THROUGH OF THE AGES

JULY, 1925

"Human hands first mimicked, and then mocked With moulded limbs more lovely than its own, The human form, till marble grew divine."



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The Grand Staircase leading from the rotunda to the balcony level. The treads are gray Italian marble; the rest of the material is white marble from Vermont.



THE ENDURANCE OF MARBLE

A Few Instances of the Qualities Possessed by the "Stone of Time" Under Unusually Severe Conditions

Not long ago one of the brick dwelling houses of Long Island was gutted by fire. The whole of the interior was destroyed, except a marble staircase. This staircase had been in place for nearly twenty-five years, and came through the fire without injury. This incident is but one of a series in which marble has proved itself, if not immune, at least remarkably resistant to the action of fire.

One of the first examples in this country of the great heat resistance offered by marble was in the Boston fire of 1872. At that time all buildings between Washington Street and Boston Light, with the exception of the front wall of the Macullar Parker building, were burned to the ground. This front was built of marble, and stood erect and unharmed amid the crashing ruins. People of today who pass the Filene Men's Furnishing Store see what appears to be a new building. Yet a section of that front, from the second story up, is the same marble which went through the fire of 1872. The other section was added later, the marble having been selected at the Vermont quarries to match the old stone.

In the fire of 1903 at Paterson, N.J., the Second National Bank with its walls of Vermont marble passed through a test of fire and smoke while the buildings around it were demolished. Structures which stood at even greater distances from the fire were damaged by the heat, yet the marble of the bank was left without a scar.

In the great Baltimore conflagration, which swept over the heart of the city, beginning on Sunday morning of February 7, 1904, and continuing through two days, several buildings with marble exteriors were left standing amid a debris of brick and twisted steel. The burned area covered 140 acres, comprising 80 city blocks, and was built up quite solidly with substantial brick buildings mostly of ordinary jointed construction. There were 27 buildings of fireresistive material, ranging in height from 1 to 14 stories. The fire was quite generally a horizontal one as regards its attack and progress in each building. As a rule every



This old brick chimney, with fireplace cased in native marble, was erected at Dorset, Vermont, back in the Revolutionary days. This picture was taken about five years ago after the deserted wreck of a house had been cleared away.

story was ignited simultaneously through the exterior windows and the fire swept across each building and out at the opposite side.

Under these conditions the protection of floor openings availed but little, though the various kinds of fire shutters and wire-glass windows did some excellent work, along the edge of the burned district, in checking the fire.

The chief damage to the marble that was used both exterior and interior was due to falling walls of adjoining buildings and the collapse of side walls and the crashing down of the upper floors upon the lower floor levels, where most of the interior marbles were to be found. The International Trust Company of Maryland Building, now occupied by the Baltimore Trust Company, had a front of marble, with heavy marble columns and an elaborate cornice. This exterior marble was badly chipped by the falling of the walls of the next building on the west; the interior marble finish in the banking room was partly demolished by the walls of the west side falling through the skylight. This bank was the only building in the entire block that was left standing and it was the only building in that block with a marble front.

In the next block on Baltimore Street was the bank building of Alexander Brown

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and Sons, a brick structure trimmed so heavily with marble columns, window sills and lintels and an ornamental marble balustrade at the top, that it was practically a marble structure. The interior finish was largely of marble, comparatively elaborate. The fire in this locality burned for about 12 hours, consuming wooden doors, desks and burning out completely two small rooms on the south. The walls of the building on the west fell over on the roof and broke through about one-third of the skylight and ornamental glass beneath, damaging the interior trim to some extent. In addition, one of the large marble-faced columns had to be replaced. The outside damage was rather light. The sound value of the building was \$150.000; the report of the Committee on Fire Resistive Construction of the National Fire Protection Association gave the total

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damage as a little over \$20,000, or a little over 13½ per cent. Here again the adjoining buildings of brick were completely leveled, not one of them on the Baltimore Street side of the block remaining even up to the first floor.

Another example of the resistance of marble was shown in the fire of 1905 at San Francisco in the record made by the Security Savings Bank. A picture of this Vermont marble product was taken soon after the fire. It is almost unbelievable that a stone could come through such extreme heat and show no effects of the fire upon its surface.

The resistance of marble to intense heat is, obviously, one of its important qualities that deserves consideration by the architect and builder, but one which is very often neglected. "Fires in cities work great



The marble front of the Macullar, Williams and Parker Building, Boston, as it looked after the fire of 1872. Notice how the marble has withstood the intense heat.

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The men's store of William Filene Co., Boston, which marks the site of the old Macullar, Parker Building. One section of this marble front went through the fire.

damage to stone structures," says D. H. in temperature sets up a stress that disrupts Newland, in the New York State Museum Bulletin on "The Quarry Materials of New

York." "The test of extreme heat followed by a sudden chilling from the play of water upon the surface is one that very few stones will pass through with strength and appearance unimpaired. There is, however, considerable variation among different building stones in respect to fire resistance, as may be observed in their condition after a large conflagration like that of Baltimore or San Francisco. Some buildings are completely ruined, so far as the possibility of mak-

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the stone or causes the outer part to flake off in successive layers. The same process



The Second National Bank of Paterson, New Jersey, which was tested by the fire of 1902-and came through unscarred.

ing any use of the stonework for reconstruction; others are only damaged as to their exposed parts like the cornices and window openings, and some appear to be practically uninjured.

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"Intense heat causes both physical and chemical changes in stone. The most apparent effect is the spalling and cracking incident to unequal expansion between the inner and outer parts of the blocks. Stone has a very low capacity for transmitting heat, consequently, the interior may be still comparatively cool while the surface is intensely hot. This difference



The Security Savings Bank, San Francisco, from a photograph taken shortly after the great fire. The marble was subjected to the hardest kind of heat test.

takes place in nature where changes of temperature are extreme in the arid regions like the Great Basin, the warmth of the sun after a cool night causes the scaling of bare rock surfaces, but of course at a comparatively slow rate.

"The disruption of rocks of complex mineral composition, such as granite, is probably traceable to some extent to the loosening of the bond between the ingredients through intergranular strain. Quartz, feldspar and mica each has its own rate of expansion which must produce a certain amount of differential thrust under rapid temperature changes. Further, most granites hold occluded liquids and gases in closed cavities which were imprisoned during the consolidation of the mass from its state of liquid fusion. These are mainly found in quartz, which is the last ingredient to separate out from an igneous magma. Under high temperature, they exert, no doubt, a heavy pressure upon the walls of the minute cavities and thus co-operate with the other influences in the work of disintegration.

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"From consideration of the physical characteristics, it would appear that the varieties of rock having a close, firmly interlocked fabric and simple mineral composition would prove the most resistant to fire. Among the igneous rocks, granite might naturally be expected to succumb more easily than a rocklike cyenite or anorthosite which is composed mainly of feldspar, and actual tests seem to bear out that inference. Some sandstones are very nearly fireproof and limestones and marbles generally bear up well until the heat is sufficient to effect crumbling through calcination. The temperature necessary to produce incipient calcination of small cubes of limestone, according to Buckley, lies between 1,000 and 2,000 degrees Fahrenheit. McCourt states that tests on some New York limestones did not show calcination at 550 degrees Centi-

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International Trust Company Building, now The Baltimore Trust Company. This marble front building was the only structure left standing in a block of ruins.

grade (1,022 degrees Fahrenheit)." (Fire Tests on Some New York Building Stones, page 22.)

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In actual use marble has time and again demonstrated its power to withstand heat. A century and a half ago the early Vermont settlers began to use marble in the building of fireplaces. They soon discovered its value when used in this way, and would often go to considerable trouble to get the material. They found that it was not only a beautiful addition to the log home, but that they did not have to rebuild their fireplaces, as was the case when other stones were used.

As a fire resistant, marble ranks at the head of all building stones. Laboratory tests have proved that marble can be subjected to a heat of 1,200 degrees Fahrenheit without injury. At West Rutland, in Vermont, are two huge rotary kilns in which marble not available for other purposes is made into lime. These kilns must be given a heat of 2,000 degrees Fahrenheit in order to decompose the finely crushed Vermont marble which goes into them.

The destruction of property by fire during the past year was enormous. Millions of dollars which might have been applied to other projects were required to replace destroyed buildings. It is not surprising that people should turn more and more to marble as a building material, adopting it as the best possible insurance against loss.

Marble is not only a protection against fire in itself but the insurance rate on a building built of fireproof material, such as marble has proven itself to be, is much lower than on one constructed of an inflammable material. In some instances the rate on marble buildings is less than a third of what it would be were the structure composed of wood. In these days of high insurance rates this saving is considerable.

Another feature which makes marble the

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preferred stone in a building where enduring qualities are desired is the low cost of upkeep, and the small percentage of depreciation. No redecorating is required for marble, and an occasional cleaning is all that is needed to keep it in its original condition. The depreciation of wooden buildings has been estimated to be 10 per cent. and while this may be high it is certain that a wooden structure, if left unrepaired, becomes uninhabitable in a very short time. This depreciation is not found in marble, and long after a wooden building has fallen down and rotted away, the one built of marble will stand as testimony to the enduring qualities of the stock from which it is constructed.

The sanitary quality is not one to be slighted in the selecting of a material for building. No material is superior to marble in the possession of this quality. It is well adapted for public rooms, toilets and baths of all descriptions. It does not absorb moisture, so does not retain the unsanitary elements which may be found in many materials. It is easily cleaned and cleanliness is the first requisite of sanitation.

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The appearance of a building determines to a large extent the success of the builders. People instinctively turn toward that which is beautiful, and in the same mind shun that which is distasteful. In marble there is a possibility of rare beauty in expression. It matters not whether the stone is applied to interior or exterior work. It adapts itself with perfect harmony wherever used.

