was ever finished, unfortunately, but we can guess at the latter from rough sketches, some measurements and the well-known Moses.

Julius II called him to Rome in 1505 to prepare a design for a sculptural monument on a gigantic scale. The plan included thirty-eight life-sized statues, and Julius sent him to Carrara to quarry the necessary marbles. An interesting account of this trip is given by Condivi as follows:

"Michelangelo stayed in these mountains more than eight months with two workmen and his horse, and without any other salary except his food. One day whilst he was there

he saw a crag that overlooked the sea, which made him wish to carve a colossus that would be a landmark for sailors from a long way off, insighted thereto principally by the suitable shape of the rock from which it could have been conveniently carved, and by emulation of the ancients, who, perhaps with the same object as Michelangelo not to be idle, or for some other end, left several records unfinished and sketched out, which give a good idea of their powers. And of a surety he would have done it if he had had time enough, or the business upon which he had come had allowed him. He afterwards much regretted not having carried it out. Enough marbles quarried and chosen, he took them to the sea coast and left one of his men to have them embarked. He himself returned to Rome, and because he stopped some days in Florence on the way, when he arrived at Rome he found the first boat already at the piazza of St. Peter's, behind Santa Caterina, where he had his workshop near the Corridore. The quantity of marble was immense, so that, spread over the piazza, they were the admiration of all and a joy to the Pope, who heaped immeasurable favors upon Michelangelo; and when he began to work upon them again and again went to see him at his house, and talked with him of monuments and other matters as with his own brother; and in order that he might more easily go to him, the Pope ordered that a drawbridge should be thrown across from the Corridore to the rooms of Michelangelo, by which he might visit him in private."

The great dream of the sculptured mausoleum was never realized. A vaster work had captivated the fancy of Julius—the rebuilding of St. Peter's. Added to this was the thought implanted in the mind of the Pope by Bramante that to build one's tomb in one's lifetime was unlucky. Bra-



Modern quarries at Carrara. Michelangelo spent many months in these mountains selecting blocks for the sculptural monument proposed by Julius, Condivi afterward aptly called the episode "The Tragedy of the Tomb."

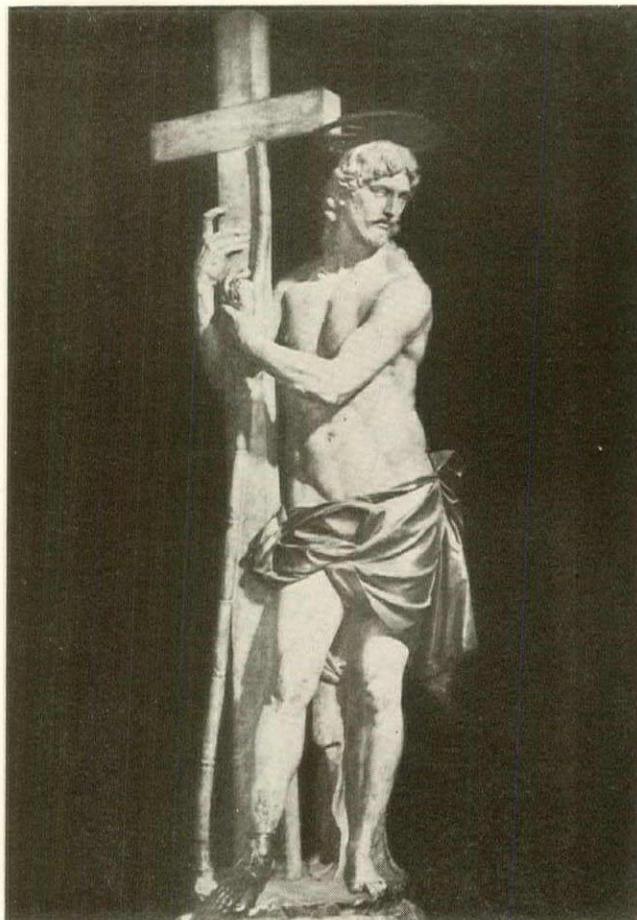
mante had never been friendly to Angelo, knowing that the latter was familiar with the errors of construction in such works as Saint Peter's, the Corridore di Belvidere, the Convents di San Pietro and Vincula and other structures, and he therefore sought to have Angelo removed from Rome, or at least deprived of the Pope's favor. He suggested to the Pope that Angelo be assigned the labor of painting the ceiling of the Sistine Chapel.

