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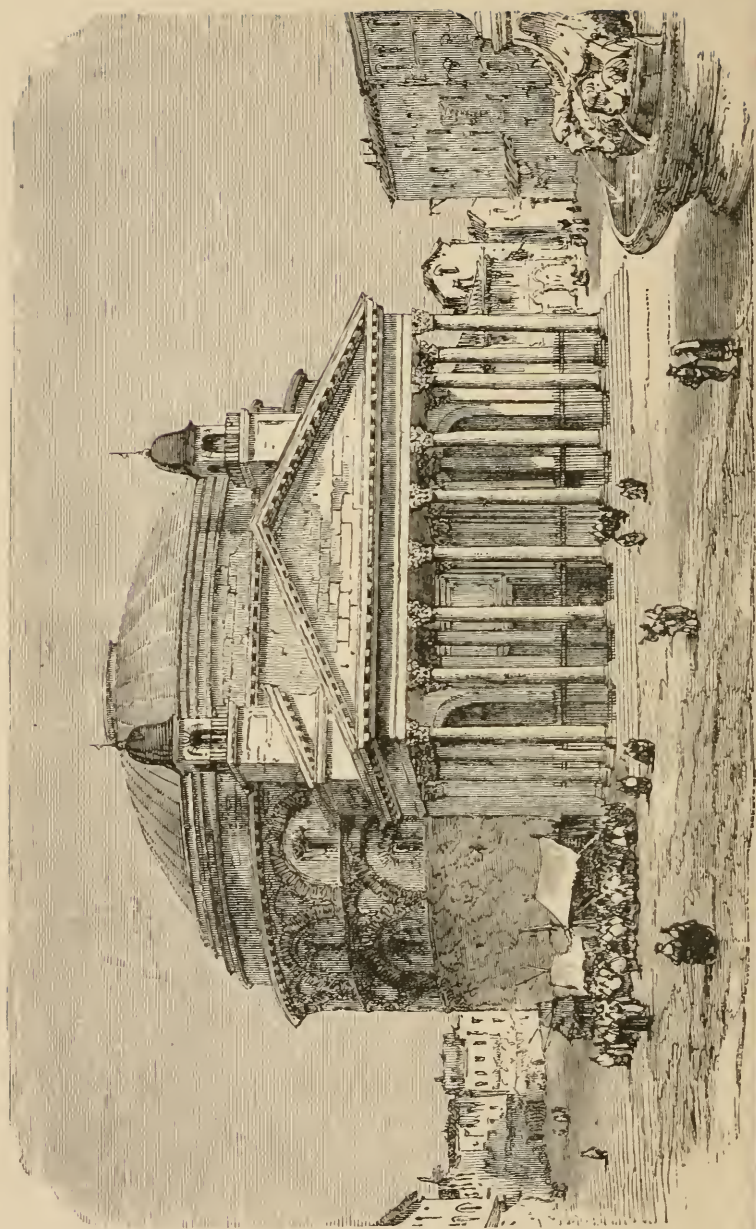






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# ARCHITECTURE

FOR GENERAL STUDENTS

BY

CAROLINE W. HORTON

*WITH DESCRIPTIVE ILLUSTRATIONS*

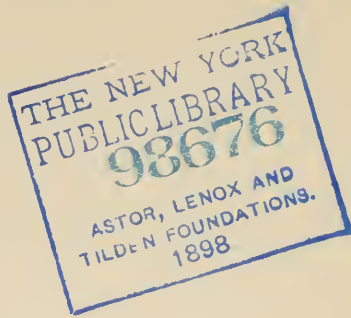
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**This Little Volume**  
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## PREFACE.



**T**HIS little volume is not presented to the public with the idea that it contains anything new concerning the ancient art of architecture, nor with that of saying anything that has not already been said in a better manner.

The continually increasing interest in our own country in the History and Philosophy of Art, seems to demand information given in a more concise and rudimentary manner, and in less expensive form, than is afforded by the works of the great art-critics. Moreover, the study of "Art Criticism" in many of our best schools has been at a cost of great labor on the part of teachers, for the want of suitable text books, while in many instances, it has been delayed altogether on this account. This work has been prepared with a view to supplying these needs as regards one of the arts.

The aim has been to describe in so simple a manner that "he who runs may read," the different styles of architecture that have pre-

vailed among the more highly civilized nations at different periods of the world's history ; to refer, also, to their connection one with another and with the national life from which they sprang, with the hope that by setting before the young the best models, it may foster a love for the beautiful, cultivate the taste, and awaken an earnest interest in the architecture of their own country. The wants of the traveller, the builder, and the general reader have also been considered in its preparation, and it is hoped that it may help those who have not the opportunity of consulting larger works, to comprehend better the various buildings which come to their notice, and to classify their knowledge of the same.

To Lubke's "History of Art," Quatremere de Quincy's "Vie des Architects," and the various works of Viollet-le-Duc, I would acknowledge my obligations ; also to Murray's "Handbook of Rome" for later information concerning the archæological labors of Canina and others.

I would, also, acknowledge the liberality with which Messrs. G. & C. Merriam have allowed the use of electrotypes from Webster's Dictionary illustrating definitions and details,

C. W. HORTON.



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ARLER, HEINRICH.  
ARNOLFO, JACOPO.
- BARRY, SIR CHARLES.  
BERNINI, GIOVANNI LORENZO.  
BORROMINI, CARLO.  
BRAMANTE, *real name* DONATO LOMAZZO.  
BRUNELLESCHI, FILIPPO.  
BUONAROTTI, MICHAEL ANGELO.
- CALLICRATES.  
CRONACA.
- DELORME, PHILIBERT.  
DELLA PORTA, GIACOMO.
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HUMMERS.
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- RICCHINO.
- ROMANO, GIULIO, *real name* GIULIO PIPPI.  
ROSSELLINO, BERNARDO.
- SANGALLO, ANTONIO DI.  
SANMICHELE, MICHELE DI.  
SANSOVINO, JACOPO, *real name*, JACOPO TATTI.  
SANZIO, RAPHAEL.  
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SCOPAS.  
SEMPER, I.  
STRACK, AUGUSTE.  
SUGER, ABBÉ.
- VITRUVIUS.  
VON KLENZI, LOUIS.
- WREN, SIR CHRISTOPHER.  
ZABAGLIA, NICOLO.



## INTRODUCTION.



**A**RT, says Cousin, "is the free reproduction of beauty." This feeling for, or appreciation of, the beautiful, which makes a part of the spiritual nature of man, is as separate and distinct as his ambition, patriotism, or any other emotion which kindles his soul and excites him to action. It is therefore neither a religious nor a moral feeling, nor is it to be so considered. The moral feeling concerns itself only with what is right or wrong, and the obligations arising from any object of thought thus considered. The religious feeling arises from man's relation to his Maker, and also his fellow creatures and the world about him, when considered with regard to the position which the beneficent Creator intended for him to fill, and the various duties and delights arising therefrom. Had man continued in his original state of innocence, supreme love to God reigning in his heart, would have suggested to him all his duties and obligations. Ruled by this love, he would have invariably acted in conformity to the Divine will, and the various faculties of his mind and soul moving in that harmony intended by the Creator, he would



have recognized the appropriate sphere of each, and never elevated, now the one, now the other — sometimes reason, sometimes intuition, and again the æsthetic principle — to the pedestal which love for the Divine Father was alone designed to occupy.

However much the love of the beautiful may refine the soul, however powerful for good it may become, it can never elevate the human race to the position God assigned it. As men may reach the highest intellectual culture, explore the deepest mines of Nature, and read her laws written as upon an open book, while they yet deny the God who made them, so they may strive after the beautiful both in art and nature, fully appreciate the harmony that reigns alike in the parabolic curves of the Parthenon and those of the moving heavens, without ever contemplating Him of whom the firmament and the sublime genius of Icturus were alike the creation.

That religious temples constitute the most beautiful remains of ancient art ; that men have dedicated to the service of the divinity which they worship — whether the Osiris of the Egyptians, the Athena of the Greeks, or the one true and living God of the Hebrews — the most beautiful efforts of creative genius, does not prove that the love of the beautiful is a religious feeling. Does not beauty everywhere subserve the purpose of love? Does not the bridegroom delight in decking his beloved with jewels, the mother in covering her precious child



with rich embroidery? And shall not the highest love of which the human heart is capable make an offering of man's noblest works? Thus does art become the handmaid of religion.

Attempts at this reproduction of beauty have been made in all ages and among all nations. Indeed, so far as human knowledge extends, there has never existed a state of society so rude as to confine its efforts and aspirations entirely to the production of the useful; nay, so powerful is the æsthetic principle, that the beautiful is attempted before even the most ordinary necessities are provided for. Winckelmann says: "Art appears to have originated in a similar way, among all the nations by which it has been cultivated, and there is no sufficient reason for assigning any particular country as the land of its birth, for every nation has found within itself the first seeds of those things which are indispensable; and although Art, like Poetry, may be regarded as a daughter of Pleasure, still it cannot be denied that pleasure is as necessary to human nature as those things are without which existence cannot be continued." Thus the Indian paints his skin and adorns himself with feathers, while his dingy clothing is altogether insufficient for protection against the extremes of heat and cold; he notches the posts that support his wigwam, and finds delight in this rude carving, while the winter blasts make their way through the chinks in its walls, and the cold earth is its only flooring. Nor do we find less attention

to the ornamental, a stricter adhesion to the useful, among the tribes of Interior Africa, the natives of the Pacific Islands, or any other half-civilized or savage people.