With the fire hazard growing larger each year in buildings which are not properly protected, the other qualities of a building material become subservient to that of fire resistance. In marble, however, there is found this essential quality combined with those needed to endow the building with the desired economy, beauty and sanitation.



View looking east from Baltimore and Liberty Streets after the Baltimore fire of 1904.

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THE PENNSYLVANIA CAPITOL

The Magnificent Building at Harrisburg Contains a Huge Dome Nearly Three Hundred Feet High

AFEW weeks after William Penn landed at Chester in the fall of 1682, the first Assembly of the Province of Pennsylvania was held and passed the "Great Law." The following year the seat of government was established in Philadelphia, where it continued for sixteen years. In 1799 Lancaster was, by an act of the Assembly, made the official capital; for thirteen years it held this important position. In April, 1812, all the offices of the state were removed to Harrisburg, where they have remained ever since. Such is the early history of the State Government of Pennsylvania.

The first Capitol Building was erected in 1821. Various additions were made from time to time, including a wing for the State Library. This library was moved in 1894 to a building of its own adjoining the Capitol on the south. In 1897, the main Capitol Building was destroyed by fire; work was begun on the present magnificent structure in 1898. It was not until 1902, however, that the commission awarded the contract to Joseph M. Huston, architect, living now in Philadelphia. It was dedicated on October 4, 1906, to the service of the Pennsylvania Commonwealth by the President of

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the United States, Theodore Roosevelt.

In size, the building is monumental, covering some two acres of ground and having a circumference of about half a mile. It is 520 feet long, 254 feet wide and 272 feet high -dimensions that prove it larger than St. Paul's Cathedral and longer than Westminster Abbey. The nucleus of the design is an octagonal central space, or rotunda, surmounted by a huge dome. Leading to this rotunda is the main entrance lobby and vestibule on the west. To the north and south of the rotunda are built considerably extended arms, each of which ends with a cross piece forming the letter T. Opposite the main entrance, a wing extends to the east. Thus, facing the plan on the western side, we have directly before us a short west wing, forming the main entrance; a longer east wing, which is invisible; and two wings at the extremities of the structure, each attached by connecting wings to the central

rotunda, and perpendicular to the former.

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The building stands on a knoll called Capitol Hill, in the midst of a park of about fifteen acres, overlooking the major portion of the bustling city round about and within three blocks of the broad-flowing Susquehanna River to the west. The approach from State Street, which is on a line corresponding to the central line of the principal façade of the Capitol, is by far the most impressive, since here the trees of the avenue hide all but the beautiful portal surmounted by the gleaming columns and, towering into the sky, the rounded majesty of the dome, the dominating feature of the exterior design.

It is not until one has ascended the steps that climbs the hill that the full reach of the western front is appreciated, and the plan of the whole structure is apparent. The architect has followed mainly the Renaissance style, with the natural modifications incidental to a building of this character and



The Senate Chamber.

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Decoration in the tympanum of the wing.

with original variations prompted by a fine sense of reserve. The column capitals and mouldings are of the simpler Greek forms of the Corinthian order, though the Roman influence is seen in the placing of the free standing columns under the plinths, and in the use of an anta behind each column. These columns are used in pairs, in contrast with the single engaged columns used along the north and south wings.

The basement is ashlared and pierced by almost square windows arranged in pairs. The main story is rusticated, with single tall windows, square-topped except in the projecting parts of the wings, where the heads are rounded. Above the windows of



"The Emigrant Wagon," one of the picture panels in the tiled pavement.

the connecting wings are transoms over which are hood mouldings alternately triangular and curved. Above these, again, are circular lights or round attic windows enclosed in a square frame of three parallel flat borders. The treatment at this point is strongly reminiscent of the Italian Renaissance of the sixteenth century.

The north, central and south wings have the string course of moulding broken, by the insertion of balustrades, into four plinths upon which rest the columns, in pairs, supporting the portico above. The pilasters behind each column have in their capitals the anthemion ornament, the design carved by the Greeks so frequently on the cymatium that edged the corona. The entablature runs around the whole building and is surmounted by a parapet of alternating piers and balustrades. Over the projection of the principal wings, the pierced parapet is replaced by solid ones, the central wing showing an attic, while the side wings have the attic concealed by pediments. In the tympanums of these latter are sculptured decorations.

The great dome continues the Corinthian motif in the 16 piers around the drum and in the 16 piers of columns in the cupola. The structure terminates in a truncated spire supporting a gilt ball upon which is a gilded bronze statue symbolic of the Commonwealth.

The main entrance is flanked by the impressive Barnard groups of statuary, heroic in size and carved out of white marble. To the south is the "Burden of Life"; to the north, the "Labor and Brotherhood." These groups were finished in 1910 and were for some months on exhibition at the Salon in



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Sculptured ornament over Entresol Door on east side of the rotunda.

Paris before being put in place in the Capitol.

Passing through the superb bronze doors that remind one of the famous Ghiberti doors for the Baptistery at Florence, a ves-

tibule is disclosed having rooms on either side for the convenience of deputations waiting on the Governor or General Assembly. The doorways, as well as the high wainscotings, are of white marble from Vermont, a material that is used in large quantities throughout this floor and up through the decoration of the hall as far as the heads of the shafts of the pilasters.

Behind the sculptured groups over the vestibule doors the wall of the lunette is overlaid with gold glass mosaic;

the vaulting of the ceiling, on the other hand, is covered with a mosaic of marble of a pearl gray body with a border of blue gray laurel leaves studded with dull red berries, and having an outer edging of old rose. The method of applying this marble mosaic to the concave surfaces is in-A full-size drawing, in teresting. colors, of the space to be filled was covered with thin glue. Upon this the proper marble cubes were laid, right side down, and pressed onto the paper, so that they adhered. The paper was then cut into convenient pieces, for ease in handling. These were then laid in place in the ceiling, which had in the meantime received a

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coat of quick-setting cement. After being held in position for a while, this cement hardened, and the mosaic became fixed firmly in place. When the cement was completely dry, the paper was washed off and



South Corridor on the first floor.

the marble surface was ground to a proper finish.

Passing through the vestibule, one finds himself in a corridor with a barrel-vaulted ceiling and a tile pavement of most unusual character. It stretches away from one on all sides, covering the floor space throughout the rotunda and the principal corridors of this floor. Its dominant dull red color and uneven surface contrast strangely with the gleaming whiteness of the marble walls and pillars and the grand staircase that appears directly ahead.



Entrance to Lieutenant-Governor's Suite.

The pavement is made of upwards of 400 plaques or mosaics of colored burned clay, set irregularly and without borderings against a background of small hand-made and widely jointed red tiles. Each mosaic expresses, through the medium of pictured objects, conditions of life in the State at different periods.

Crossing the corridor, the vast height of the rotunda at once catches the eye. The visitor is first impressed by the immensity of the general dimensions. "He may be conscious," wrote Charles H. Coffin, "of the ponderous mass of supporting columns, of a generous sweep of stairway, next of broad pilasters standing proudly strong; of a circular crown of ornament set upon their heads; finally of a vista mounting upwards, offering here and there a vantage point of gallery for human tread; then soaring higher and yet higher, birdlike with over-arching wings, until the eye only can follow its ascent and the sight loses itself in ultimate vault of star besprinkled blue. Or of none of these things may he be conscious, filled only and lifted out of himself by the majesty of supporting massiveness and the glorious stimulus to the imagination of structural ascension. Of the first impression may be one not of form, but of color. He is conscious of the shimmer of white marble, as it mingles its passages of resplendent purity and the infinite mystery of shadowed grays; of recurrent masses of lustrous and bronze; and, higher up, of bands of brilliant blue and gold, and yet higher, of a softened radiance of delicately blended hues, swimming into fainter and fainter distance-the whole a structure of light and color."

The rotunda is rectangular in plan—a square with its four corners built up with masonry to form the piers upon which the

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Balcony on the second floor, in the rotunda, showing the extensive use of marble in the Pennsylvania State Capitol.

weight of the dome rests. Ascending from near the center of the first floor rises the Grand Staircase, easily the outstanding feature of the lower portion of the general scheme. The order of architecture used is the simple Greek Doric, which changes in the upper portions to the Corinthian, with its more elaborate ornamentation.

Extending north and south from the rotunda, connecting the extreme wings, are corridors wainscoted with marble and divided into bays by pilasters. The vaultings of the ceiling form lunettes, seven to each side of each corridor, and these are filled with mural paintings. Opening off the corridors are doors leading to various rooms, each with its own color scheme and architectural treatment. Of these, the Treasury Department is perhaps the most interesting, with its marble counters and pillars of the same material, and its general suggestion of the Egyptian style.

Returning to the rotunda, we notice that above the ground floor are three tiers of encircling galleries indicated from below by screens of decorative architecture which extend three-fourths of the way around the circumference of the rotunda. The east side is taken up by the Grand Staircase and its background.

The main floor is rendered impressive by 12 Doric columns, 3 at each side of the north and south openings to the wings. These are of Vermont marble, as is the wainscoting of the rotunda up to the top of the large piers that support the base of the drum. The

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Grand Staircase rises by 13 steps to a landing from where it ascends by 12 more steps to the entresol level. Here it divides and continues upward on either side to the balcony level. The bottom of the stairs spreads out fanwise, the newel posts being formed of heavy, round pedestals with carved marble statues of draped angels holding aloft large light globes. The balusters curve gracefully upward, showing off the Vermont marble to advantage. The treads are of white Italian marble, with a veining of gray. The entrance to the entresol is through a doorway between two carved marble Caryatids supporting an entablature of the same material, above which is a globe flanked by baby figures, and on which is perched an eagle. Behind this doorway rise lofty openings terminating at the top in arches. Three horizontal bands of marble mark the gallery levels. The lowest openings are faced with marble balustrades; the upper with

grilles of modeled bronze. The three other sides of the square have only one balcony tier, with the space beneath the latter in the west bay open, affording a sort of vestibule to the suite of the Lieutenant-Governor. The right hand room is the private office of the Lieutenant-Governor, with its splendid green mantel of Connemara marble from Ireland. Next to this room is the Reception Room, also with its mantel that strikes the color note of the decorative scheme. This mantel is of Numidian marble from Africa, of a rich red tone. The third room, the Ladies' Parlor, is distinguished by a table with a marble top of dark gray Grecian marble. The mantel here is of green Grecian marble and is reputed to have come from a castle in Rome several centuries old.