Michelangelo soon found his position in Rome intolerable and secretly departed for Florence. This was in 1506 and he remained in Florence for six months, despite Julius'

efforts to have him brought back. While there, he finished the cartoon for the Sala del Consiglio. He then went to Bologna, where, having received pardon from Julius for his previous independent actions, he executed a colossal bronze statue of the Pope for the façade of S. Petronio, commemorating victory over the Bentivogli.

For almost twenty years after the project for the Julian Tomb, Michelangelo produced no great sculpture. After the Bologna statue was completed, he repaired to Rome and was engaged until 1512 in decorating the Sistine Chapel vault. His next statue was the Christ, in the Minerva at Rome.

(Part 2 will follow in September issue.)



The statue of the "Risen Christ," executed by Michelangelo in 1520 and forwarded in the rough to Rome, where it was finished by Pietro Urbino and Federigo Frizzi. It is now in the Church of the Minerva.

A HANDBOOK OF MARBLE

It is the purpose of the National Association of Marble Dealers, to publish as soon as possible, a handbook on marble. The material contained in this book will be contributed by those best qualified to speak in an authoritative manner on the various matters treated. This is the fourteenth installment and contains part of the fourth chapter, written by John Stephen Sewell, President of the Alabama Marble Company. These extracts will probably undergo some slight changes before appearing later in book form.

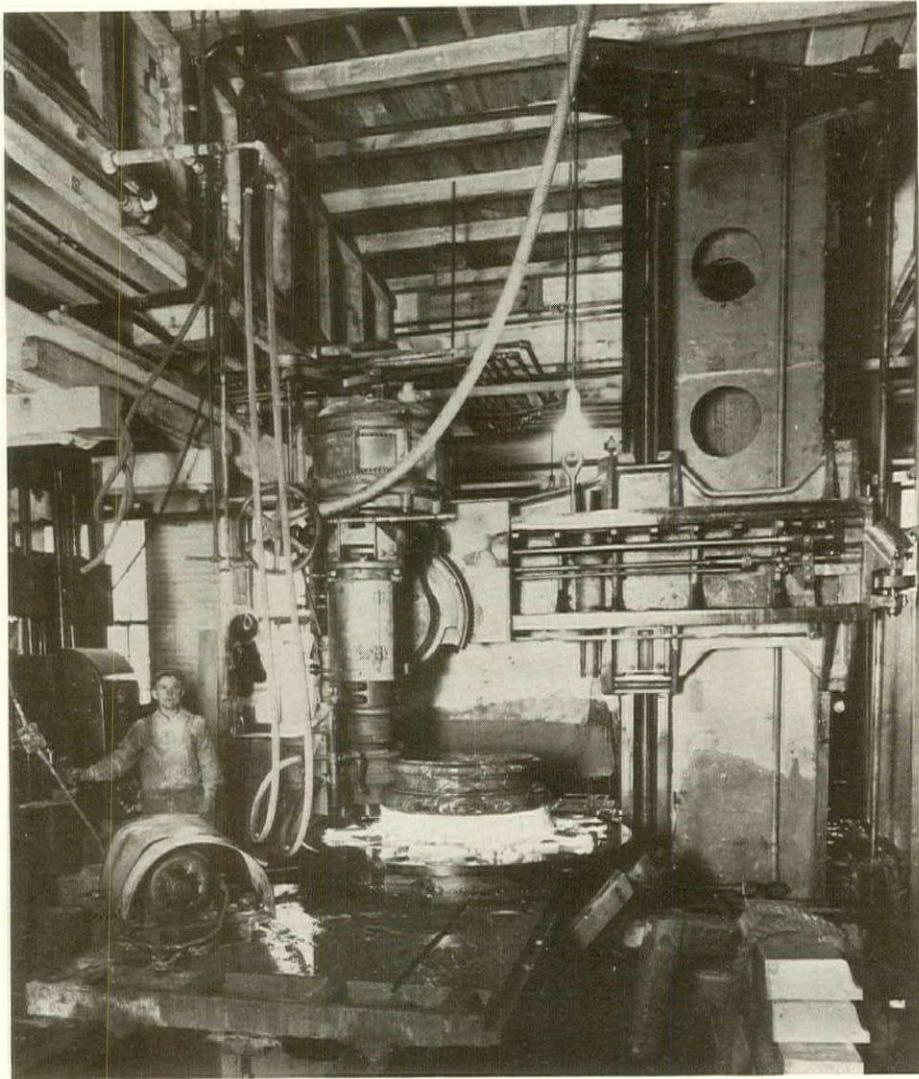
CHAPTER IV—Finishing Marble (*Continued*)

PROBABLY any abrasive wheel will cut faster as its speed increases. When a projectile strikes a steel plate at high velocity, it often goes through and suffers little deformation itself; the work is nearly all done on the target; at a lower velocity the projectile may break up and the plate be little damaged. A piece of soft tallow candle may be fired through a plank, making a clean hole—but the candle, with diminishing velocity, is sure to be splattered over some subsequent target beyond the plank. Given sufficient velocity, a drop of water would similarly pierce a plank, or kill a man. The stream of water issuing from a nozzle under very high pressure will behave like a rod of steel if struck near the nozzle with a stick or bar; it may be impossible to cut through the stream with an axe.