In the monuments that remain of nations long since passed away, we everywhere discern this same striving after the beautiful, and that with more or less success according to the financial prosperity, attainments in knowledge, and political freedom of the people whose civilization they record. Indeed, these conditions are always necessary to the cultivation of the fine arts, — financial prosperity, that the nation may evoke the efforts of genius, and liberally reward those who shall by their success add to her glory and magnificence ; knowledge, to comprehend in what true beauty consists, to establish rules for its creation, and acquire such mechanical skill as is necessary for their application ; and, of more vital importance than all, such political freedom that the artist is hampered neither in the choice of his calling nor the exercise of it, by hereditary conventional rules or the will of a despotic sovereign. He must be free to follow the dictates of his own genius, and then will he, like the poet, produce such works as nobly express the highest degree of culture and the loftiest sentiments that belong to his age and nation.

Various philosophers have attempted to define beauty, to designate the quality or combination of qualities necessary to render an object beautiful,

but no one of these has been successful. Again, it has been asserted that any object is beautiful which awakens within us the emotion of beauty. A moment's consideration will prove to us that our own consciousness is ready to reject this as utter fallacy. No doubt the paint-patches with which an Indian chief disfigures his face awaken within his own breast this emotion ; but for us to say that they are therefore beautiful would be as reasonable as to say that the broken English with which he fondles and soothes the little papoose is correct, because it conveys to the child the impression of its father's love.

Neither can an object be said to be beautiful because it is agreeable. A beautiful object is always agreeable ; but to decide whether an object is agreeable concerns only one's own self. A certain style of dress, certain temperatures, certain people, are agreeable to one, but not to another ; yet the one would never call in question the judgment or good sense of the other on this account. But if one asserts that the self-devotion of a Nightingale awakens no emotion within his soul, that the Apollo Belvidere repels, and beggarly filthiness attracts, our whole nature rises in opposition ; we cannot help protesting, and why ? Because we feel that there is such a thing as absolute, inherent beauty ; that the human soul is so constituted as to perceive and recognize such beauty when presented, and that Nature limits both the beautiful object and our emotions of beauty by certain laws, which we are bound to

acknowledge and respect. Yes, we must admit that beauty in an object is an absolute, positive quality, which we all recognize with more or less vividness, according to our mental organization and our intellectual culture ; and yet that it is so subtle, and partakes so much of the spiritual essence, that the human mind has never been able to form a phraseology that would define it.

Beauty is ever external, that is outside of ourselves, and therefore we become acquainted with it through the senses. Yet only two of these avenues, sight and hearing, convey the idea of this quality to us. These two senses are often termed the intellectual senses, because they seem to be in the service of the soul, while the other three subserve the grosser wants of the body. However, the degree of beauty cognized does not at all depend upon the vividness of the sensation ; nor is the intellectual act complete without the aid of the judgment and the imagination. So much is this latter faculty concerned with the recognition of beauty, that we may safely assert that only men of ardent imaginations can ever enter within the Holy of Holies that enshrines the beautiful ; to them alone doth the Shekinah lift itself, and the full glory of the "kallos" stand revealed. We see persons who seem to be endowed with an innate sense of beauty and the true harmony of things. With nature and art alike they at once enter into the closest communion ; intuition is wiser than knowledge ; and

gladsome beauty smiles up into their faces even from the dusty wayside, while others do not come half so far after long, wearisome years of patient thought and study.

But there is a power which ranks superior to even this almost super-sensuous cognizance of beauty, and is not unfrequently combined with it, — indeed, this union makes the true artist, — it is the power of reproducing beauty, the power which we call genius. It is not merely an attempt to imitate what God has made ; for we cannot imitate that, inasmuch as it possesses life, which is his alone to give. But it is to create, to form that which, without life, shall express what life is capable of. Nature is everywhere defective ; none of her creations are complete ; we see the sublime united with the horrible, and sometimes with the hideous ; elegance and grace foiled by what is unattractive and even repellent. Now the man of genius, having carefully studied Nature and become familiar with her beauties and excellences, forms within his own mind an ideal, in which these beauties are combined in one complete, harmonious whole ; and this he proceeds to so embody that it may instruct and delight his fellow-men ; and according to the means employed, whether the tender glow of color, the firm, enduring marble, or still more enduring words, we name him poet, architect, or painter.

Beauty may be considered as of three kinds : physical, intellectual, and moral. Under physical

beauty, that is, beauty of external form, are arranged colors, sounds, figures, movements, and these make a direct impression upon the senses. Unity and variety seem to be essential elements of this beauty, so that while we insist upon variations in form, color, and the different parts of an object, we still further insist upon such congruity between these parts, as shall plainly show that their union is not the result of chance, but of thought and selection ; in fact we demand that the evidence of a controlling idea, of mind itself, shall be apparent, before we pronounce an object beautiful.

Then there are certain minor circumstances considered requisite to the attainment of beauty. In colors, for instance, those which are clear are considered beautiful ; while those which are dull, or muddy, have not this quality, and are agreeable only so far as they serve to set off the former. Again, the more delicate shades, as the pink of the rose, the lilac of the fleur-de-lis, and the tender blue of the firmament, are more beautiful than brilliant reds, greens, and yellows.

In figures or forms also, we are guided by certain rules in our judgment of the beautiful. In Nature we nowhere find squares or rectangles ; seldom, indeed, right lines. Curved and winding are all her outlines, so that these simpler forms may be said to be man's own invention, growing out of his necessities. Yet these forms are beautiful in places, for which they seem especially adapted. And here



the idea of fitness becomes an element of beauty, that of proportion being united with it. For instance, the wall of a building, its doors and windows, are usually rectangular; and this pleases us better than would a curved or irregular form, because of its fitness, that is, of its apparent firmness and security, which are necessary requirements in every edifice. Yet we demand such a proportion between the different walls of a building, and in the dimensions of its doors and windows, as shall promise convenience, and show it suitable to the object for which it was erected. Thus we see that various simple elements enter into the complex idea of beauty, and influence our judgment of it.

Although straight lines may be considered beautiful, where they are necessary, yet curved ones are ever more pleasing to the eye. The circle and ellipse are a unity in themselves, and yet their boundary is ever varying, thus uniting what have been termed the "essential elements of beauty." The forms of birds, shells, and flowers, are made up of an infinite variety of curved lines, while the human face is everywhere bounded by most exquisite curves; and these, combined with the most delicate and tender coloring, would render it the chef-d'œuvre of the Creator's hand, even had He not added expression, and thus made it the mirror in which we discern man's spiritual nature.

Intellectual beauty is found where men are pos-

sessed of intellectual powers, the contemplation of which awakens emotions similar to those excited by beautiful objects in nature or works of art ; as the power of considering matter or mind, and deducing thence the great laws that govern them, like Newton, when he wrested from matter the great principle by which all her movements were controlled, or Kepler, when he discovered the mathematical exactitude with which the planets obey the influence of the sun.

Moral beauty is seen wherever the soul of man, rising superior to his frailties and weaknesses, exhibits virtue in its noblest form ; where love of liberty, patriotism, goodness, religious devotion, lead men to forget their own ease, pleasure, and self-interest, and devote themselves — their lives, if need be — to the cause they have espoused. This is the highest form of beauty, and the true end and aim of art should be the expression of moral beauty by means of physical beauty. Yes, art must reach the spirit through the body ; and, therefore, it is by working carefully and with great patience upon form, laboring with long-continuing love and ever-increasing earnestness, that Genius is able to overcome, as it were, the immobility of the material employed ; to give it that something impalpable and invisible, which we call expression, and which awakens within us the idea of the Infinite, as nothing else can do. As Plato says, “The artist



who, with eye fixed upon the immutable being and using such a model, reproduces its idea and its excellence, cannot fail to produce a whole, whose beauty is complete.”

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# ARCHITECTURE.



## CHAPTER I.

### OF THE ESSENTIAL PARTS AND STYLES.

**T**O the arts which attempt this reproduction of the ideal, we give the name of the Fine Arts, and they are known as Architecture, Sculpture, Painting, Poetry, and Music. The first three address themselves to the eye only, and are to a degree dependent upon one another. Yet of these Architecture may be considered the most comprehensive, inasmuch as the ancients ever made Sculpture and Painting subservient to it.