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Continuing around the gallery, with its floor of Italian gray marble, we enter on the north the Senate Chamber, a large room



The House of Representatives, in the south wing. The marble used here is from the French Pyrenees.



The striking Siena marble mantel in the Reception Room of the Governor on the second floor.

95 feet wide and 80 feet long, abounding in color and elegance of decoration. The most striking feature is the wainscot of Irish green Connemara marble. The material is full of life and color, due to the veinings that run through the successive slabs in beautiful, continuous, wavelike patterns, but always with a predominating green hue. This green color furnishes the color note of the room; it is enriched in the upper portions of the chamber by the introduction of gold, especially in the bronze work of the balconies. The architect has drawn his inspiration for the treatment from the choir galleries of St. John Lateran in Rome, even reproducing some of the details of the embossing and gilding that may be found in that famous edifice. The stained glass windows by Van Ingen and the paintings by

Miss Violet Oakley add largely to the final ensemble of color.

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On the opposite side of the rotunda is the House of Representatives, somewhat larger than the Senate, and considerably more ornate, though none the less beautiful. The prevailing color scheme is a contrast of deep blue with tints of cream, light brown and gold. Here, too, the design is dependent upon a foundation of marble, in this case a wainscoting of Pyrenean, a French stone of a buff background showing a variety of delicate blurrings of rose, violet, purple and gray. This wainscot is 6 feet high at the rear of the room but deepens to 9 feet 4 inches in the pit. Rising above this broad band of colorful material is a series of fluted Corinthian columns, with gilded capitals. The architrave bands are a creamy buff,

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and the frieze shows embossing and gilding upon a ground of blue. The ceiling, supported upon arched ribs, is divided by richly colored beams into a geometric arrangement of coffered spaces, except for a large center circle. These spaces are colored a rich blue and overlaid with gilded Renaissance ornament. The candelabra which suspend from the intersection of the ceiling beams are unusually claborate in design and worthy of special remark. Here, too, are stained glass windows by Van Ingen and the famous Edwin A. Abbey paintings, the largest and most important of which is the "Apotheosis of Pennsylvania" above the speaker's rostrum.

The Governor's suite is in the south wing on the second floor. It includes the Waiting Room, the Secretary's Office and the Governor's Room, all of them treated in the

English Renaissance manner. The largest of these, the Waiting Room, is distinguished by a sumptuousness unequalled elsewhere in the building. Conspicuous figures are the imposing mantels, one at each end of the room, of Convent Siena marble. In the Governor's Room the mantel is of dark red Numidian marble, its richness increased by contrast between its polished surface and that of the two pairs of Caryatids that flank the fireplace. These latter surfaces are left unpolished, just as they came from the sculptor's chisel.

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All the upper corridors in the lateral extensions of the main building as well as in the wings have floors of marble terrazzo with a border of white Vermont marble. The walls are wainscoted 6 feet high with the latter material. The side stairs are of iron with white Italian marble treads.



One of the groups of marble statuary in the corridors and rotunda of the Pennsylvania State Capitol at Harrisburg.

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Marble tomb of the Doge Andrea Vendramin in Venice by Allessandro Leopardi.

SCULPTURE OF THE DEVELOPED RENAISSANCE IN ITALY

BYZANTINE sculpture may be characterized as symbolic. Italian sculpture of the early Renaissance as exemplified by Pisano, replaced these symbolic representations by actual imitations of forms, chosen from the antique. Giovanni led the way to the study of the living model. However, the admiration of ancient art, which was known almost exclusively through Roman works or Roman copies of Greek originals, continued unabated. The result

was an action and a reaction of the two influences upon each other which stimulated intelligent and correct representation.

Freeman recognized this fact and expressed it in the following words: "It is by reason of his clever amalgamation of the facts of classic proportion and method with the facts accumulated by the study of nature, that the sculpture of the early sixteenth century differs so widely from that of the fifteenth, and that nudes, such, for Illustrations courtesy of Mr. Thomas Machen, architect, Baltimore, Md.

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Marble effigy of Guidarello Guidarelli in the Institute of Belles Arts at Ravenna; probably by Tullio Lombardo.

instance, as Donatello's David and Giovanni da Bologna's Mercury, could never change places with each other chronologically. Having mastered both nature's laws of structure and action, and the classic laws of proportion and pose, those masters of the late Renaissance before Michelangelo and those later men who are unswerved by his influence show themselves desirous and able to create figures which unite with the living quality of forms imitated from the individual the harmony of proportion found in the scale of parts adopted from the classic. Had the genius of Michelangelo not upburst into sculpture, there might have been from this point a gradual development of a type wholly national, but in Michelangelo are achieved the results of generations of ordinary striving."

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The sixteenth century saw, besides the

completion of the formulative period of Renaissance sculpture, the establishment of the methods of decoration, the mastery of technical processes, and the emancipation of sculpture from both painting and architecture. "Architecture now became more sculpturesque. Columns were substituted for pilasters, cornices and mouldings received greater projection, allowing a new play of light and shade." (Marquand and Frothingham: A History of Sculpture.) Buildings became merely backgrounds for sculptured figures. A tendency to imitation of well-established rules became apparent quite early. The decorative low relief gave way to alto relievo. The statue became the most important thing. There was evident a careful modeling, a correctness in arrangement of pose and drapery, with a corresponding loss of strength in the concept



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Monument to Giovanni Antonio Gattamelata in the Church del Santo at Padua.

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Statue of Mercury, by Sansovino, on the Loggietta, in Venice.

and design—a most natural denouement.

Among the sculptors who lived and worked during the period that marked the end of the Early Renaissance and the beginning of the Developed Renaissance, were two whose works are worthy of mention as expressing most characteristically the transitionary style and methods. The first of these was Allessandro Leopardi, the Venetian. He collaborated with the Lombardi in executing that most imposing of the Ducal Tombs, that of Andrea Vendramin in SS. Giovanni e Paolo, which was completed in 1494. He drew the design and did the carved ornamental work; Tullio Lombardo probably did the statues. The great central arch and the Corinthian columns flanked by wings with flat pilasters are finely proportioned and in splendid harmony. The whole composition is graceful and yet dignified; the effigies surrounded by figures bearing torches, the two youthful warriors in the niches of the wings, the Virtue on the arca itself, and the emblems of Pagan and Christian objects, all together are of an irresistible grace. Even Ruskin, with his astonishing aversion to all Renaissance ornamentation, wrote of this tomb: "Its sculpture is perfect in workmanship, and devoid of thought, its dragons are covered with marvellous scales, but have no terror and sting in them; its birds are perfect in plumage, but have no song in them; its children are lovely in limb, but have no childishness in them."

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Leopardi directed the founding and erection of a fine Colleone statue, and designed the pedestal

for Verrocchio's masterpiece. He claimed credit for the whole statue and for a time his claim was allowed. Later a document, signed by Lorenzo di Credi, came to light which proved that the statue was almost completed in the clay at Verrocchio's death.

The second of the sculptors referred to was Tullio Lombardo, a Venetian and one of Pietro's sons. Although a master of technique, he was deficient in intellect and his compositions just lacked the vigor that would entitle them to the highest rating. He

co-operated with Leopardi in the Vendramini tomb, and did a large part of the figure sculpture in S. Maria dei Miracoli and in S. Giobbe and the half-length figures in the Giustiniani Chapel of S. Francesco. Tullio also did two of the marble reliefs in the Capella di S. Antonio at Padua, the beautiful figure decoration of the shaft of a marble candelabrum, and the statues of Adam and Eve, formerly on the Vendramini tomb and now in the Palazzo Vendramin-Calergi; the tomb of Matteo Bellati in the Cathedral at Feltre; and,

probably, the effigy of Guidarelli, at Ravenna, attributed by some to Pinacoteca.

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Among the Florentine artists of this period was Andrea Sansovino (1460-1529). He studied in Florence under Pollaiuolo and afterwards in Bertoldo's Academy at S. Marco. His first work was in S. Chiara at Monte S. Savino, where he was born. This was an altar piece, and showed a sense of beauty, but the composition was faulty and the figures were wanting in character.

In 1490 Andrea went to Portugal, where he remained eight years. and after his return he did the font in the Baptistery at Volterra (1502), and the Madonna and the Baptist to finish Civitali's decoration of the chapel of the Baptist in the Cathedral at Genoa. In 1502 he contracted for the group over the east door of the Florentine Baptistery, but death overtook him before its completion. In 1506 he went to Rome where he did the tombs of the Cardinals Ascanio Sforza (1505) and Girolamo Basso (1597) in S. Maria del Popolo. These were exactly the same in

architectural design and differed only slightly in detail. They show an intelligent proportion between sculpture and architectural setting, and a fine harmony in the relations of cornice, pillar, arch and horizontal line. The Mortuary effigies were ungraceful, and the heads and draperies showed the influence of Roman classic art, but the figures of Prudence and Fortitude were of great beauty and were probably Sansovino's best productions.

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In 1513 he went to Loreto where he worked at the Santa Casa till his death in 1520. He



Sansovino's Mars, on the Loggietta, near the Campanile of S. Marco, Venice.

was probably the author of the whole design, though many parts were executed, after his death, by others. The Annunciation and the Nativity, the great reliefs of the south and west sides, were begun by him but finished by Bandinelli in 1531. The complete scheme of decoration at Loreto was Sansovino's most ambitious work, but it was marked with all the signs of decadence. His attempt to let sculpture do the work of painting was not successful. Though one of the most admired sculptors of the period, his treatment of the human figure was unsatisfactory. That he himself realized his shortcomings is evidenced by his efforts to endow them with superabundant vitality. Both his Nativity and his Annunciation illustrate this fact.