A particle of carborundum traveling at high speed in contact with marble does work on the marble in a manner somewhat analogous to that done by a projectile on a target. Probably if the speed of the carborundum could be indefinitely increased, the rate of cutting would also continuously increase—but whether the two rates would be proportional to each other or connected by some other law is not known. However, there are limits in this direction also. Carborundum is about as hard as diamond, but not nearly as tough. A sharp projecting point or corner of a carborundum crystal soon crumbles away, and unless fresh points and corners

can be exposed, the wheel loses its cutting power. The wheels are made by mixing carborundum grains of a proper size with some sort of binding material and moulding to proper shape. The wheels may be subsequently dried, or even baked, or burned in a kiln. The bond used in wheels for cutting marble must wear away about as fast as the grains of carborundum crumble, so as to keep fresh, sharp edges and corners always exposed and available for cutting. In the case of all bonding materials which are satisfactory from this point of view, there is a very moderate tensile strength, hence a very distinct limit to the peripheral speed of the wheels which is possible without a danger of rupture from centrifugal force.

When carborundum wheels are working on marble, they tend to become glazed, so to speak, with pulverized material; this greatly diminishes their cutting power. Jets of water, under considerable pressure, directed against the work and the adjacent parts of the wheel, are of considerable assistance in diminishing this trouble; a little fine sand thrown in with the water from time to time will also help. But it is always necessary to suspend operations from time to time and dress the cutting surfaces of the wheel with a tool made for the purpose. Of course, unless the wheel cuts into the work as fast as the work is fed against it, the wheel will break, or, if it is very stout, the machine will stall in some way.



A carborundum machine equipped with auxiliary attachments for turning a column base. The base here is made up of four pieces.

It is evident that, in dealing with the speed and cost of carborundum work, we are confronted with a function of many variables and that some of them are susceptible of control only within narrow limits. So far as known, no thorough and complete scientific investigation of this question has ever been made. From some tests carried out by competent engineers, the following isolated facts have been established:

1. Within the limits of the total power available, the power cost per cubic inch of grinding away marble diminishes as the rate

of cutting increases. The curve that expresses the relation seems to approximate one branch of an equilateral hyperbola.

2. Rates of cutting varying from 6 or 7 cubic inches per minute to about 50 cubic inches per minute have been observed. The greater rate was on coping which included deep cuts, the lesser was on moldings; probably with delicate members.

3. The percentage of time actually cutting to the total running time was very variable.

The engineer conducting the tests re-

marked that no reliable basis for predicting costs had been found, and that it was not likely to be found, until practice was at least approximately standardized. The marble working fraternity may add to that, that standardization, in the sense intended, is not possible now, and is not likely to become so, from all that can at present be seen. However, in a later chapter, an analysis of this subject will be presented which, it is believed, may be made the basis of a reasonably accurate system of estimating average costs.

TURNED WORK

This is, in some respects, the simplest form of cut work. If individual monolithic drums or shafts are of considerable size, it pays to saw them square in the gangs, then cut them to octagon shape either in the gangs or with a diamond saw. Shafts and drums can be turned with carborundum wheels of plain rectangular diametral section because the entasis bar will keep the cylindrical face of the wheel always tangent to the finished surface. Of course, circumferential fillets and beads must be cut with a wheel shaped to the proper profile.

Columns in which segments are built up into drums can have the segments assembled into drums on wooden centers and turned as though they were monolithic, or the segments may be separately finished to proper patterns and templates in the planer type of carborundum machine.

Balusters are often turned in small lathes, fitted with a battery of wheels shaped so as to fit the entire longitudinal profile of the baluster, at one time. If any part of the cut in such a case is very deep, it may pay to cut into the baluster at this part, with thin wheels about an inch apart, so that much of the surplus material can be knocked off. This operation is carried out in the lathe—

of course, before the solid battery of wheels is put in place.

Some lathes are horizontal and some vertical. The vertical lathes resemble, in some respects, large boring machines. They possess advantages for handling cranky and unsound marbles—especially where there is danger that a long shaft would break under its own weight, in a horizontal lathe.