Whether we explore the excavations of Nineveh, wander amid the vast ruins that line the banks of the Nile, or stand beneath the shattered columns of Greece and Rome, we shall ever find Architecture expressive of one of these three desires, that of providing shelter and defense; of terrestrial immortality, to live in the memory of man long after the body has returned to its original elements; or that of entering into communion with the Divinity whose existence is everywhere verified by the long-

ings of the needy human soul. For the great mass of the people, the first was easily satisfied, and their dwellings perished with their generations ; but the immense palaces of Thebes and Khorsabad tell us how proud kings delighted to add chamber to chamber, corridor to corridor, hall to hall, until the apartments of their palaces could be numbered by hundreds. The rock-hewn sepulchres that surround the "hundred-gated Thebes," as well as the long line of tombs that hedge in the Appian Way, give full expression to the second ; while the temples of Baalbec and Palmyra, of Luxor and Heliopolis, the Parthenon and the Pantheon, alike bear witness to man's craving for the Divine Presence.

Yet other buildings, though less imposing in appearance, and requiring rather mechanical than artistic skill in their construction, have been found necessary to man's welfare and convenience. These are quite as reliable as historic evidence of the civilization of the people who erected them, as those first mentioned, and may be divided into two classes, — those for transportation ; and those for signal-stations. Under the former head are included roads, bridges, aqueducts, chimneys ; under the latter, light-houses, fortress-towers, bell-towers, or any other structure, erected for the purpose of giving or receiving signals of any kind. Perhaps, to this list should be added under a separate head, theatres and other structures, intended as places of amusement ; although, among the Greeks,

who, as far as we know, first built these edifices, they were regarded as religious buildings, and the tragedy formed a part of the service at religious festivals.

*Essential Parts.* — In all buildings the essential parts are the foundation, the wall, the roof, the column, the lintel, the arch, the vault, and the dome. Yet to the construction of an edifice only the foundation, the wall, and perhaps the lintel are absolutely requisite.

*The Foundation.* — To lay the foundation of a building, it is necessary to find a firm basis, so far below the surface of the earth that it cannot be affected by frost, or other accident. The soil being removed to this depth, a stone wall of solidity and firmness proportioned to the weight it is to support, and considerably wider than the intended walls, is begun and carried up to the ground surface, and sometimes, one or two feet above it. Should the soil be marshy, so that no firm basis can be obtained, timbers, or piles, as they are called, are driven into this soil, and so closely together as to give the solidity required.

*The Wall.* — Upon this foundation rest the walls, which are constructed in various ways. In wooden structures, they consist of a frame-work of timbers, mortised and bolted together, and covered on the outside with boards and clapboards, while the inner surface is either plastered or finished with boards. Sometimes, in order to secure greater solidity and

warmth, the spaces between the timbers are filled with masonry-work of rough bricks.

Brick walls are of very ancient date, and have been variously constructed. Those of Babylon consisted of bricks baked in the sun and bound together by asphaltum. Neither the bricks nor the cement possessed great solidity, but this was atoned for by the thickness of the wall ; and so we read that the top of the outer walls of the city measured eighty-seven feet in width. The reticulated walls of the Romans, such as are seen at Tivoli, among the ruins of Hadrian's villa, were composed of bricks having oblique sides, and would have perished long ago, had it not been for the strength of the cement, which binds them together. Modern brick walls, on the other hand, depend for their firmness upon the position of the bricks rather than the binding force of the cement. The brick are laid in horizontal courses with the narrowest face vertical, the middle of each brick overlaying the joining of the two upon which it rests. Thus, they are continually breaking joints, and are so strongly interwoven that the thickness of the wall may be much diminished.

Stone, however, has ever been considered the most valuable and enduring of all wall substances ; and brick walls are often rendered firmer by courses of stone laid in at regular heights, and generally corresponding to the different stories within. This manner of building is frequent in the old churches

of Lombardy, and seems about to find favor in our own country, being introduced into many buildings erected within the last eight years. The ancient Romans frequently built by inclosing portions of the intended wall in a box, and filling it with stones, mortar, and sand, heaped together, and left to solidify. These walls, known as *coffer walls*, had nothing to recommend them, except their cheapness, as they were neither secure nor durable.

The walls of those ancient structures which have seemed to defy alike the force of the elements and the still more certain power of lapsing ages, are built of immense rectangular blocks of stone, carefully fitted one to another, and frequently bound together with bolts or cramps of iron. Such walls are almost indestructible, and such alone are suitable for monuments, which are to descend through a decade of centuries. In modern structures, requiring great strength, as in the Eddystone Lighthouse, similar stones are used and are dovetailed together; but most of our modern stone edifices are of much slighter construction. They have only the outer face of stone, more or less polished, while the inner half of the wall is of brick, or, as one of our countrymen expressed it, when he found, to his dismay, that the palaces of Florence and Rome had not solid marble walls, "They are veneered with marble," granite, freestone, or sandstone. Walls are usually of a uniform thickness from the base to the top, yet not always, for the thickness may diminish

as they near the summit, in the same proportion that the weight they have to support decreases. This was Vitruvius's rule.

*The Roof.* — The roof is the covering of the building, intended to protect it from the effects of the weather. The simplest and cheapest form of roof is the flat or terrace roof ; but this is seldom used in northern countries, as it allows the accumulation of snow and rain. The most common form is the pent roof, consisting of two oblique sides, meeting at the top ; these are made more or less steep according to the climate, the steepest roof making the best snow shed. When there are two portions to the roof, having different degrees of obliquity, it is called the mansard roof, from François Mansard, a celebrated French architect, who invented it.

A curious theory has been promulgated in regard to the roofs and pediments of ancient temples. Simply stated it is this : supposing the inclination of a roof at the equator to be zero ; then add to it an inclination of three degrees for every climate from the equator to the polar circle, each climate being taken at  $2^{\circ} 42' 30''$ . We find this would give an inclination to roofs at Athens of  $16\frac{1}{2}$  degrees, and at Rome of 22 degrees. Now the inclination of the roof of the Parthenon is 16 degrees and that of the Erectheum  $15\frac{1}{2}$  degrees ; while in Rome, this inclination varies from 23 to  $24\frac{1}{2}$  degrees. This would give an inclination of  $30^{\circ} 24'$  at



London, and is an incontrovertible argument against the suitability of Greek proportions to more northern climates. In the temples of ancient Greece, the mediæval Gothic, and the more solid structures of the Renaissance, we find roofs built of stone, and as solid and enduring as the walls themselves. But the vast edifices of Assyria, and sometimes of Egypt, as well as of more modern Rome, were evidently protected only by wooden roofs similar to those now constructed. These are raised upon beams which span the inclosure, the two ends resting upon the opposite walls. As these beams are intended to counteract the lateral pressure of the rafters, which support the roof-

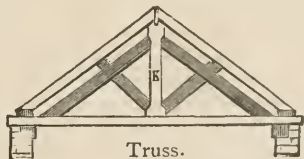
mask or covering, they are called tie-beams. To prevent them from bending downward, a king-post is erected upon each beam, uniting it to the angle at which the rafters meet.



In broader spans, two other upright posts, one on each side, are introduced, and these are called queen-posts. Smaller beams, connecting the king and queen posts with the rafters at different angles, are added, and the whole, mortised and bolted together, is called a truss.



When the trusses are completed and in place, the roof, after being boarded, is covered with slates,



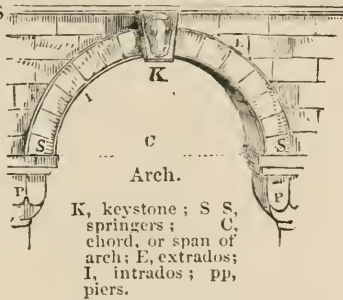
earthen tiles, sheets of metal, or, in this country, where wood is abundant and less precaution is used against fire, with shingles. Sheets of metal are principally used for flat roofs, domes, and curves, or angular surfaces. Cements and various other compositions are sometimes used for this purpose on account of their cheapness.

*Column.* — The column, or pillar, is an upright structure intended for the support of some part of the superstructure. Its parts are the base, shaft, and capital. The force which it has to resist is principally that of perpendicular pressure. As the lower part of the shaft must not only support this pressure, but also the weight of the superior part, its diameter should gradually decrease from the bottom to the top. This diminution in the columns of the antique orders was usually one sixth or one seventh of their diameter, and the swell of the shaft was called by them the entasis. The Gothic column preserves the same diameter throughout.

*Lintel.* — The lintel is a horizontal beam of wood or stone, extending from one wall to another, for the purpose of supporting the superincumbent weight. A lintel makes the upper part of the framework in a door, window, or any other aperture in a wall.