SRA.

In the north of Italy the influence of the school of Michelangelo (of whom we shall speak more fully in our next issue) dominated the sculptural achievements of the time. Milan and Pavia boasted of no outstanding artists. Modena had its Begarelli, working mostly in terra cotta and exhibiting a thoroughly picturesque treatment. Bologna profited by the skill of Alfonso Lombardi and Il Tribolo. In Venice, however, was the talented pupil of Andrea Sansovino, Jacopo Tatti, known always in art under his master's name. He was the rival of Michelangelo both in architecture and sculpture, and the hostility between them begun at the time of the rejection of Sansovino's plan for the facade of S. Lorenzo at Florence in favor of Michelangelo's, grew more bitter with advancing years. Born in 1486, he went to Rome in 1510, where he was engaged in repairing the ancient statues. He made sketches of many of these and became imbued with the classic spirit. In 1513, he returned to Florence, where he finished the Bacchus in the National Museum, one of his most important statues and considered

by many superior to that of his rival in the same place. The Bacchus is of slightly yellowed marble under life size, with a suggestion of movement that is remarkable. It was evidently inspired by the classic, if we may judge from the balance of the members and their proportions. There is also in the Bargello a bronze Tabernacle by Jacopo, with a relief of Christ, a fine example of his work at this time.

AR LOR

He returned about 1515 to Rome and during the next seven years completed the huge Madonna in S. Agostino, the statues of S. James in S. Maria di Monserrato, and S. Anthony of Padua, now in S. Petronio at Bologna. He left Rome for short periods after 1523, returning each time, but in 1527 he settled in Venice, where his career was largely that of an architect rather than a In fact, he practically created sculptor. Venice as we know it today. His sculptural works, though overshadowed by his building activities, are of no mean quality. His treatment of ornamental detail is fully as powerful as that of Pietro Lombardo, though his reliefs are somewhat unsatisfactory.

The façade of the Loggietta, that exquisite structure which he built in 1540, contains the four figures of Hermes, Pallas, Apollo and Peace, which enjoy a distinction for their beauty of form. On the interior are some reliefs in marble, depicting in allegorical form events in Venetian history. On the tomb of the Doge Venier in S. Salvatore is the figure of Hope, one of Sansovino's finest works: the tomb of Cardinal Podocataro in S. Sebastiano is worthy of remark, as are the seated figures of the Evangelists upon the railing of the high altar in S. Marco. His most prominent, but, in the opinion of Waters and others, his least meritorious statues are the Mars and Neptune on the Giants' Staircase of the Ducal Palace.

The Sel



Mausoleum of Giovanni Galeazzo in the Certosa di Pavia, probably designed by Gian Christoforo Romano about 1492.

SA



Sansovino's Minerva, on the Loggietta.

Gian Christoforo Romano (about 1465– 1512), the son of Isaia de Pisa, was probably trained by his father and Paolo Romano. In 1491 he went to Milan, where he executed a bust of the Duchess Beatrice which is supposed to be the one now in the Louvre. He probably designed the tomb of Gian Galeazzo Visconti in the Certosa at Pavia, though some authorities are disposed to withhold from him such a distinction. It is nevertheless signed by him, and he certainly has the best claim. It is known for a fact that the effigy is his work, and perhaps the two figures on the sarcophagus.

SZA

At Cremono in 1505 he did the tomb of Paolo Francesco Trecchi in S. Vincenzo; and probably the tombs of Pietro Mellini of Albertoni and of Podocataro in S. Maria del Popolo. Many medals for people of prominence were executed by him during his brief lifetime, as well as busts and several relief portraits. He retained much of the spirit of the Early Renaissance and was personally a man of charm and distinction.

Following the style of Michelangelo was Baccio Bandinelli (1487–1559) who, says Marquand, "aimed to be more Michelangelesque than Michelangelo himself." He was far inferior to the great master, as evidenced by his Hercules and Cacus in front of the Palazzo Vecchio. His replica of Laocoön, ordered by Pope Clement VII as a gift for Charles V, is now in the Uffizi, and is a good piece of work. He designed the tombs of Leo X and Clement VII in the Minerva, having secured the commissions

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THROVGH THE AGES

by underhand dealing after the work was promised to Alessandro Lombardo. / In these monuments he plagiarized from the classic triumphal arch, but probably succeeded far better in so doing than if he had endeavored to follow original lines. The High Altar of the Cathedral at Florence, and the reliefs on the circular choir enclosure, are by him. The Adam and Eve which formed part of the decoration were removed in 1722 as offensive to Christian decency. Among his other works are the Pietas in the Annunziato and in S. Croce, the Bacchus in the Pitti and several small bronzes and a bust of Cosimi I, in the Bargello.

Bartolommeo Ammanati (1511–92) was first a pupil of Bandinelli, and then of Sansovino at Venice His most important works were; the group for Tribolo's fountain at the Villa Castello; the fountain in the Piazzo della Signoria, at Florence; the huge figure in the court of the Palazza Aremberg; and the tomb of the jurisconsult Benavides in the Eremitani, at Padua.

AR ZO

Contemporary with the sculptors we have mentioned, there were many others of equal merit, if not of equal prominence. Such names as Cattaneo, Campagna, Montorsoli, Leoni, da Bologna, Vittoria, Ferrucci, Caradosso and Rovezzano are intimately connected with this period of Italian art. The chief figures of the time, Michelangelo and Cellini, each supreme in his field of marble and bronze, will be treated in our next issue.



Tomb of Cardinal Sforza by A. Sansovino,

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 fairsized slabs or blocks of commercial size, rectangularshape 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 semisound 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.

AR ZU

Marbre de Villars—Group C. Quarried at Villars, Cote d'Or, France. Light buff. Takes a good polish.

Marbriere-Marble quarry.

Marenna

Quarried in Italy.

As the location of quarry is not disclosed, it is probably known by some other name. Red with white veins and spots.

Margarethen

Name of a town in lower Austria, near which are quarried "a chalky white, buff and gray limestones suitable for building and carved work, but which do not polish." (Merrill.)

Margorre

Quarried near Margorre, Tuscany, Italy. Bluish-white with brown veins. (Blagrove.)

Bluish white with brown veins. (Blagrove.)

Marino-See Peperino.

Marino Alabaster—Same as Alabastro Marino.

Marino Cippolino—Same as Cippolino Greek.

Marino Dorato Alabaster—Same as Alabastro Marino Dorato.

Marino Minuto-Same as Cippolino Greek.

Marino Violetto-Same as Cippolino Greek.

Mariposa

Quarried in Vermont.

Light gray, nearly white with fairly pronounced blackish markings.

Maritimes Alps or Alps Maritimes

On the border between the southeast extremity of France and Italy.

For marbles quarried from this mountain range see Marbre de Turbie and Vert Maurin.

Marl

A calcium carbonate of clay and sand.

ACTO

Marled

DR. Dr.

Marbled, variegated, mottled. (Scott.)

Marmara or Marmora

Ancient Proconnesus, modern Cyzican.

Catacolon Quarries on the Island of Marmara in the Sea of Marmora.

Another variety is grayish-white with stripes of darker gray.

This quarry was operated at an early period, abandoned, and rediscovered in recent years.

Marmara Island

This island in the Sea of Marmora is composed entirely of limestone and marble.

The original name was Proconnesus, and the oft-mentioned Proconnesian was quarried at Catacolon, close to Petali Liman.

Marble is now produced from the same district known as Marmora Statuary. Rose d'Orient is another marble from the Catacolon Quarries.

Marmiere

Caldana and Brocatelle Siena are quarried near Marmiere and sometimes known as Marmiere Marble.

Marmor Alabastrum or Alabastro Antico-Ancient name for Algerian Onyx.

Marmor Arabicum — Same as Egyptian Onyx.

Marmoraja

Quarried near Marmoraja, Tuscany, Italy. Yellow with veins and spots of darker yellow.

Marmor Batthium—Sometimes called Bianco Antico.

An ancient marble quarried in Asia Minor.

Exact location of quarry or quarries is not known, but probably at or near Ieos or in the neighborhood of Ephesus and Eritrea. That there was a number of quarries producing varieties of this marble there seems to be no doubt.

The color is generally gray or grayish-white.

Marmor Bianco

Quarried at Kleber, Algiers, Africa. Creamy-white. (Blagrove.)

Marmorbruket Quarries—See Ringborg Green.

- Marmor Carystium—Same as Cippolino Greek.
- Marmor Celticum—Same as Grand Antique from the Castelnau Quarries, France.

Marmor Chian or Marmor Chium—Same as Porta Santa.

Some writers claim this marble is the ancient Africano, but comparison of samples disproves this claim.

Marmor Cipolla—Same as the veined Hymetian.

Marmor Coraliticum—Same as one of the Palombino and Synnadic marbles.

Marmor Corinthium

An ancient marble from Corinth.

Indistinct and clouded mixture of pure white, pale brown, and lilac gray, plentifully flushed with pink on ground of yellow or pinkish-gray, with pebbles of rosy or yellowish-gray always bordered with gray or brown.

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Marmor di Castellina—Same as Florentine White Alabaster.

Marmor Docimenium

Star .

Near Synnada, now called Docimium marble, known by various names. See Plombino.

Marmor Greaco Fino-Same as Pentelac.

Marmor Greco Doro

According to Bruzza this name was given to the coarser grained variety of Parian marble.

Marmor Greco Fetido

Name used by Roman stone cutters for a variety of Hymetian marble.

Marmor Greco Giallognolo

One of the ancient marbles quarried on the Island of Thasos, in the Ægean Sea, off the coast of Thrace.