In the latter case, however, it is always possible, by turning or cutting short sections of the shaft to circular form, to provide intermediate rollers supporting the shaft at several points so it may be turned in a horizontal position.

If a shaft is to be made of marble that is unsound, a hole may be bored through its center, from end to end, and a steel pipe or shaft inserted to give it the necessary strength.

In such a case, the hole through the column shaft must be larger than the pipe or the piece of steel shaft, so that the latter can be inserted and then solidly grouted in.

Columns or drums can be fluted in a lathe, by means of a suitably shaped wheel, mounted and travelling on the entasis bar, from one end to the other. Of course, in this case, the lathe does not turn. The ends of the flutes in Corinthian and Ionic columns must be finished by hand.

In a vertical lathe, the flutes, in the case of individual drums, may be cut out by diamond drills. In the case of columns built up of drums—whether the drums are monolithic or themselves built up of segments—the complete column should be assembled in the shop and the fitting of its parts completed by skilled mechanics. Then the pieces should be marked so that they will be assembled in exactly the same way at the building, otherwise there is sure to be trouble. Small inaccuracies are much less expensive to correct at the shop than elsewhere.

Column bases can be turned, of course, the same as shafts or drums, or balusters. Where a square plinth and a torus are in one piece, turning the lower part of the torus, where it joins the plinth, is something of a nuisance. It is better, usually, to make them separate and then dowel them together.

As already stated, any surface that can be turned can also be gritted and polished in the lathe by speeding up the latter and keeping the necessary gritting and polishing materials pressed against it—by hand. If a plinth is monolithic with a torus, it must be completely finished by hand; whereas, if it is separate, in some cases at least, it can be finished like other plain work, by machine. Gritting and polishing turned work in a lathe is somewhat more expensive than that done by gritting and polishing machines on plain work, but it is much less expensive than outright hand work.

MOULDINGS

Moldings are almost invariably cut on carborundum machines of the planer type. Normally, wheels revolving on horizontal axes (or "arbors") are cut to the desired profile, and the strips of stock are run under them, molded face up; if any portion of a moulding is "undercut," it must be done either by hand or else by a special wheel or wheels; this involves "getting ready" just the same as for a new molding, and resetting the work in the machine, so that the undercut may face the wheel. An undercut might be so located that there would be insufficient lateral clearance for a wheel, in which case it must be done by hand. In any case, an undercut member adds very greatly to the cost of a molding.

By equipping a planer type of machine with an auxiliary platen and certain simple but ingenious mechanical devices (all of

which are standard and on the market), the work may be made to move on the arc of a circle, of any desired radius. If mouldings are not too complex, they may thus be cut on curved pieces as well as straight.

Exterior returns, *i.e.*, moldings returned across the end of a piece, may be cut in a carborundum machine if the pieces are short enough to be braced standing end up and still pass under the ordinary wheels. Otherwise, they may be cut by wheels revolving on a vertical axis, carried by an auxiliary head on the machine. If the pieces are long, and if the machine is not specially equipped, these returns must be cut by hand. Usually such returns are short, because the width of the pieces is not great. The labor cost on even the shortest of them is at least equal to that on a lineal foot of the straight mold, and if the length of the return approximates a foot, the cost is equal to that of from 2 to 3 lineal feet of the straight mold.