*Arch.* — The arch answers the same purpose as the lintel, but is of bow-like form, and may be constructed of any number of pieces. Certain technical terms are used in the description of the arch,

which, perhaps, it may be as well to define here. The stones of which it is composed are cut in the form of a truncated wedge, and are called *voussoirs*; the central or uppermost stone is called the *keystone*. The seams in which two adjacent vous-



souirs meet, are called joints, and they must all point to a common centre. In this case, no one portion of the arch can be displaced or forced inwards. The extremities of the arch rest sometimes upon walls of solid masonry, called abutments, and sometimes upon piers built for their especial support. The lower line of the arch stones is known as the intrados or soffit, while the upper line is called the extrados or back. The beginning of the arch is called the spring of the arch; the middle, the crown; and the intervening parts, the haunches; while the line from which the arch springs is called the impost. An arch of proper form, when complete, is rendered stronger by the pressure of the superincumbent weight, provided that this pressure is equally distributed. In arches made of bricks, any *one* of the bricks might be forced inwards, were it not for the mortar; but *two* bricks, by the disposition of the cement, constitute a wedge, and, therefore, are capable collectively of resisting pressure. During construction, an arch is

supported by a temporary woodwork of the same form, and this is called the centering.

The most simple form of the arch is that of the semicircle, though it is frequently a smaller arc of a circle, or a portion of an ellipse. In the small arches of ordinary buildings, the form of the arch is of but little consequence; but in bridges and similar structures, where there is a sidewise as well as vertical pressure, its strength is of great importance, and it offers better resistance if the arch rises more perpendicularly from the abutment; its general figure being that of the longitudinal section of an ellipse.

Besides the semicircular arches, we have the pointed or lancet arch, so marked a feature of Gothic architecture as to be sometimes called the Gothic arch; the rampant arch, where the two ends spring from unequal heights; the horse-shoe, or Moorish arch; and the concavo-convex form, known as the ogee arch, and fitted only for ornament.

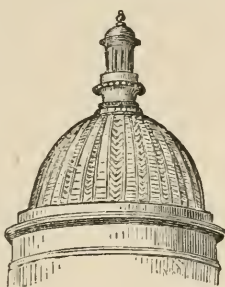


Arcade.

A continuation of arches is called an arcade, and in such structures, while the terminal arches usually rest upon walls of masonry, which must be strong enough to resist the horizontal pressure, the intervening ones are supported by single columns, clusters of columns, or pillars of masonry work.

*Vault.* — The lateral continuation of an arch, so as to cover an area or passage, is called a vault. The simple vault distributes its pressure equally along the walls or abutments upon which it rests, but the complex or groined vault, formed by the diagonal intersection of two arches, throws the pressure upon the springing points, and here it is greatly increased.

*Dome.* — The dome is a concave covering to a building or a part of it, and may be either spherical or polygonal in structure. Sometimes the term cupola is used to designate such a structure, and at others it is restricted in its meaning to the concave under-surface. Ordinarily, however, cupola is used in speaking of such a covering, when it is of very moderate dimensions; while the dome is understood to be a part of a cathedral, or some other edifice of like proportions. When a dome is constructed of stone, the constituent parts should have the same form, that of the frustum of a pyramid, only in spheroidal domes, the inner surface must be concave, and the outer one convex. This form of structure is more durable than the arch, since each part is kept in place, not only by the stones above and below it, but also by those on each side. So great is this side-support, that a dome may be erected without centering, and may also be left open at the top when



completed, and this with the utmost security. The dome of the Pantheon at Rome, which has stood unimpaired for nearly two thousand years, has an opening some 28 feet in diameter. There the outer and inner surfaces are of different curvatures, the thickness increasing downwards. Sometimes the upper circle of stones, although the weakest, is made to support the weight of a lantern or tower. This is the case with St. Peter's in Rome, and, also, St. Paul's in London.

In the erection of a dome great care must be taken that the supporting walls are of requisite strength, as otherwise the lower parts, exerting great pressure, tend to spread outwards. In modern cathedrals, built in the form of a cross, the intersection of the arms with the body of the cross is frequently covered by a dome, which rests upon a circular wall. This wall is supported by arches, and these again by massive piers or pillars, which give free passage between them. The piers and arches so disposed are called *pendentives*. This is the manner in which the double dome of St. Peter's at Rome is supported. Its exterior diameter is 148 feet and the interior 138 feet 5 inches; the piers of these pendentives are massive piles of masonry, but yet it was deemed insecure, and Zabaglia, the architect, was employed to further strengthen it, by hooping it with six immense iron bands. The dome of St. Maria del Fiore at Florence — the first dome erected after the revival of the study



of the antique — rests upon perpendicular walls strengthened for the purpose.

Neither the Egyptians nor the Greeks seem to have understood the construction of the dome, and, therefore, it must have been invented by the Romans, or their neighbors, the Etruscans, from whom, as we shall see, Roman architecture derived some of its most essential features.

STYLES OF ARCHITECTURE. — The architecture of every country exhibits certain peculiarities both in form and manner of construction, and so marked that the origin and age of any structure may be pretty accurately determined, no matter how ruinous its condition.

These peculiarities have given rise to certain divisions in architecture, known as styles ; and these styles receive their designation either from the country where they most abound, or the people who are supposed to have originated them. The most common divisions thus made are the Assyrian or Babylonian, Persian, Indian, Chinese, Egyptian, Grecian, Moorish or Saracenic, Byzantine, Early Christian, Romanesque, Gothic, and Renaissance, — the two latter having various subdivisions, dependent upon the modifications adopted in different countries and at different times.

In regard to the origin of these styles, various conjectures have been made, and although some are mere vagaries, others seem to have their foun-

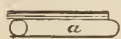
dation in reason and experience. When we trace the massive sloping walls, close, short and frequent columns, and monolithic roofs of the Egyptian to the models furnished by the caves or mounds of their ancestors ; when in the Grecian temple, with its pillared portico and tasteful entablature, we discern an outline not unlike that of the rude wooden huts that shelter an agricultural people ; or recognize in the curved roof of a Chinese pagoda the sagging of the tented canvas, and in the groined vault of the Gothic nave, the interlacing branches of the forest path, the resemblances are so apparent that we cannot altogether ignore them.

Besides the parts described in this chapter as essential, there are numerous minor ones ; but as almost all of them belong to some special style rather than to architecture as a whole, they will be mentioned under appropriate heads.

*Mouldings.* — The most essential mouldings are the torus, the astragal, the ovolo, the echinus, the scotia, the cavetto, the cyma recta, and the cyma reversa.

The torus is a convex moulding, the section of which is a semicircle.

The astragal is like the torus, but smaller. Moreover, it is always placed so as to be looked up to, while the place of the torus is below the eye, as in a base.



Astragal.

The ovolo is also convex, but its section is only a quarter of a circle.



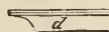
The echinus only differs from the ovolo in being ornamented, while the latter is plain.



Echinus.

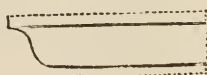
The scotia is a semicircular concave moulding, and is frequently employed in connection with the torus.

The cavetto is also concave, but its section is only a quarter of a circle.



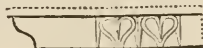
Cavetto.

The cyma recta, or cymatium, is an undulated moulding, the upper part being concave and the lower convex.



Cyma Recta.

The cyma reversa, talon, or ogee is the reverse of this.



Cyma Reversa.

The fillet is a small square, or flat thread-like moulding.





## CHAPTER II.

### BABYLONIAN AND ASSYRIAN ARCHITECTURE.

**T**O trace the progress of Art in Eastern, Western, and Central Asia, would far exceed the limits proposed in this little work ; and, therefore, we will only instance some of the distinguishing features of Babylonian and Assyrian architecture. Of the magnificence of Babylon, as made known to us by ancient writers, nothing remains ; and only shapeless heaps of rubbish, half buried in the sand, and covered with vegetation, mark the site of the ancient city. This complete destruction is to be attributed to the perishable material employed in building, — bricks baked in the sun and bound together with asphaltum, wells of which were everywhere scattered over the vast plain where the city stood. Stone was nowhere to be found, save in the distant mountains of the North, and therefore the ornamental features were formed of baked tiles, upon which tapestry-like patterns had been glazed in various colors. Thus we see the architect borrowing his form of decoration, from the handicraft, in which his nation most excelled.

The efforts of Botta and Layard in uncovering

what are believed to have been the ruins of Nineveh, give to us a far better idea of the general design of building among these nations than we could ever gather from the study of ancient historians and travellers. Yet we can never read the descriptions of Herodotus and Diodorus, or those passages of the Old Testament, which give such vivid glimpses of the strength of Babylon, without being impressed by the colossal extent as well as the grand simplicity, which characterized the architecture of these ancient cities ; and also the fact that the brilliant metals were extensively employed, to add richness and beauty to structures of various kinds. Thus we are told that the wall which encompassed Babylon was sixty miles in circumference and eighty-seven feet thick, and that it was pierced by a hundred gates, all of shining brass ; while the roof of the lofty temple of Belus was covered with plates of gold.