Was used by the Romans.

Quarries are not producing yellowishwhite.

Another variety known as Marmor Thasium or Greco Livido is white with a bluish tinge.

Marmor Hymettian—Same as Hymetian.

Marmor Iasium—Same as Porta Santa.

Marmor Imezio-Same as Hymettian.

Marmor Jassense-Same as Porta Santa.

Marmor Lacedaemonium Veride—Same as Green Porphyry.

Marmor Lesbium

An ancient marble used by the Romans, quarried on the Island of Lesbos (Modern Metilin or Mytilene) off the coast of Mysia, north of the entrance to the Gulf of Smyrna.

Yellowish-white statuary stained with ashy black, containing large conspicuous crystals.

Marmor Ligusticum

Roman name for marbles from Liguria, Italy. See Portor (Black and Gold).

Marmor Luculleon-See Bigio Morato.

Marmor Lunense

Ancient Roman name for Carrara marbles, but more particularly to those from the Fantiscritti Quarries.

See Lunense Antico and Lunense Macchiato.

Marmor Lychnite Old name for Parian.

Marmor Lydium-See Rosso Brecciato.

Marmor Lygdinum

Some authorities believe this to be an alabaster found on the Island of Paros. Others that it is the same as Parian marble. Judging from its name, it probably is the same as Marmor Lydium.

Marmor Merarense—Same as Palombino Giallognolo.

Marmor Molossium

An ancient marble quarried near the source of the Archeron, Epirus, Greece.

Is said to resemble Fior di Persica, and some writers refer to this marble by the Italian name.

Perhaps some of the varieties came from the Island of Elba.

According to Pullen this marble bears a

strong resemblance to Cottanello in the disposition of markings. Although the color differs materially, his description is lilac, peach blossom, red, and white, in flowery patterns.

Marmor Numidicum Ancient name for Numidian Red.

Marmor Parian or Parium. Same as Parian.

SRA

Marmor Pavonazzetto This was the name given to one of ancient Palombino marbles.

Marmor Pentelicum-Same as Pentelic.

Marmor Phengite—Same as Bianco e Giallo Antico.

Marmor Phrygium-Same as Palombino.

Marmor Porino

According to Pullen, this ancient marble, also known as Grechetto Duro, came from the neighborhood of Olympia in the Peloponnesus.

Very white and sparkling, sometimes stained with orange.

Bruzza says the Grechetto Duro was given to the finer grade of Parian marble. This conflict of opinion might lead to the conclusion that Parino is a composition of Parian and that Marmor Parino is really Parian marble.

Marmor Proconnesium

This name was given to marble from Proconnesia, modern—Marmora, an Island in the Sea of Marmora, and may have been applied to Marmora or Rose d'Orient, as both of those marbles are found on this island. Marmor Quarries-See Queensland.

Marmor Rhodium—See Giallo e Nero Antico from the Island of Rhodes.

AR ZO

Marmor Rosa

Javita Quarries, near Buixcarro, Valencia, Spain.

Light pink with slender dark red markings. (Watson.)

Marmor Schiston—Same as Tortosa Brocatello.

Marmor Scyrium-Same as Skyros.

Marmor Synadicum

A marble formerly quarried near the ancient city of Synnada, in modern Docimium, Asiatic Turkey, Asia Minor, the locality of which is now Kara-Hissar. As several towns in Asiatic Turkey bear this same name, the exact location is unknown.

The marble is vaguely described as variegated of various colors of which red and purple are mentioned. See Palombino marbles

See Palombino marbles.

Marmor Taenarium-Same as Rosso Antico.

Marmor Thasium or Greco Livido.

Ancient marble, quarried at Island of Thasos, Ægean Sea.

White with a bluish tinge, compact texture and sparkling crystals.

Marmor Tirio or Marmor Tyrium.

An ancient marble from Mount Lebanon near the Ancient Tyne. Bluish-white statuary.

Marmor Verde Augustus—Same as Green Porphyry of Egypt.



I heard the trailing garments of the Night Sweep through her marble halls.

-Longfellow

Imperishable Beauty

ME. de Krudener once said: "Beauty is only truly irresistible when it shows us something less transitory than itself."

Naturally the architect who builds for permanence gives first consideration to marble when choosing his medium.

ACTO

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 thirteenth 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)

Some Times a "green putty powder," made by burning a mixture of sulphur and bichromate of potassium is used in polishing marble; and, on some kinds of Verde Antique marble, emery flour is used by some manufacturers. The practice is not entirely uniform and each shop foreman is likely to have his own favorite formula for each kind of marble. But the final result is the same in all high-grade shops.

SCA

Where large numbers of large slabs are being finished, it pays to have a special buffing machine, somewhat larger and heavier than an ordinary gritting machine. The operation of buffing can be considerably accelerated by this means, and one buffing machine can finish all the slabs that can be gritted and honed by from three to five ordinary machines. In one large shop in the South, such a machine, running on large slabs alone, has buffed as much as 2,600 square feet in ten hours. But this was due to a highly skilled workman's desire to prove what he could do, for the benefit of a sceptical visitor, and it is only fair to say that the man's employers would have been unwilling for him to maintain such a pace, day in and day out. However, there was no difficulty, when conditions were fairly good, in maintaining a daily average of from 1,800 to 2,000 square feet.

A gritting machine may, under extremely favorable conditions, grit and hone as much as 500 square feet in ten hours. This is high; 250 square feet under average conditions is fair. An average of 300 square feet under any and all conditions is good.

AP XG

It is manifestly impracticable to grit, hone and polish the edges of thin slabs on the machines above described. This work is still often done by hand. When the edges are straight and not bevelled, they are sometimes gritted, honed and polished on small machines similar to rubbing-beds, armed with the proper kinds of grit or felt, as the case may be. But probably most of the finished edges are still finished by hand, and when the edges are bevelled or curved, there is no other practicable method. A job of average size may contain a mile or more of polished edges, depending upon the design. So the finishing of edges is often a very appreciable item of cost.

All of the above figures apply only to marbles that are sound. When slabs must be stuck together, waxed, patched and mounted on liners, all finishing operations are slowed down, and output from a given equipment is very appreciably reduced.

STICKING, PATCHING AND WAXING

There are marbles which are of wonderful beauty, but which cannot be obtained in blocks that are free of cracks or unsoundness. When the nature of the marble is such that it is possible to fill the cracks so as to closely resemble either the ground-mass or the natural veins that occur in the material, these marbles are used. Where slabs are simply intersected by natural breaks, the

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The machine in the foreground is cutting a rebate in a long piece of marble, at the sane time returning the rebate across the ends of a number of pieces. The vertical shaft carrying the wheel that is cutting the returns may be seen, as well as the head where the wheel revolves on a horizontal shaft.

broken edges are heated and stuck together with melted shellac—sometimes with the addition of brass dowels. The shellac is then raked out to a slight distance below the finished surface, and this part of the crack is filled with wax, colored to imitate the ground-mass of the marble or some of its characteristic veins, depending upon which gives the better result. Sometimes the coloring matter is obtained by pulverizing a small amount of the marble itself. The "wax" used for this purpose is usually a mixture of zinc white, white shellac and a suitable pigment. The gum shellac, used as a cement in "sticking" unsound marbles, has a surprising strength. Often the shellac alone is strong enough to permit the slab, as a whole, to be handled almost as though it had been sound.

It sometimes happens that there are small pockets in the marble due to crumbly and non-consolidated material. These holes are filled up, sometimes with a small piece of marble set in, sometimes entirely with properly colored wax.

Very often it is necessary to "back-up" unsound slabs with sound slabs or strips of other material—usually fastened to the

ARS

backs of the unsound slabs with plaster of Paris or cement. Slabs or strips used in this way are known in the trade as "liners."

SR SF

When the ground mass of a marble is appreciably translucent, it cannot be successfully imitated with wax nor with any other known filling material, for all of these are opaque. In such cases, if the marble is characterized by strongly marked natural veins, a crack may be filled and finished to imitate one of these. Otherwise a satisfactory job is not possible. Because of the translucence of most interior white marbles, these cannot be successfully waxed and patched, and these marbles, to be merchantable, must be sound. In the ordinary grades of White Italian marble-which, as a rule, are the least translucent of interior white marbles-there are sometimes small "sand holes." These can be filled with wax colored to imitate the gray clouding common in these marbles with fairly good results. This is the only case in which "waxing" or "patching" is acceptable in the case of white marble.

The standard has also been set for the domestic monotone marbles—such as the Tennessee marbles and those from Southwestern Missouri—that they must be sound. This is probably due to the fact that they are obtainable in this condition, without undue expense—not because they might not be patched or waxed with a fair degree of success if it were necessary.

The imported monotones, such as Tavernelle and Botticino, apparently cannot be obtained in any great quantity in sound blocks, so with them waxing and patching are permissible and necessary. These marbles are more opaque than the domestic monotones, and a skillful mechanic can wax and patch them so well that he himself will sometimes have difficulty in pointing out the cracks and patches after the slab has left his hands.

Many owners and some architects, in ignorance of the limitations as to soundness of many of the marbles used primarily for their beauty of color, insist upon having their jobs free of waxing and patching—*i.e.*, entirely sound. In rare cases this might be physically possible, given unlimited time and money; but it is wholly impracticable. If it were possible with any reasonable expenditures of time and money to get enough of these marbles in the form of sound blocks, it would require no urging from owners and architects to bring it about.

ARXO

The cost of finishing a job from the unsound marbles is so variable and so great, that the trade will not handle unsound blocks of any marble of which an adequate supply of sound blocks can in any way be obtained.