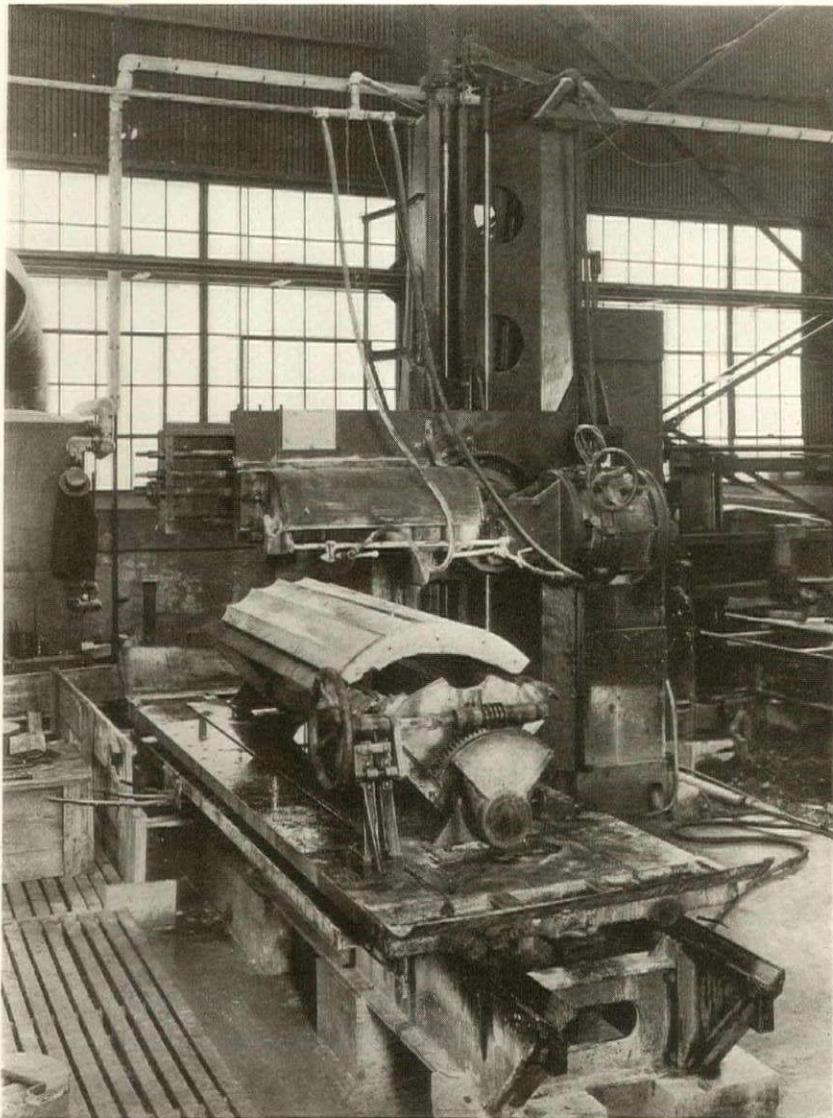
When a molding stops on itself, *i.e.*, when the molded piece ends with an interior return, the mold can be cut by carborundum up to the point where the wheel would begin to encroach on the return; the remainder must be "dug out" by hand. The cost of this operation is equal to the labor cost on from 3 to 4 lineal feet of the straight mold.

While a more detailed discussion of costs is reserved for a later chapter, it may be well to point out here that it costs as much to get ready to cut a few lineal feet of a given mold as for many feet. There is time lost while finished work is being removed and new pieces are being put in the machine; or while a wheel is being moved from one piece to another, where a number of similar pieces can be "loaded" at the same time; there is time lost in dressing the wheel, to keep it clean, and also to restore its profile as it begins to wear. All this time, as a rule,

the machine is devoted to the particular job, and its time efficiency, that is the percentage of time actually cutting to the total time, is relatively low. Probably from 50 to 100 lineal feet would be a high average for the quantity of any particular molding in an average job. Very rarely does the same molding occur in two different jobs, and still more rarely would the same shop have both of these jobs and at the same time.

If a given shop is to turn out any kind of work—heavy or light—it must have at

least one or more of the heaviest and most elaborate and therefore most expensive machines on the market. These are best adapted for heavy moldings and heavy fluted columns built up in segments of drums. But no one shop can usually keep such a machine continuously employed on the type of work for which it is best adapted. These heavy machines have auxiliary attachments, enabling them to turn balusters horizontally and column bases vertically; and of course they can do light moldings as



Finishing a segment of a column drum in a carborundum machine. Special devices are employed to produce the entasis.

well as heavy ones. To keep them constantly employed, they must sometimes be used on work that could be done just as well on lighter and cheaper machines. While they do such work, as a rule, more rapidly than the lighter machines, the charges for the use of capital are so much greater, that the final cost is higher.

The above paragraphs indicate why standardization in shop methods in this business is, for the present at least, quite out of the question. It would require, to begin with, that architects should standardize that portion of the interior finish upon which they expend their utmost artistic efforts. If they did it, the results would be banal and monotonous. The saving in cost would be too dearly bought. So it is likely that every interior marble job will always be what they all are now—a finish made to measure for the individual building, just as a tailor-made suit is made to order for an individual man and is never duplicated.

After the carborundum work in a molding is completed, the work has still to be gritted, honed and polished. With the narrow surfaces involved, most of them curved, this work has to be done entirely by hand. The natural grits and hones are usually used in this case. Of course, the work is relatively expensive.