The excavations referred to, show that the Assyrian buildings were raised upon terraces, and consisted of narrow corridor-like apartments, irregularly arranged around an open court ; and, apparently, without any idea of symmetry in their collocation. The different stories arose one above another in terraces, and, from the sculptures found, it may be inferred that the flat roofs of the lower terraces often formed small pleasure grounds, planted with palms and cedars. Each story was then crowned with a gallery, opening with small colonnades ; and

through these apertures, they evidently obtained light and air, as there were no windows, or other external openings. The capitals of the small columns found in these colonnades, usually consist of two pairs of volutes, placed one above another ; sometimes, however, they take the form of a slender calyx covered with upright leaves. The portals, inclosed on both sides by colossal bulls with outspread wings and human heads, must have formed a very imposing feature in these singular structures. These animals are executed in high relief, either upon white alabaster or a brilliant yellow limestone, and bear traces of the strong colors in which they were originally painted. The outer walls are frequently ornamented with pilasters, but columns as free supports are nowhere found in large apartments. These seem to have been roofed by horizontal beams resting upon the opposing walls. Alabaster plates ornamented the inner walls of the different divisions ; and the reliefs upon them everywhere, both in design and arrangement, imitate, like the glazed tiles of Babylon, the richer productions of the loom. No progress is found in the works of different epochs, but everywhere are seen traces of a stiff and unchanging conventionalism, probably regulated by despotic rule.



## CHAPTER III.

### EGYPTIAN ARCHITECTURE.

**B**EFORE entering upon the subject of Egyptian Architecture, it will be well, perhaps, to glance at the peculiar position, customs, and government of a country, which we are accustomed to look upon as the cradle of civilization, and the birthplace of art and science. The river Nile, which courses through Egypt, dividing it into two equal portions, was not only the source of its material wealth, but, also, had much to do with the customs and intellectual culture of the people. Shut in on either side by broad tracts of desert, the Egyptians devoted themselves to the development of such sources of wealth as their narrow territory offered, and, conscious of their superiority to the surrounding nations, avoided all intercourse with them. Thus husbandry was their principal employment; the land, annually fertilized by the beneficent Nile, richly repaid the labor bestowed upon it; and, populous as were its numerous cities, this vast oasis could not consume all that was gathered in at the harvest. There was more than enough, and, therefore, when in the more sterile regions on the

other side of the isthmus, famine pressed sore, the people went down to Egypt "to buy corn."

The river may be considered the foster-mother of Egyptian intelligence, for its inundations depended upon the revolutions of the seasons ; and thus the motions of the heavenly bodies became the subject of priestly lore. The wide-extended plains gave them broad horizons ; the long succession of cloudless nights favored their efforts ; and so it is not surprising that they perfected a system of astronomy far in advance of any known to other nations. To the accomplishment of this a knowledge of mathematics was indispensable ; and so their priests became skilled in geometry, the science with which the practice of art is, perhaps, more closely connected than with any other.

Their government was completely despotic ; the sovereign was worshipped as a deity ; his will was law, and could not be controverted ; yet he was bound to respect certain legal and ceremonial observances. In these he was instructed by the priests, who were his educators, supporters, and advisers. They formed a privileged class or caste ; the soldiers formed another ; but the rest of the people were little better than slaves. Their habits, dress, and manners, were regulated by fixed rules, and were as dissimilar to those of any other land, as were their rude hieroglyphics to the written languages of the East or West.

The religion of the Egyptians was polytheistic ;

distinct animal forms were given to the different gods ; and almost all animals were not only worshipped during life, but also carefully embalmed and entombed after death. They believed in immortality, but of a sensuous nature ; and hence paid great attention to the embalming of the human body, and the erection of magnificent tombs for its reception.

*Pyramids.* — The origin of art among these people is lost in antiquity ; but its earliest monuments are believed to be the pyramids, and their erection probably marks the “ Epoch at which a higher civilization took root in the earth.” The largest of these structures are situated near the little village of Ghizeh, not far distant from Cairo. They were built by three kings, Chufu, Schafru, and Mencheres, — that of Chufu exceeding the others both in height and base surface. Originally this base structure measured 764 feet square, and the whole pyramid towered up to the enormous height of 480 feet, terminating not in an apex, but in a flat table-like surface, which generally is supposed to have served as a position for astronomical observations. It contains three chambers placed one above another, but in the lower one alone, which is cut in the living rock of the foundation, was a sarcophagus found. The supposition is, that the building began with the erection of these chambers — sometimes elevated to about one fourth of the height of the whole structure, — and then proceeded outward and



upward until completed. The outer surfaces were first built in terraces, the steps to which were about two feet high and three broad. When the desired height had been reached, these steps were filled up by immense blocks of stone, those of the lower tier often measuring thirty feet in length. The surface was then finished down by a cement as smooth and enduring as marble itself. Intricate winding passages led from the interior chambers to the outer wall, terminating usually on the north side of the edifice and at some little distance from the middle. The outer slabs were then carefully laid over it, and so arranged, evidently by design, as to completely hide all traces of the opening.

Ingenious and varied were the precautions necessary to secure the roofs of these inner chambers from the superincumbent pressure ; yet the mechanical knowledge of the architect was equal to the emergency ; and in no place is there the least sign of weakness or decay. The exteriors have been robbed of their stony casements, for these pyramids have long served as a quarry of building material to Cairo, in the same manner as did the Coliseum to mediæval Rome. We everywhere find the interior of such pyramids as are completed, lined with enormous slabs of red granite highly polished, but entirely destitute of ornament. Neither are the traces of any attempt at sculpture to be found in any part of these edifices, although so abundant in structures of later date. Whether the



plastic arts were not at all practiced at so early a period, or whether their imperfection rendered them unworthy to adorn royal sepulchres, or whatever causes excluded the use of them, we cannot now determine.

*Sphinx.* — In the immediate neighborhood of these pyramids rises another monument, quite as remarkable, — the colossal sphinx having the body of a lion and the head of a man. From the fore-paw to the end of the tail, the body measures one hundred and forty feet, while the head rises sixty-five feet from the base, upon which the figure reclines. It is carved from the living rock, and is remarkable for its size rather than for any artistic merit. At present it is almost buried beneath the sands of the desert, which, for so many ages, have drifted over it.

Grouped about these royal tombs of the Pharaohs, are numerous private ones, evidently of later date. These are decorated with architectural ornaments, and the ceilings are frequently made to represent pieces of wood united by joiner's work ; sometimes a trunk-like beam, resting upon the door-posts on either side, forms the lintel. Where support is necessary, square pillars are introduced, and upon them is placed the quadrangular architrave.

*Egyptian Orders of Architecture.* — In later days, when arose those magnificent temples, whose ruins, stretched along the banks of the Nile, are all that remains of the "hundred-gated Thebes," the column

took its place in architecture. At first it was a simple square shaft ; then it became rounded ; and at a still later date became the perfected column, — the lotus plant, everywhere so abundant along the river-border, furnishing a model for both shaft and capital. This later architecture of Egypt has been divided into three orders, dependent upon the form of the capital, viz : the Lotus-bud, the Lotus-flower, and the Osiride. In the first, the shaft represents five stalks, narrowing toward the top, and bound together by fillets. Above these rises the capital, having the form of the closed lotus-bud, and crowned with a square plinth, upon which rests the architrave. In the second order, the bud form gives place to the fully expanded calyx, forming a capital well fitted to the massive character of Egyptian architecture, in which the columns were often ten or twelve feet in diameter. In the third order, the lotus-bud or flower is supplanted by the head of Osiris, the deity personifying goodness and truth.

*Karnak.* — In no place are there more perfect examples of these orders found than among the ruins of Karnak, a temple belonging to the city of Thebes. Before speaking further of this magnificent ruin, it will be well, perhaps, to remember that in the later as in the earlier Egyptian architecture, the pyramidal form is everywhere recognized as its most distinguishing feature. The inclosing walls always tapered from the base to the summit ; the usual Pylon entrance was composed of two truncated

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NAVE OF THE GREAT HALL AT KARNAK.

towers or pyramids, resting on a quadrangular base, and flanking the gateway on either side ; the obelisks were but modifications of this form, and the temple walls, following the universal model, sloped gradually inwards. The columns were numerous, and placed close to each other, but of weighty proportions, sometimes not exceeding three and a half or four diameters in height. A concave entablature or cornice, composed of vertical flutings or leaves, crowned the Pylon entrance, and, also, the various colonnades and pilastered walls.

The ruins of Karnak cover a space nearly a mile square ; while the temple itself was about twelve hundred feet long and four hundred and twenty broad. It has twelve principal entrances, each of which is approached through an avenue of sphinxes. That extending across the plain from Luxor, is nearly two miles long, bordered on either side by a double row of colossal ram-sphinxes, each cut from a single block of granite. This avenue terminates at a magnificent Pylon gateway, which opens upon a court three hundred and twenty feet broad and two hundred and seventy feet deep, surrounded by a wall upwards of one hundred feet in height. This court, lined on all sides by a colonnade, terminates at a second Pylon structure, even more colossal than the first. Crowned by a circular cornice, and covered with hieroglyphics and sculptures, as we ever find these structures, this second gateway opens into the Columnar Hall, the



largest apartment in the world. It is about three hundred and twenty-nine feet long and one hundred and fifty wide, and its stone ceiling rests upon one hundred and thirty-four columns, so disposed as to divide the apartment into three parts. Those which support the central nave are about sixty feet in height, the others about forty ; the former belong to the lotus-flower order, the latter to that of the lotus-bud. This hall is surrounded by a frieze in low relief, the subject of which is supposed to be the exploits of Sethos. This Sethos was probably the Sesostris of the Greeks, and the hall is supposed to have been built during his reign. Colossal statues, one of which measures upwards of twenty-seven feet in height, are placed here and there against the wall of the apartment.