Occasionally, in his zeal for just the effect he has in mind, an architect will demand other things that are quite impracticable. All marbles have been subjected to severe stresses; often a long continued stress, not sufficient to crack the marble, will be relieved by a slow recrystallization, generally localized along more or less definite lines. In marbles that are deeply and richly colored, this process often results in the expulsion of all coloring matter from the recrystallized material, and a white vein is the result. Such white veins are characteristic of certain decorative marbles, but they seem to be offensive to the tastes of some architects, who have been known to demand that the slabs be broken along these veins, then stuck and waxed so as to present the appearance they would have had had no white veins been present.

The veins are often wavy, almost never perfectly straight, and the material in them is often stronger than the adjacent material. Breaking the slabs in the veins would be an extremely uncertain operation. It would
be less expensive and more certain to dig out a little of the white material with an air tool, then wax the channel so produced, but it would be very difficult to make a satisfactory job by either method, and it would be very expensive.

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When it comes to nature's distribution of color in a decorative marble, man is justified in making the best possible use of it, as it is, to realize his own ideals. But if he tries to change the scheme without spoiling it, he is attempting something which is in the same class as squaring the circle or duplicating the cube; it lies beyond his powers.

At the best, sawing and finishing the unsound marbles is very expensive. As compared with the sound marbles, such as Alabama or Tennessee, the sawing will average at least one-third more, with occasional cases where it will be at least three times as great. The subsequent processes may easily be three times as expensive as in the case of the sound marbles, without making any charge whatever for the reduced output from a given equipment, which is often the most serious item of all in its adverse effect on earnings.

All this is not intended as an argument against the use of these marbles; it is only intended to show the difficulties that must be overcome in their use. Their beauty would justify an expense even greater than that actually entailed; each one of them, in its own class, is without a peer. For the best of its kind, where the best is justified, expense should be a secondary consideration; but marble might be much more expensive than it is, and still give the greatest possible return on the investment.

CUBIC STOCK

In the interior marble trade, this designation applies to material that requires pieces sawed and coped to size, with their minimum dimensions greater than 2 inches. Sometimes, as in heavy ashlar, in rectangular plinths for columns, and pilasters, etc., the finished pieces are perfectly plain, without any moulding, carving, cutting or rounded edges. In such cases, the operations of rubbing, gritting and polishing do not differ from the same operations on thin stock.

ARTER

If the finished surfaces are large enough, they are finished in the machines; otherwise by hand.

The greater portion of the cubic stock in interior work, however, is either cut (or turned), molded or carved. Even heavy stair treads, table tops (as for check-desks), seats, etc., have molded edges or at least have their corners rounded to a considerable radius.

Marble can be turned in a lathe or worked in a planer, with steel tools; planers can have so-called "circular attachments" which will enable the tool to cut the work to circular or even spherical shape (as for the voussoirs of a spherical dome). Lathes can be equipped with entasis bars, which control the distance of the tool from the axis of revolution, so that a column shaft can be turned with any desired entasis.

A lathe could be equipped with a dummy tool following a model and controlling the cutting tool, so that a piece of marble could be turned with, say, an elliptical cross section, or any other which did not involve too great complexities of shape. There are machines which will do all but the finishing work in reproducing statues, etc.

If a sufficient number or amount of each pattern of carved work were required every time, no doubt much more of it would be done by machinery. But as it is, the number of skilled carvers and cutters required is still very great and is not likely to diminish.

As a matter of fact, carborundum wheels are rapidly taking the place of steel tools in

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A carborundum machine being used to rip a lot of Travertine slabs. A big machine of this type can rip a full-size slab into strips all at one time.

working marble. They do not "pluck" the material, and they leave the surface much more nearly finished than any steel tool.

A machine similar to a planer but equipped for using carborundum wheels instead of steel tools is called, generally, a carborundum machine. They are of as many different types as planers, and of almost as many sizes. Some are specially adapted for coping, and are called coping machines. A carborundum machine of reasonable size and of the planer type should always be equipped to use wheels revolving about a vertical axis in addition to the regular equipment for wheels revolving in a horizontal axis; the object of the wheels on a vertical axis being to cut returns of moldings across the ends of pieces too long to be set up on end and run under the regular wheels.

AC XIC

When marble is worked in a planer or lathe with a steel tool, the wasted material is practically sheared off in flakes that are relatively large or small, depending upon the "bite" of the tool. With cranky materials this always introduces the danger of "plucking" below the finished surface to which the tool is working. This danger exists in any kind of marble if the "bite" of the tool is too deep. This makes it necessary to take a more and more shallow "bite" as the finished surface is approached. The final operation with steel consists in scraping off a very thin layer with a tool of the proper shape to fit the final surface. The steel tool

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leaves the surface even rougher than a sawed face as it comes from the gangs; it must be sand-rubbed, gritted, and (usually) polished. If it is a piece of turned work, this can be accomplished by speeding up the lathe and holding pieces of the necessary finishing materials against the surface as it revolves. If it is a case of a molding from a planer, or of carved work, the whole series of operations must be carried on by hand, which is quite expensive.

OR PH

The surplus material removed by a carborundum wheel is, of course, ground to an impalpable powder and carried off as slush by the water used to keep the work and the wheel cool and clean. There are certain limits within which the mere removal of surplus material can be accomplished more rapidly on a machine with a given power limit, by a steel tool, than by a carborundum wheel. But the smaller chance of breakage and plucking-the fact that the wheel can cut returns across the end of a slender piece of marble and the steel tool cannot - and the fact that the wheel usually leaves a surface which is, to all intents and purposes, more than half-gritted-all these give to the use of carborundum a great advantage.

It has the advantage in every way; to begin with, if the amount of material to be removed is small, or if the maximum depth to which it is to be removed is small. Where much material must be removed, and where the depth of removal is great, there are ways and means of counterbalancing the advantages of the steel tool. Thus, if a large column or drum is to be turned, it can first be sawed to octagon shape in the gangs or by the diamond saw. In deep moldings a strip may often be sawed out by thin carborundum wheels without encroaching on the final finished profile; or any considerable body of material to be wasted may be cut into with thin carborundum wheels to

within a short distance of the finished profile, the cuts being about an inch apart. The greater part of the surplus material may then be quickly knocked off with a hammer, thus greatly reducing the amount to be ground away. If the mass to be removed is free on two intersecting faces, it is quite simple to saw it out as a whole, and if the material is expensive and the strip sawed out of a size that can be used, there may be a profit in removing it in this way. If it is free only on one face, it is simpler to saw it into strips and break it out. But even in this case it may be taken out bodily by a wire saw starting at the bottom of a carborundum cut on one side and cutting towards a similar one on the other side. Sometimes it pays to saw a strip of stock in this way, sometimes it does not. But if, as sometimes happens, a strip or two of the size that can be removed is badly needed to avoid sawing -or perhaps buying-another block to finish the job, a very great deal of trouble and expense is justified.

By taking advantage of every device for quickly removing any considerable masses of surplus material without reducing them to powder, the only advantage of the steel tool over carborundum has been so reduced that in interior work, at any rate, the tool is very nearly obsolete. The rate at which carborundum wheels grind away surplus marble is very variable in practice. On any given machine there is a limit set by the power with which it is equipped. With thin wheels and with wheels shaped to the profile of moldings with delicate members, there is a limit set by the danger of breaking the wheels. Where a heavy rectangular cut is being made with a stout wheel, there might be a limit due to the strength of parts of the machine itself, especially its driving parts. There is sometimes a limit due to the danger of breaking the marble.

AR TO

THROVGH THE AGES GRAN



The main entrance is on the north side.

THE FREER GALLERY OF ART

A Washington, D.C., Museum Built With a Center Court After the Style of the Florentine Renaissance

THE collections installed in the Freer Gallery of Art in Washington, D.C., were brought together by the late Charles Lang Freer, of Detroit, Michigan. They represent the results of Mr. Freer's personal study and acquisition over a period of about thirty-five years, the earliest of his purchases incorporated in the collections dating from the later eighties. A farmer's boy of upstate New York, a water-boy on a railroad, to train dispatcher and finally a captain of industry, he developed into a collector who bought with rare judgment, and not by hearsay. It was not until after 1900, however, when at the age of forty-six he retired from an active business life, that Mr. Freer was able to devote the greater part of his time to the development of his collections and the ideals which lay behind them. From 1900 until the time of his death in September, 1919, he gradually eliminated from his consideration all other activities which might absorb his time and strength, in order that he might work with increasing

concentration on his endeavor to establish the beginnings of what he believed to be a most valuable field of research.

Working with the conviction that the best of the cultural objects of any civilization embodied characteristics inherent in all works of art, he acquired from the West paintings by Americans in whose works he found tendencies in sympathy with those of earlier painters in China and Japan, including Whistler, Dewing, Thayer, Tryon;

and examples of the work of Brush, Hassam, Homer, Melchers, Platt, Sargent and others.

SRA

From the East he gathered paintings, potteries, sculpture in stone, in wood, in lacquer; bronzes, jades and objects of various other materials. He gathered together the collection for his own pleasure, primarily, but he decided to give it to the nation, and made an offer to this effect in 1004, during the administration of President Roosevelt, with the understanding that it should be placed under the direction of the Smithsonian Institution; and, on May 5, 1006, the formal deed of gift was executed. At the same time, Mr. Freer provided an adequate home for it in Washington, and requested that this building be used exclusively for his collection. The request did not preclude, however, the possibility of its being increased by gifts from specified people or, in the oriental field, by purchase with funds bequeathed for the purpose.

Mr. Charles A. Platt, of New York, was the architect chosen by Mr. Freer to take full charge of the construction of the building. It is in the style of the Florentine Renaissance and provides one main exhibition floor of eighteen top-lighted galleries and the Peacock Room, surrounding an open court or garden. Cortissez, in the New York Tribune, wrote of the structure as



"The plan is developed around a center court with an arched corridor intervening." All the marbles shown, including that in the walls and columns, is Tennessee.