Any elaborate job of cut and molded work should be put together in the shop and all inaccuracies corrected. The profile of a given molding will change slightly from the inevitable wear on the carborundum wheels. This is noticeable only when an earlier and a later piece have come together. Then the "membering" is inaccurate and must be corrected by hand. As far as possible, the pieces of a continuous mold should be selected, matched, and cut to length before the molding is cut. Then they should be

put through the machine in the order in which they are to be set in place. This will greatly diminish the amount of "fitting" required to insure a good job.

One who is familiar with the care and selection required to produce harmonious matching and blending of pieces throughout a job—especially when the marble is richly colored and boldly marked—can well understand that if a piece gets broken at any stage, it is better for all concerned to mend and patch it than to try to find another that will be a satisfactory substitute for it. This is a source, at times, of bitter disputes, but fortunately it does not occur very frequently.

The lighter carborundum machines are of a great variety of patterns. Some of them are like open side planers, some are specially adapted for ripping slabs into narrow strips; some for cutting relatively narrow strips to length. Nearly all of them are more or less well adapted for more than one use because of the difficulty of keeping them constantly employed on any one type of work.

CARVING

Carving is nearly always done by hand. The only improvement is the introduction of air tools in place of the old mallet and chisel. There are machines, of European make, which will duplicate a carved model if it is not too complex nor too deeply undercut; they will do a large part of the work, in any case. But they are not in general use, probably because the amount of work for which they are adapted and on which they effect a saving is not very large.

In any case, when the final fitting is taken into account, along with the carving and the hand work in molded members, interior marble is a material that still receives its final touches from the hand of the skilled craftsman.

May it always remain so!

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.

Marpessa—See Parian.

Marquise or *Marquese*.

One of the Napoleon marbles.

Quarried near Marquise or Marquese, close to Boulogne-sur-Mer, France.

Brownish-gray or creamed coffee color with veins which vary from white to auburn.

Another variety, called Pink Marquise, is pink with veins as above. And the third variety, known as Marquise Fleurie, is a pinkish-purple with veins. (Blagrove.)

Marquise Fleuri—See Marquise.

Marseilles Quarries

The quarries at Cassis (see Marbre de Cassis) are about ten miles from Marseilles, and the production is sometimes known as Marseilles marble.

Marston (Madrepore)

Quarried at Marston, Somersetshire, England.

Blackish-brown with pale yellow spiral-shaped fossils. (Blagrove.)

Marvilla Marble or *Maryland Marble* and *Chalen Marble*.

Quarried at Cockeysville, Maryland.

Variiegated bluish-gray and greenish-white.

Marshall County Marble—See Iowa.

Martyrs Stone—See *Pietra Nepritica*.

Marwal

Quarried near Marwal, Lot, France.

Reddish. (Blagrove.)

Marxgrun Quarries

See Bavarian Green, Red and Rose.

Maryland Black—See Antwerp Black.

Maryland Green—See Cardiff Green.

Maryland Marbles

The Beaver Dam Quarry at Cockeysville, Baltimore County, and the Cardiff Quarry at Cardiff, Harford County, were the only quarries operated in 1921. (U.S. Geological Survey, 1921.)

Maryland Serpentine—See Cardiff Green.

Massa

A small town situated among the hills about four miles from Carrara, near which are many Italian quarries.

Massachusetts Marbles

According to U.S. Geological Survey Stone, 1921, the Lee Quarries at Lee, Berkshire County, and the Westfield Quarries at Westfield, Hampden County, were the only quarries producing building marble in 1921.

Matapan Cape—See Rosso Antico.

Matifoux

Near Matifoux, Algiers, Africa.
Gray varying to yellowish or bluish shades. (Blagrove.)

Matrix

The general mass of a rock which has isolated crystals or mineral particles, sometimes called the ground mass.

Mauretania

Numidian marbles from Algeria are on Montagne Grise in Algeria in what was the Ancient Province of Mauretania, which included what is now known as Algeria, Morocco and Tunis, Africa.

Maurin Quarries—See Vert Maurin.

Mauve Jade—See Burmese Mauve Jade.

Mayenne Marbles—See Gris Bois Jourdon, Gris Louverne and Rose-de-la-Peliviere.

Mayumiyama—See Black and White (Japan).

Mazzano—See Botticino.

Mazy Quarries—See Noir Belge.

McMullen Gray—Group A.

Quarried near Knoxville, Tennessee.
Decided gray with occasional light veins and crow feet. Available in slabs only.

Meadow Gray

See Tennessee Gray.
Quarry located at Knoxville, Tennessee.
Slightly mottled gray.
Not being produced.

Medium Cippolino or *Medium Cippolin*—
See Cippolino, American.

Medjera Valley Quarries—See Numidian.

Medno-Rudiansk Mines—See Russian Malachite.