At the lower extremity of this hall opens a third Pylon entrance, flanked on either side by an obelisk ninety-two feet in height and seventy-two in diameter, — dimensions which exceed those of any obelisk yet removed from Egypt. Passing through this entrance, the traveller finds himself in a second colonnaded court, and before a fourth gateway of similar structure to the three preceding ones. This passed and he has reached a labyrinth of columned halls and chapel-like rooms, endless in number, and connected by a confused network of galleries and corridors, — presenting that conglomerated system that is everywhere a feature of Egyptian architecture. The walls are more or less ornamented with

richly painted imagery and statuary of colossal proportions, — both presenting the same unvarying conventionality of form and treatment. Neither at Karnak, Luxor, or elsewhere amid these ruins, do we find any traces of windows or other openings to admit the light ; all was gloomy, dark, mysterious, and it is doubtful if any save the priestly caste were allowed to penetrate into these temples further than the inclosure of the fore-court.

*Tombs.* — The tombs at Thebes consist of artificial grottoes cut in the side of a hill, and extending from its base three quarters of the way to the summit. The plan of all is nearly the same. A door, opening toward the east, leads into a fore-court supported by columns and pilasters. From thence a shaft, penetrating the solid rock to the depth of some forty or fifty feet, descends into a long subterranean alley, which terminated in a square room, supported by pillars. There stood the sarcophagus of the king: the brilliant frescoes on the walls relate to his supposed destiny after death ; those in the upper apartments represent the funereal ceremonies ; while others give us a vivid realization of the manufactures, agriculture, and arts, that belonged to Egyptian civilization.

Traces of other ruins, partially buried in the sand, are visible ; among them the temples of Gornou and Medinet-Habu ; also, that built by Amenophis III. on the Isle Elephantine, which is remarkable for its simple design, and is the nearest approach

we find to the form of the Grecian temple. It consists of a single cella, surrounded by a colonnade of pillars, those on the sides composed of a simple rectangular shaft without base or capital. The temple is tetrastyle, with the middle columns of the front of the Lotus-bud order.

*Statues.* — The impression of these vast ruins, which Belzoni said made him feel as if he were in a city of giants, is everywhere heightened by the multitudes of statues, mostly of colossal size. These statues in no way conform to modern ideas of beauty; both sides of the figure are exactly alike as regards attitude and position, and there was evidently no attempt to give the effect of grace and motion, but of unchanging, eternal repose. Of the larger statues, which are nearly all in a sitting posture, the most remarkable are two gigantic figures, which once stood at the entrance of a temple long since destroyed. They rise from the pedestals, now buried in the sand, to the height of fifty-three feet. The northern one is the famous statue of Memnon, which the ancients supposed to emit a sound like that of a harp-string at the rising of the sun. Modern investigation has proved that the statue was hollow, and it is now believed that the miraculous sound was one of the many attempts of a ruling priesthood to impose upon the credulity of ignorance and superstition.

The later Egyptian architecture is less colossal in proportion, less grand in design, but still even



under the Ptolemies, and yet later under Cleopatra, it retains the pyramidal form and the Pylonic structure. Indeed, it seems not to have been at all influenced by the art of Greece or Rome.

These make but a very small part of the ruins of Ancient Egypt. Everywhere the traveller is impressed by the vastness of the undertakings, not only in their colossal size, but also in their extent, — palaces whose ruins cover the ground for miles ; avenues of sphinxes and statues that may be counted by hundreds ; and blocks of stone weighing hundreds of tons, beautifully polished, covered with engravings, and transported for miles. “Could all this have been accomplished without the power of steam ?” he asks, as he gazes upon these wonders of mechanical art. Yes, so it evidently was ; but it could only have been done in a country as populous as Egypt, and similarly governed. The people were the slaves of the king, and, no doubt, conscripted for public works as for the army. Indeed, the same custom prevails in modern Egypt ; the men sent by the Pasha to aid M. Lesseps in the construction of the Suez Canal being thus levied.

Yet the same despotism, which enabled the Egyptians to complete such vast works, prevented either progress or originality in art. All callings were hereditary, and the statue, instead of being the living ideal of a soul inspired, was wrought out after a form fixed by law, and from which there was no deviation. Moreover, the statuary followed his pro-

fession, because it had been his father's, nor was that the making of the complete statue. From the seams and joints, as well as the representations of the practice of art among the Egyptians, we must conclude that each statue was the work of several hands, — one forming the arms, another the head, another the legs, etc., and that each artist devoted his life to the forming of one particular member.

This division of labor, while beneficial in the useful arts, so far as it secures greater perfection of parts, is opposed to all improvement, and must ever be regarded as fatal to the successful cultivation of the fine arts. These circumstances may help us to understand why a nation so prosperous and intelligent as were the Egyptians, have left such monuments only as awaken wonder, such as neither excite the emotion of the beautiful, nor desire for imitation.





## CHAPTER IV.

### GRECIAN ARCHITECTURE. — CAUSES THAT CONTRIBUTED TO ITS PERFECTION.

**A**PPROACHING the subject of Grecian architecture, we must tread reverently and with uncovered head, for we here enter the sacred precinct of true beauty. Here the necessary conditions have been fulfilled, and here art has reached its highest development, — a development so perfect and so well regulated that it has been able to lay down the rules by which it was created, and thus to serve as a model not for slavish imitation, but to assist succeeding ages to build according to the conditions which their own life and circumstances, both physical and mental, impose.

You ask, we all ask, why no subsequent art has equalled or excelled the art of Greece? If we cannot quite answer the question, we can, at least, notice some of the conditions which helped to form Greek art, and which have never since existed. In sculpture the Greeks had the most beautiful models. With them the development of the outward man was of the first importance. Socrates said, "Let them take care of their bodies during

the period of youth, and thus philosophy will have her instruments ready.”

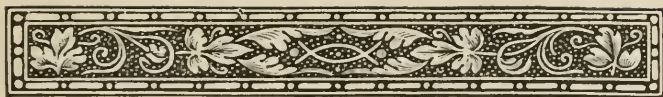
Everywhere physical perfection was aimed at. To the youth it was of the highest consequence ; for he was to enter into the contests of the great national games, and by long and severe training of his physical frame, he hoped to become the victorious athlete, in whose honor the walls of his native city should be thrown down, while he lived that city’s honored guest. Nor only this, but the most illustrious poets of his time considered his strength and beauty subjects worthy of their song, while his statue solemnly inaugurated made known his prowess to coming generations. Such attention to physical beauty, continued for centuries, by people as intelligent as the Greeks, with climate, country, and habits of life, all in its favor, and we must believe that the form of the living Greek as far exceeded in its outlines and proportions the human form of today, as does the beauty of the Greek statue exceed all that the highest genius of man can now accomplish.

To account for the perfection of Grecian architecture, we must take into consideration other circumstances. Among these is the beautiful and varied surface of the country ; now breaking out into bold cliffs and promontories ; again sinking away in smiling valleys, through which brooks and streams wound their merry way, giving life everywhere to rich olive groves, ample vineyards, and gardens

teeming with golden fruits. This varied surface gave an equally varied climate, and yet nowhere did the land yield to the sterility of a rigorous winter ; there was always verdure and bloom, so that Greece might indeed seem to be favored by all the gods. This natural loveliness was everywhere increased by thousands of beautiful statues that populated the groves, "A whole world of marble, gold and silver, brass and bronze, twenty different bronzes and of all tints, thousands of glorified dead in irregular groups, seated and standing," while hundreds of shrines and temples adorned the rising ground. Surely the æsthetic emotions must be continually stimulated, continually developing, with so much beauty on every hand. Add to this the fact that beauty was a leading object of pursuit, of study and contemplation among the Greeks. Plato and Socrates deified it, and its development received the attention of the most profound statesmen. Then the mild climate allowing much of man's life to be spent in the open air, private dwellings were plain and the furniture simple : a bed, a table, a few vases for ornament, this was all. Thus the mental force, which is now expended in the invention of a thousand appliances, calculated to secure internal comfort and convenience, was given to the creating and perfecting of objects of beauty, and especially to architecture, inasmuch as the temple which enshrined the divinity, was the object of tenderest thought and care ; in it was to culminate all the perfections yet attained.

Another thing to be considered, and, perhaps, this is really the key that reveals what we are looking for. The Greeks, instead of striving after novelty, were continually seeking to perfect the forms that had descended to them from their ancestors. Indeed, this seems to have been a peculiarity of the Grecian mind, that novelty, at least in form, had no charm for them. Whether it was the result of a high state of refinement — for love of novelty ever belongs to ignorance and vulgarity — or arose from some other peculiarity, we cannot now determine. The Doric order was upwards of two centuries old in the time of Pericles, and yet no changes were made ; its proportions and parts were retained in the edifices then erected, nor have we proof that there existed any desire for innovation. How can perfection be better secured, how slight errors corrected, and modifications tending to secure harmony be introduced, than by submitting the same general features to the scrutiny, criticism, and genius of several succeeding ages ?