- ACTUR

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THROVGH THE AGES

follows: "Platt designed the building from within outward. Prevailing climatic conditions in Washington gave him an inspiring point of departure playing into his hands. His plans developed around a central court. with an arched corridor intervening between it and the exhibition rooms. This at once did away with the frigidity so characteristic of museums. It brought into the scheme precious elements of light, air and color. One is constantly aware of the green things in the court, the green fountain in the center that wakes a memory of the great, flat bowl on the Pincian, and the influence of a bland sky is always there. Mr. Lodge has added two or three peacocks to the picture. They delightfully enrich the warm, intimate character. The visitor must be aware of the court the moment he enters, and its friendliness remains near him. Externally, the museum has a certain severity, as befits a monumental edifice, though the arches and pilasters of the main entrance and the balustrade running around the low roof considerably slighten the effect. A similar influence is exerted, too, by the manner in which the masonry has been treated. The surface is neither too rough nor too smooth. A heavier rustication would have caused the walls to resemble those of a fortress. As they stand they have all the weight they need, but leave the facade with the grace and charm belonging to one dedicated to the arts."

The building is at 12th and B Streets, Southwest, close by the new National Museum and the old Smithsonian Institution. In color it is smoke gray. It is arranged internally on the Japanese plan of a little at a time, with reserve space for future increments and private rooms for study purposes.

From the main corridor that surrounds the central court, open the various exhibition rooms, perfectly illuminated by skylights. A satisfactory simplicity, in color, mouldings and decorations, prevails. The walls are of a gray tone that in the rooms given over to the paintings is relieved by a delicate paneling in the frieze outlined in gold. There is a tactful grouping of colors and shapes, a fine adjustment of proportion. "We remember," wrote Cortissez, "how Freer studied with Platt all questions of materials. He would have rejoiced, we fancy, in the floor. It is of particles of Belgian marble, set in a brownish cement. It is comfortable to walk on, and it makes one of the handsomest floors we ever saw."

ARTE

The hundreds of objects themselves are intelligently displayed. A huge screen of the Ashikaga period enhances you by its contrasting buff against the gray background and "at either end a huge bubble of a Japanese jar echoes gray and buff to delight the eye." Langdon Warner, describing the collection, wrote: "One room has Korean blue-green bowls and jars with an occasional ivory-white from a north Korean grave. Opposite are Jap potteries, little tea jars and incense pots that lend charm to a tea ceremony. The corridor bronzes and jades give a sense of sufficient excitement for a single day. For there on the left are two huge gray jade blades, each a miracle of smooth paper thinness, and with them brown discs and geomancers' mysterious The hub-like earth symbols, the tools. maces and tablets and the rings with their trigrams remain aloof. They have Chinese names and traditional uses, but their very existence was due to magic and even a museum case cannot rob them of their quality of unknowableness. We are not sure of their purposes and our best attempts at dating are but guesses. The bronzes which, we were taught to believe, descended from the mythical ages of Chon and Shang and

miraculously defied the certain, gnawing chemistry of the earth in which they were embedded, are now more reasonably ascribed to Han—perhaps a mere two thousand years ago."

SKA

The inner court, surrounded by the arched colonnade on all sides, contains in the center a large marble fountain built entirely of a dark Tennessee marble. The colonnade itself has walls of a lighter colored Tennessee marble. This same material has been used for the graceful balcony that extends around the top of the colonnade roof, and also for the inner walls of the main building above. The basement is provided with arrangements for taking care of such exhibits as must be kept temporarily in storage. The paintings here are hung on meshed screens of metal, and the Oriental objects are placed in huge cabinets in the study rooms. The floor of the large entrance lobby, the stairways leading to the main floor, and the basement corridors are of Tennessee marble. The study rooms are on the administrative floor and their windows make the only openings in the façades other than the entrances themselves, so that the exterior of the structure seems of less bulk than is actually the case.

Jac Lio



The inner court, surrounded by walls of Tennessee marble, in the Freer Gallery of Art. "The visitor must be aware of the court the moment he enters, and its friendliness remains near him."

[42]

Jac Sul



The front portion of this store in Pittsburgh is all Black and Gold with Siena pilasters at either side of the door and Italian Pavonazzo panels on the side walls. The marble was finished and installed by the Lautz Marble Corporation. The architect was S. F. Hecket; the general contractor, A. F. Gailey.

> OUR factory is completely equipped with the most up-to-date machinery for the finishing of both domestic and foreign marbles.

LAUTZMARBLECORPORATIONBUFFALO::NEW YORK

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and

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PISANI BROTHERS, INC. Marble Importers 815 VERNON AVENUE Long Island City, N.Y.

The old reliable

CARRARA

STATUARY VEIN

unexcelled for texture, decorative qualities and soundness.



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

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

THE DETROIT MARBLE CO. 9045 Livernois Ave. Detroit, Mich.



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

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

WALTER W. AHLSCHLAGER, Architect

FLAVIN MARBLE MILL, INC. 3701-09 S. ST. LOUIS AVENUE CHICAGO :: :: ILLINOIS

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AR LIR

DR DR

THROVGH THE AGES



View in BOOK-CADILLAC HOTEL Detroit, Mich. 20

Louis Kamper, Architect

*

All interior marble work finished and set in place by Alabama Marble Company, Gantt's Quarry, Ala. Wall marble mainly Breche Violette and St. Genevieve. White trim of wall marble Alabama Cream A; floor marble Alabama Cream A, with St. Genevieve border.

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A recognized standard among Interior White Marbles, produced by the Alabama Marble Company at Gantt's Quarry, Alabama.

The Alabama Marble Company established Cream A as a standard grade, and by the development of their plant and properties, have made it permanently available for jobs of any size.

> The Alabama Marble Company has supplied millions of dollars' worth of Alabama marble in hundreds of buildings without causing a single day's delay on any one of them.

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Producers of all grades of Alabama Marble, Manufacturers and Contractors for interior marble work in ANY KIND OF MARBLE. Inquiries for prices and estimates should be addressed to the Sales Department, Birmingham, Alabama



THE BRADBURY MARBLE COMPANY St. Louis :: :: Missouri



Texa

THE ST. PAUL PUBLIC LIBRARY St. Paul, Minn.

-4-

Electus D. Litchfield, Architect

4

In this splendid library, which has received much praise from critics all over the country, the walls and columns are of Gray Mankato.

NORTHWESTERN MARBLE & TILE CO. 27TH STREET & 27TH AVENUE, SOUTH MINNEAPOLIS MINNESOTA

ACTO

SKA

THROVGH THE AGES



JOHN M. LYLE, Architect

Sec. 18

RESUR





and and

WASHINGTON PARK NATIONAL BANK, CHICAGO A. A. Schwartz, Architect

> An exceptionally impressive treatment, through the use of mixed Old Convent Siena for the floor, with a small line-border of Belgian Black. The standing marble is also Siena, with a base of Black and Gold.

HENRY MARBLE COMPANY 3208 SHIELDS AVENUE CHICAGO ILLINOIS



THE BRANIFF BUILDING, OKLAHOMA CITY, OKLA.

Gray Tennessee Marble ashlar wainscoting and floor; Friendsville Pink Tennessee Marble base.

> TAYLOR MARBLE & TILE CO. 511-521 WEST PINE STREET OKLAHOMA CITY OKLA.



28

LOBBY OF THE FEDERAL RESERVE BANK OF CLEVELAND, OHIO. WALKER & WEEKS, Architects.

This beautiful corridor, full of life and color, is made doubly effective by the choice of marbles used.

These marbles were installed by TheHaworthMarbleCo. Thestanding marble is Old Convent Siena. The floors are Tavernelle Tennessee, with Belgian Black strips.

> THE HAWORTH MARBLE CO. CLEVELAND - OHIO

MARB

O Underwood & Underwood

NR 94

Vermont Marble in Grand Central Palace

The International Exposition of Architecture and Allied Arts, staged in Grand Central Palace, was attended by architects and builders from all parts of this country and abroad. The booth of the Vermont Marble Co., was described as follows in the May number of *Stone*:

"The display of the Vermont Marble Company was arranged after a design drawn by Howard Greenley and erected under his supervision. The idea of service was carried out with excellent effect, showing the uses to which Vermont Marble can be put to obtain the best architectural and decorative effects. The scheme was developed around a central model carved out of marble, symbolic of the inspiration and aspiration inherent in this material. This model is a bit of inspiring sculpture, really a dream of architecture visualizing, dome upon dome and spire upon spire, the rising styles of architecture. Surrounding this central piece care was taken to dis-

play marbles of corresponding color tones rising from a

rising from a floor base of reds, blacks, grays, greens and dull pink marbles. On either side of the booth stood a garden vase of exquisite form, each 5 feet 6 inches high, carved in Rutland White Marble. The cornice frieze was in Imperial Danby Marble and Alaska Tokeen. The panels were Gravina and the two tripods Rutland Marble. The decorations and lighting effects were all of the Grecian Empire period."

Jac Lo

VERMONT MARBLE CO. - PROCTOR, VERMONT

Branches in the larger cities

See Sweet's Catalog for Specifications and Other Data

[49]



O Underwood & Underwood, N.Y.

OR DA

Rough quarried block about to be hoisted from quarry of Vermont Marble Company

We are Wholesale Dealers, Importers and Quarry Agents for:

Lee and West Stockbridge Vermont and Tennessee Carthage Imported Marbles

\$

IN BLOCKS OR SLABS TILE AND TERRAZZO

REES-VOLCKMANN CO., INC. 344 Walnut Avenue :: New York



Elevator Lobby, Aquila Court Building, Omaha Holabird & Roche, Chicago, Architects

This distinctively original design was developed with wainscot and trim of Italian Travertine and base of Belgian Black; Gray Tennessee appears in the floor. The marble was furnished and installed by

SUNDERLAND BROS. COMPANY

Marble Department Main Offices, SUNDERLAND BLDG., OMAHA, NEBRASKA



This English Veined Italian marble stairway was furnished and set by us for the Leyman Motor Co., Louisville, Ky., agents for the Buick car. The architect was Captain Brinton B. Davis, of Louisville.