Medoux Gris (Breche)

Medoux Quarries, near Bagneres-de-Bigorre, Hautes-Pyrenees, France.
Yellowish-gray with fragments of black and occasionally one of white, gray, yellow or brown.

Medoux Quarries—See Breche Medoux and Medoux Gris.

Melana or Ink Marble

Name applied to Pentelic Blue.

Melene

Local name for the dark variety of Rose des Alps.

Melleo—See Giallo Antico Melleo.

Melleo Alabastro—Same as Alabastro Melleo.

Melleo Cupo Alabastro—Same as Alabastro Melleo Cupo.

Melleo Fiorito Alabastro—Same as Alabastro Melleo Fiorito.

Melleo Listato Alabastro—Same as Alabastro Melleo Listato.

Melleo Nuvolato Alabastro—Same as Alabastro Melleo Nuvolato.

Melleo Rossiccio Alabastro—Same as Alabastro Melleo Rossiccio.

Melos—See Bigio Morato and Lucullan.

Merbes-le-Chateau Marbles

Quarried in the neighborhood of Merbes-le-Chateau, Hainaut, Belgium.

Dark red with white veins. (Blagrove.)

Mergozza

Quarried near Mergozza, Italy.

White with gray veins. (Blagrove.)

Merlin Park Quarries—See Galway Black.

Messina or Messina Straits

Province of Calabria bordering on the Straits of Messina.

Marble is quarried.

See Agrillei Calderano and Torrevarata.

Metamorphism

The process, partly physical, partly chemical, by which a rock is altered in the molecular structure of its constituent minerals and frequently in the arrangement of its particles. If the cause of the process is a general crystal movement, the metamorphism is said to be regional or dynamic, but if its cause is mainly the contact with a molten intrusive rock it is called "contact metamorphism." (Vermont Geological Survey.)

Metamorphosed

A rock whose original form, shape or character has changed.

Metilin—See Marmor Lesbium.

Mexican Onyx

Quarried in various localities. The principal source for a great number of years has been the region southeast of Pueblo between Tecali, Tzicatocoya and Tepene, and perhaps for that reason this Onyx is often mentioned as being quarried at or near some one of the four places mentioned.

All of these marbles are generally known as Mexican Onyx, but are here listed under name of quarry. See Antiqua Salines, La Mesa, La Pedrara, La Sopresa and Magdaline.

All of the above excepting La Pedrara are producing.

Among the old quarries no longer producing are Agua Esconda, Desamparo, El Mogote Lajas, La Paoma, La Reforma, Tecoloco and Tepeyac.

Mezzotint—See Georgia marbles—Group A.
Quarried at Tate, Pickens County, Georgia.
White mottled with blackish markings.

Michigan Marble or Serpentine, or Michigan Verde Antique.
Quarry located at Ishpeming, Michigan.
Not producing.
Light green variegated.

Middlebury Cream Antique
Quarried at Brandon, Vermont.
Creamish-white, slightly variegated.
Not available.

Middlebury Pavonazzo or Cream Pavonazzo—Group C.
Quarried at Brandon, Vermont.
Creamish-white background with purple markings.
Not available.

Middleton
Middleton Quarries, near Queenstown, Cork County, Ireland.
Pink and gray with red and white veins. (Watson.)
Brownish-red with spots and veins of white and whitish-red. (Blagrove.)

Middleton Quarries (Ireland)—See Cork Red. Other marbles from this quarry in Cork County, Ireland, are pink, dove and sunset.

Middleton Quarries (England)—See Hopton Wood.

Middleton Red
Cork Red from the Middleton Quarries is sometimes called Middleton Red.

Miemo Marble
Alabaster quarried at Miemo, Tuscany, Italy, is sometimes called "Miemo Marble."

Miery (Lumachelle)
Quarried in the locality of Miery, near Poligny, Doubs, France.
Black with white fossils. (Blagrove.)

Migliarolo or *Migliarolo Rosso*
Quarried near Lake Maggiore, Italy.
This is a granite mottled red, gray, black, and white.

Migliarolo Bianco
From same locality is also a granite of white with black spots. (Blagrove.)

Milford
From the Milford Quarry, near Milford, Connecticut.
According to Professor C. U. Shepard, the above quarry was opened shortly after 1811 and operated for a number of years and then abandoned.
This same authority describes the Milford marble as green and also mentions Verde Antique from the same quarry.

Milford Sound
On the west coast of South Island, New Zealand.
Marble occurs in great abundance. The only quarry in New Zealand of which we have a record is the one on Caswell Sound, an inner arm of Milford Sound. See Caswell.