## CHAPTER V.

### GRECIAN ARCHITECTURE. — ORDERS AND EARLY EDIFICES.

**T**HE oldest remains of Grecian architecture are evidently of Pelasgic origin, belonging to a period, which dates back at least ten centuries before the birth of our Lord. They consisted of walls of immense thickness, built of irregular polygonal blocks, carefully fitted to each other without mortar, and evidently formed parts of the fortresses or strongholds of that heroic age. These walls are sometimes connected with long galleries or porches, which, opening outward, are arched over by transverse layers of stone. This kind of roofing is frequently found in very ancient entrances or gateways. At other times, the sloping sides of the gate are terminated by a heavy stone beam, above which is left a triangular opening intended for the architrave of the door. The principal gate of the Acropolis at Mycenæ is, perhaps, the best example of this kind still existing. A limestone plinth, ten feet high, fills the triangle; and above this, there rises in the centre a column in token of Apollo, with a lion in bold relief on each side. The fore-feet of the lions rest upon the pedestal of the column, but the heads are wanting.



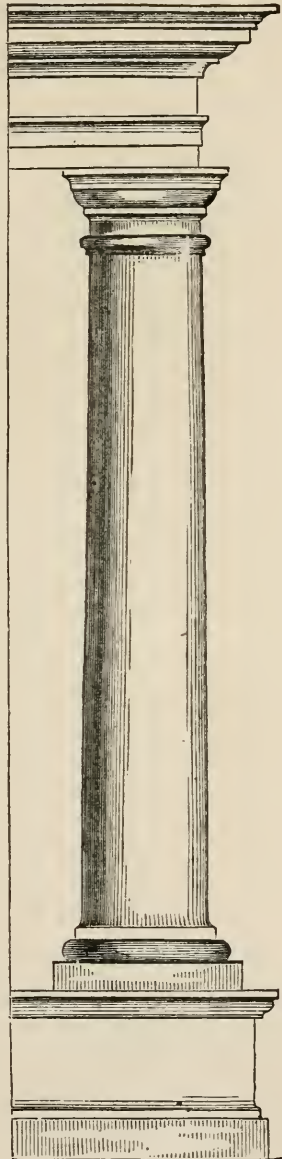
The style of these early European sculptures bears a strong resemblance to that of the early Assyrian works, and this fact, together with Homer's glowing descriptions of domes, walls, doorways, and pillars, resplendent with gold, silver, and bronze, may lead us to suppose that the early architecture of Greece retained many Oriental features. The capital of the Ionic column, also, points back to the ancient buildings of Babylonia and Assyria, and we may safely presume that the faint traces of this Eastern influence perceptible in the perfected forms of Grecian art, resulted from the Grecian's nature ; they were a people with whom the perception of fitness and harmony seemed to be as intuitive as the pulsations of the heart, and they moulded anew these forms so as best to accord with a land of varied surface and climate ; a land abounding in sharp high promontories, deep valleys, broad sea-inlets, and as unlike anything Oriental, as their mythology, language, or art.

What period of time may have elapsed between the building of the rude Pelasgic walls and the early Doric temples, found in Sicily and lower Italy, we cannot now determine ; neither can we trace the various changes by which Grecian architecture developed itself into that wonderful harmony of parts, which has rendered it the model of all succeeding ages — developed, because it was by a more perfect adjustment of parts, a greater delicacy of proportion, a more complete rhythm and harmony, rather than



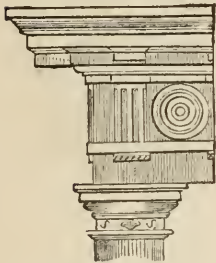
by the introduction of new and distinct features, that this art advanced to its perfection.

From a passage in Pausanias we learn that both the Ionic and Doric orders were in use as early as 650 B. C., yet the most brilliant period of Grecian art was that which intervened between the Persian war and the Macedonian supremacy, from about 470 to 338 B. C. All the architectural works of this time may be referred to one of the three orders into which Grecian architecture is divided — the Doric, the Ionic, the Corinthian ; and these orders are said to have received their names from the regions where they originated. The division is founded upon the forms of the column and the entablature resting upon it, so that when a building is said to be of a certain order, we understand at once the peculiar modifications of these parts, for they are invariably the same.



Column and Entablature.

*Doric Order.* — The Doric order is the oldest as well as the simplest. The column, consisting of the shaft and capital, is from four to six diameters in height. It has no base, but rests directly upon the stylobate, a platform rising by three steps from the substructure, and forming the pavement or floor of the portico. The capital in this order consists of a flat square tile called the abacus,



Doric Order.

resting upon a large ovolo, or quarter round convex moulding. The shaft has twenty flutings, each less than a semicircle, and meeting together in sharp edges. In all the orders, the shafts diminish in diameter from the base upwards about one sixth or one seventh of their diameter, and the lower diameter is the unit of measure for all parts of the columns and entablature. In this as well as the other orders, the entablature is divided into three parts — the architrave, the frieze, and the cornice ; the architrave rests directly upon the columns ; the frieze is placed above it ; and surmounting both is the cornice, formed of various projecting mouldings. In the Doric order the architrave is entire and devoid



Triglyphs.

of ornament : it is separated from the frieze by a simple fillet. The frieze is divided into triglyphs and metopes ; the former are short perpendicular beams having two complete channels cut vertically on the outer

surface ; thus they seem divided into three parts, and hence their designation. These are placed at equal distances along the upper side of the architrave, and upon them rests the lower member of the cornice. The intervening spaces are filled with square slabs, and these are called metopes. Their surface is sometimes plain and sometimes ornamented with bas-reliefs. In the oldest remains of this order,



Metope.

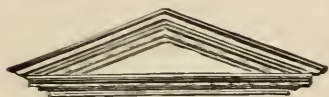
these spaces are left open, probably to admit the light, and so the triglyphs alone form the frieze. The triglyphs slightly project beyond the architrave, and on the under projecting surface of each one, are



Guttæ.

small guttæ or drops which simulate rain-drops. The plinth which forms the first member of the cornice, projects some distance beyond the frieze, and along its under surface are arranged, in harmony with the triglyphs and metopes, rectangular blocks resembling the ends of rafters, and called mutules. These, also, were ornamented on the under side by guttæ, arranged in three rows. In this order the whole entablature was divided into eight parts, of which two were given to the architrave, three to the frieze, and three to the cornice. On the front of the building, usually facing towards the east, and also on the west side, two similar cornices rose obliquely from the extremities, and meeting directly over the middle, inclosed a triangular

space, known as the pediment or tympanum. This

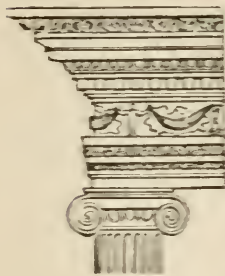


Pediment.

was faced with slabs of stone, and in the later temples filled with sculptures.

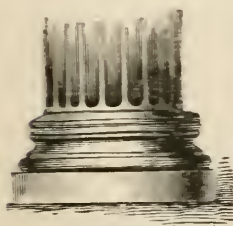
— those of each pediment forming a single group, generally illustrative of some mythological tale connected with the history of the god or goddess to whom the temple was dedicated.

*Ionic Order.*— The column of the Ionic order varies from eight and one fourth to nine and one half diameters in height. Unlike the Doric, the shaft rests upon a base, and this is frequently of that form known as the Attic base, which consists of a square plinth as its lower member, then two tori one above another, and an intervening scotia, the various mouldings being united to each other by fillets,



Ionic Order.

— two or three grouped together.

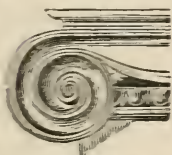


Base.

The most distinguishing feature of this order is the capital. It consisted of a member channeled into a moulding on both the upper and lower edge, and then rolling under so that these mouldings have the

appearance of the ends of a double scroll, the edges turning outward. These were called volutes, and have been considered as resembling the horns of Jupiter Ammon ; while others have asserted that the

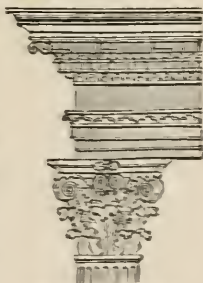
order was first used in sepulchres and monuments of the dead, and the volutes represented the scroll upon which was written a eulogy of the deceased. The space between the scrolls was filled with an echinus or ovolo carved in



Ionic Volute.

leaf or flower forms, and under it was a moulding of beads. Above the voluted member was placed the abacus, its edges variously moulded, but always with great simplicity. The shaft in this order is frequently plain, but sometimes ornamented with twenty-four flutings. These are more deeply channeled than in the Doric order, and separated from each other by fillets. The architrave is composed of three layers of stone, each projecting a little over the one upon which it rests, and the upper one crowned by a string of beads, and a projecting cyma reversa moulding sometimes carved into leaf-forms. The frieze in this order is the simplest member of the entablature, being destitute of all ornament save the line of dentils or small square blocks, which separates it from the widely projecting cornice.