PETER & BURGHARD STONE COMPANY LOUISVILLE KENTUCKY

[50]

Jac Suc

Jack



FOURTH NATIONAL BANK, MONTGOMERY, ALA.

All the marbles for this installation were furnished by the Candoro Marble Co. The bank fixtures were by the Georgia Show Case Co., Montgomery, Ala., who design, manufacture and install such fixtures.

CANDORO MARBLE COMPANY

Manufacturing Contractors FOREIGN AND DOMESTIC MARBLES KNOXVILLE :: :: TENNESSEE

Sta



SRA

Part of the Banking Room of the AR LA

Farmers & First National Bank

NEWCASTLE, IND.

McGuire & Shook, Indianapolis Architects

M. Ohmer's Sons Co., Dayton, O. Fixture Contractors

 \Rightarrow

A conservative but excellent treatment, using Tavernelle Clair and Tennessee marbles in pleasing contrast.

F. E. GATES MARBLE & TILE CO. INDIANAPOLIS :: :: INDIANA



THE SAX-KAY STORE on Washington Boulevard Detroit, Mich.

... Lancelot Sukert, Architect

The architrave of the door is Bois Jourdan marble, as is the base under each show window. The trim around the windows is Dark Tennessee. The door and the ornaments above it are bronze. The whole effect is both dignified and distinctive—and yet the results were obtained at reasonable cost.

CHRISTA-BATCHELDER MARBLE COMPANY DETROIT MICHIGAN

AC LIC



THE LINCOLN MEMORIAL, WASHINGTON, D.C.

This fitting tribute to a great character, the most magnificent example of American architecture, the equal in dignity of any structure the world has seen, is built of Colorado Yule marble from our quarries in Colorado.

TENNESSEE-COLORADO MARBLE COMPANY SUCCESSORS TO

GRAY KNOX MARBLE CO. AND COLORADO CONSOLIDATED-YULE MARBLE CO. KNOXVILLE :: :: TENNESSEE

VIEW OF OUR MILLS IN COLORADO



(Parketter)

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SA



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EXTERIOR OF THE ZIEGLER RESIDENCE, NEW YORK CITY; EXECUTED IN "CRAIG PINK" TENNESSEE MARBLE ap

*

PRODUCERS of the following brands of Tennessee marble, blocks, slabs, tile and border:

LaMarr Gray Fontaine Gray Victoria Pink Marmor Pink Dark Cedar Craig Pink

JNO. J. CRAIG COMPANY KNOXVILLE :: TENNESSEE



© Underwood & Underwood, N.Y. HOWARD SAVINGS INSTITUTION, NEWARK, N.J. THOMAS BRUCE BOYD, INC., Architects All the marble work for the bank illustrated here was done in FABBRICOTTI'S FM ITALIAN marble by Alexander Pelli & Co. of Elmhurst, Long Island, N.Y.

å

The complete facilities of this organization include large and fine quarries for White Italian and English Veined marble, owned and operated by this company. Our mill equipment comprises eight saw gangs, assuring quick and efficient service.

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From this quarry we have supplied blocks of Black and Gold to make monolithic columns of 16' x 2' 8" for the American Marble & Mosaic Co. of San Francisco. We believe that this type, A29B, of Black and Gold, is the soundest and most practical of all types.

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VIEW OF ANTONIO BIGGI'S BLACK AND GOLD PRODUCTION A20B

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The largest stock of Foreign Marbles in America

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ESTABLISHED 1883

and and

JEROME A. JACKSON Imported and domestic marble Sanford St. and East River, Long Island City, N.Y. Sof or THROVGH THE AGES

Napoleon Gray A Marble That Is Limitation Ts there a wide gap between the York City?

Upper Picture-California Palace of the Legion of Honor, Geo. A. Applegarth, Architect. Columns and Pilasters by American Marble and Mosaic Co.; all the other marble by Jos. Musto Sons-Keenan Company.

Lower Picture-Greely Arcade, New York City. Geo. and Edw. Blum, Architects.

Seemingly Without

ARTIC

rare beauty of the columned halls of the California Palace of The Legion of Honor and the severe business-like walls of the Greely Arcade Building, New

Obvious as the answer is, still isn't it strange that both Mr. Applegarth in the West and George and Edward Blum in the East, found in Napoleon Gray Marble the ideal material for their different problems?

PHENIX MARBLE COMPANY KANSAS CITY MISSOURI

200

O.R.OF.

THROVGH THE AGES



Barnett, Haynes & Barnett, Architects

Alabama and Westfield Green Marble was used in this Main Entrance to the St. Louis University High School, St. Louis, Mo.

de.

TREAC

Marble was used extensively throughout this building and was furnished by the Union Marble & Tile Co.

UNION MARBLE & TILE COMPANY WILLIAM C. FOX, Gen. Mgr. 1109-27 SOUTH SEVENTH BLVD. - ST. LOUIS, MO.



Kimbell T. & S. Bank, Fullerton and Central Park, Chicago

A floor of Tennessee, with a border and base of York Fossil, harmonizes with the Tavernelle used for the balance of the work. W. Gibbons Uffendell, Architect.

PEERLING MARBLE CO. CHICAGO - - - ILLINOIS



BUDER GRADE SCHOOL, ST. LOUIS, MO. R. M. Milligan, Comm. of School Bidgs., Architect. The treads are of Lake Champlain marble. All the other marble throughout is Carthage Imperial Gray. Finished and installed by Union Marble & Tile Co.

AP X



A Corner of the Entrance Lobby, Stimson Building, Seattle, Wash.

THE illustration gives only an imperfect idea of the installation of Silver Gray Siena ashlar, with the base of Black and Gold, and the floor of Tennessee.

Marble wainscot and over 10,000 square feet of marble floors were used in the corridors of this building.

Architects: Western Office: Howells & Albertson, Seattle. Contractors: Grant Smith Co., Seattle.

DRAKE MARBLE & TILE COMPANY Interior Marble Work ST. PAUL, MINN. - - MINNEAPOLIS, MINN.

Ros



SECURITY BENEFIT ASSOCIATION OFFICE BUILDING, TOPEKA, KANSAS W. E. Glover, Architect, Topeka, Kansas



aza

The entire exterior is of Colonial Gray Marble in a smooth sand-rubbed finish, and the owners are assured of a beautiful and enduring building. The marble was finished and set by the Sargent Cut Stone Company of Topeka, Kansas.

F. W. STEADLEY & COMPANY, INC. "The Big Quarry"

Producers of COLONIAL GRAY VEINED - COLONIAL GRAY VEINLESS

CARTHAGE :: MISSOURI

Representatives for New York City MICHAEL COHEN & Co., 8 West 40th St., New York City AR Sale

AR THE



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Ros



and

ELEVATOR LOBBY of the Mid-Continental Building Tulsa, Okla. AR LO

A French marble known as Jaune Nile Fleuri was chosen for this distinctive treatment.

*

Architects Atkinson & Olston, Tulsa, Okla.

| ARNOSTI | MARBLE | COMPANY |
|----------|--------|----------|
| CARTHAGE | - ::- | MISSOURI |
| TULSA | :: | OKLAHOMA |



MANCHESTER NATIONAL BANK, MANCHESTER, N.H.

7/8" marble veneering was used for facing this old brick building. Troy Bros. & Co. installed the marble. The architect was C. R. Whitcher.

TROY BROTHERS & CO. Interior Marble Work 975 Massachusetts Ave. Boston, Mass.



An effective treatment of Italian Statuary Marble in the First National Bank, Wilmerding, Pa. W. L. STODDARD, Architect

IRON CITY MARBLE COMPANY Office & Mill, 415-23 NEPTUNE ST., W.E. PITTSBURGH, PA.

Jac Lic



THE STATE NATIONAL BANK, HOUSTON, TEXAS

These views, from opposite ends of the main banking room, show the fine effect secured by using one material—Carthage marble—for banking screen, floors, wainscot, columns, caps and balustrade rail. Erected by us for the Lautz Missouri Marble Co. Alfred C. Finn, Houston, Texas, was the architect.

SALOMONE-O'BRIEN MARBLE CO.

KNOXVILLE

TENNESSEE

3 ap

THROVGH THE AGES aza ST. THOMAS CHURCH CHICAGO, ILL. ROBERT L. KANE, Architect A profusion of marbles, all furnished by John J. Deery Co., Inc. The columns are Red Verona; the bases are French Grand Antique; the panels are inlaid with Black and Gold marble; the border is Black and Gold, Red Verona and Grand Antique. The aisles and entrances are Roman Travertine Stone. JOHN J. DEERY COMPANY, INC. asi li an ar IMPORTERS AND WHOLESALERS pine pr MARBLE & STONE LONG ISLAND CITY :: :: New York



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THROVGH THE AGES

The the





Sarcophagus Fronts executed by us in Ross Pink marble forHarrisonGranite Co., New York

*

THE KNOXVILLE MARBLE COMPANY Successor to John M. Ross KNOXVILLE :: :: TENNESSEE

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resie



THE interior of the Walters Art Gallery, one of the show places of Baltimore, is built of marble from the quarries of Washington County, Maryland, and installed by us. Delano and Aldrich, of New York, were the architects.

HILGARTNER MARBLE COMPANY

Importers and Finishers of Interior Building Marble BALTIMORE - - MARYLAND

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ESTABLISHED 1880

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OFFICE BUILDING LOBBY, PITTSBURGH PLATE GLASS CO., MILWAUKEE, WISCONSIN KIRCHHOFF & Rose, Architects DAHLMAN CONSTRUCTION CO., General Contractors,



Columns for the Elks Memorial Building, Chicago, manufactured from imported marble.

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Fabricators of Foreign and Domestic Marbles

Our organization is prominently identified with the erection of many of the finest structures in the country.

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