Milton
One of the Champlain quarries.

Minnesota Marbles and Stones

See American Travertine, Kasota and Mankota Stone.

Green with black and white veins. (Blagrove.)

Mischi—Same as Pavonazzo, Italian.

Mischio—Mixed.

Miseglia—See Parmazo.

Mischio Breccia Serravezza—Same as Breccia Violetto.

Missisquoi Quarries

At Phillipsburg, on the north shore of Lake Champlain, Province of Quebec, Canada.

The following marbles are all quarried in Italy and most of them are named after the location of their quarries:

Missisquoi Dark Gray off Regal

Semitransparent light green containing opaque fossils.

Mischio di Serra Valle

Bluish-white mingled with gray, black and yellow.

Missisquoi Emerald

White, almost covered with bright green veins.

Mischio di Marmaroja

Clear light gray.

Missisquoi Mottled

Light gray composed of an aggregation of coarse calcite crystals and slight indications of fossils.

Mischio di Volterra

Gray mingled with white and light red.

Missisquoi New Layer

Somewhat lighter, otherwise the same as Missisquoi Mottled.

Mischio dei Conti

Pale gray with brown spots.

Mischio di Mitigliano

Pale red mixed with yellow.

Missisquoi Regal

White with a few slender light green veins.

Mischio Quarried in Brescia

Pink mingled with white.

Missisquoi Regina

White with light clouded green veins.

Mischio di Siena (Tuscany)

Flesh colored mingled with white.

Missisquoi Rex

White with slender light green veins.

Mischio di Frosini

Quarried near the Abbey of St. Galgano. Reddish with white spots.

Missisquoi Sea Green

White with closely set green veins, the color of which gradually diffuses with the white.

Mischio Verde or Verde Mischio

Quarried near Padua.

Missisquoi Vert Rose

Light green containing numerous white and rose colored patches.

Missouri Marbles—See Carthage marbles, Napoleon marbles, and St. Genevieve.

Missouri Onyx

This material is no longer available.

Mitigliano (Breccia)

Quarried near Mitigliano, Tuscany, Italy. Yellow and gray with white and gray fragments.

For another marble quarried in this locality see Mischio di Mitigliano. (Blagrove.)

Mito Quarries—See Black and White (Japan).

Miyask

Amazonite or Amazon Stone was formerly almost exclusively obtained from near Miyask on the Ilmen Mountains, in the southern part of the Ural Range, Russia.

Mizzeh Athdar

Ibn-son-abad Quarries, near Jerusalem. Delicate light primrose color, slightly mottled, with a few light pink patches. Takes low polish.

Mizzeh Yahdar

Ta-la-bi-eli Quarries, near Jerusalem. Pink to cream with occasional rose-pink veins.

Moate—See Irish Gray.

Mola

Mola Quarries, Alicante, Spain. Light pink with white veins and a few thread-like markings of deep red. (Watson)

Molina

Quarried near Molina, Spain. Yellow and white.

Molina Rosa

Garfagnana Quarries, Tuscany, Italy. Pink and white with winding veins of dark reddish brown.

Mollinges—See Jaune Lamartine.

Molochites

Same as Malachite.

Mona Marble

Local name for Anglesey Serpentine.

Monastery Pentelic

Same as Pentelic White Statuary.

Moneyash Marbles

Quarried at Moneyash, Derbyshire, England.

Two kinds are quarried at this place. One is light mottled gray; the other is light mottled bluish gray. Neither is now being produced.

Monks Park Stone—Group A.

Corsham Down Stone from another quarry in the same locality. Quarried near Bath, Somersetshire, England. Pale light brown or gray buff.

Mons—See Petit Granite.

Mons Claudianus Quarry

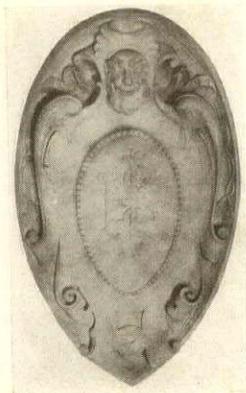
Located east by north of the ruins of Thebes in the mountains near the Red Sea. See Claudian Stone.

Mons Porphyrites

Name of one of the Ancient Egyptian Porphyrites.



The Firemen's Memorial, of Knoxville Marble, Riverside Drive, New York City. Duty and Courage are here represented by heroic figures, symbolic in both action and atmosphere.
H. Van Buren Magonigle, Architect; Attilio Piccirilli, Sculptor.



The Officers and Directors of the
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and trust to have a continuance of your
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