*Corinthian Order.* — The last order to be mentioned is the Corinthian. To Callicmachus has been attributed the honor of its invention, the idea having been suggested to him, it is said, by the leaves of an acanthus encircling a basket, which had accidentally been left resting upon the plant. But Corinthian capitals ex-



Corinthian Order.



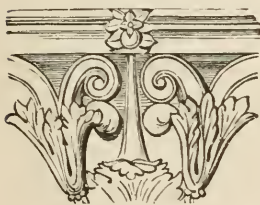
isted before the time of Callimachus, and, therefore, we can only presume that he perfected an order already known.



Acanthus.

The entire column, including the base, is ten diameters in height. The shaft is always fluted, while the base is sometimes of the Attic form, but varied by the introduction of additional mouldings.

The capital in this order is the distinguishing feature, and is remarkable for its beauty and elegance. The lower part is composed of two rows of acanthus leaves, placed one above another, eight leaves in each row. From those on each of the four sides of the capital, rise two double branches,—the inner



Helices.

small branches bending toward the centre, and meeting in spiral whorls called caulicoles or helices under the middle of the curved side of the abacus. Above them is placed an ornament, sometimes of rose form,

and sometimes a palm-like flower. The outer branches extend towards the corners of the abacus, and here they also form whorls, but much larger than the central ones. The abacus, curving outward to these corners, gives an opportunity for complete whorls under each of its four sides, and those of contiguous sides meet each other at these angles—the extremities of which are slightly squared. The edge of the abacus is formed of an

ovolo, fillet, and cavetto, rising one above another. The acanthus leaves of the lower row sometimes gave way to the slender lance-like leaves of the water reeds, and in other ways this order was varied, but never so as to lose its general characteristics.

The architrave in this order is the same as in the Ionic, but the frieze was frequently ornamented with arabesques sculptured in bas-relief, while the cornice had its various mouldings richly wrought in leaf and flower designs. Under the cornice was a series of brackets, bearing a leaf or scroll on the under side, and called modillions.

The intercolumniations or spaces between the columns, varied in the different orders, and also in different buildings. One and a half diameters was the rule for the Doric; in the Ionic this was increased to two, but it extended to three, and sometimes even to a fraction beyond.

Columns not unfrequently rested upon a pedestal instead of a base; the divisions of the pedestal were the plinth, the die, and the cornice, corresponding severally to the divisions of the column,—the plinth to the base; the die to the shaft; and the cornice to the capital.

The Grecian edifices whose ruins still remain to us are principally temples, choragic monuments, and tombs. Palaces there are none, for palaces are not



Arabesque.



Modillion.

the inheritance of a republic. In luxurious baths, such as delighted the Romans, they do not seem to have indulged, for no mention is made of them by Greek writers ; and of their theatres, which were of horseshoe form and open to the sky, scarcely enough remains to give us any idea of their internal arrangement or degree of beauty.

The usual form of the Greek temple was a rectangle, whose length equalled twice its width. One of the narrower sides formed the façade, which always looked toward the east. Sometimes this front alone was adorned with a portico ; sometimes both the eastern and western ends ; and sometimes the colonnade extended entirely around the building. The simplest and, perhaps, the oldest form was that termed *in antis*. Here the side-walls terminated at the front of the building in pilasters, and in the opening between them arose two columns ; upon these columns and the terminating walls rested the entablature and pediment. When the portico extended along the whole front, and the place of the retreating walls was supplied by two additional columns, it was termed *prostylos*. If a similar portico was added to the western end, it was called *amphiprostylos*. Temples were classified according to the number of columns in the portico, and hence were known as *tetrastyle*, *hexastyle*, *octostyle*, and *decastyle*. Again the larger structures were classed as *dipteral*, *pseudo-dipteral*, *peripteral*, and *pseudo-peripteral*. If the colonnade

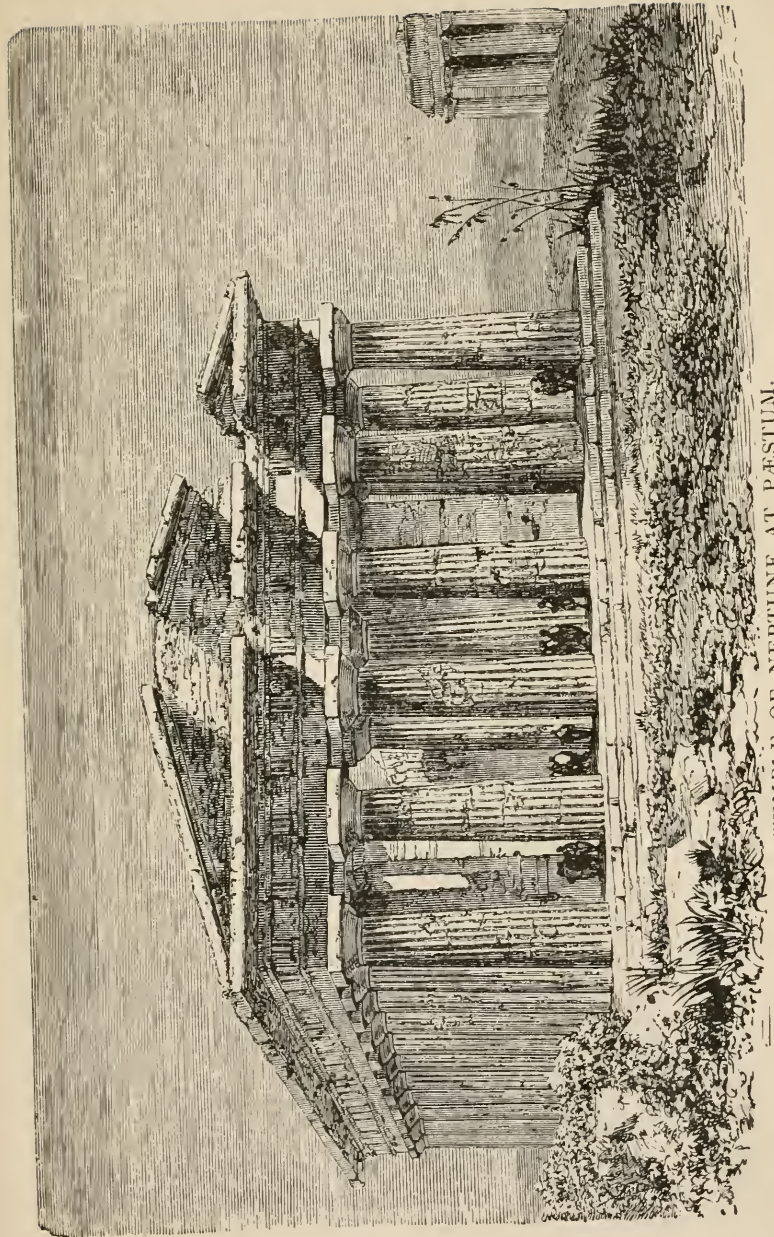


was double on the two sides, the outer row of columns numbering sixteen, and those of the two end porticoes eight each, a temple was said to be dipteral, but if the inner range was omitted, it was pseudo-dipteral ; if the side columns numbered only eleven, and the front porticoes six, it was termed peripteral. In the pseudo-peripteral temple the sides of the cella were so extended as to become incorporated with the columns.

The Greeks fully appreciated the simple grandeur of the Doric order, and limited its use to religious edifices ; while the other orders, although sometimes united with this in the construction of temples, and, in the decadence of Grecian art, used alone in these edifices, were yet employed for other purposes. Within, the temple usually contained two apartments — the pronaos, or vestibule, and the naos, or cella ; in the latter stood the sculptured effigy of the divinity to whom the temple was dedicated. Beyond this frequently extended a rear court known as the posticum, and to this another apartment, known as the opisthodomus or treasure-room, was often added. The latter contained the treasures of the temple, and sometimes those of the city itself. Again, as in the Parthenon, where still more space was required, the cella was divided by two rows of columns into a nave and two aisles. These columns supported a gallery, surrounded by a second row of columns. The nave thus inclosed was left unroofed, in order to afford sufficient light. Such internal

arrangement is termed hypæthral. The best specimens still existing, of the early Doric, are the temples of Sicily and Lower Italy. Among the former those of Selinus and Agrigentum are most important. At Selinus we find the remains of three temples grouped together on the castle hill, while another three in the town below are similarly situated. They are all peripteral, and one of the last-named group is distinguished for its unusual size, being 161 feet broad by 367 feet long. It is said to have been dedicated to Jupiter. The temple at Agrigentum is remarkable as surrounded only with half pillars, which are attached to a wall, and, also, for the arrangement of seven half pillars in front to fourteen on the side, — a very peculiar deviation from the ordinary rule. The proportions in these early buildings are very heavy, the entablatures massive, the columns short and tapering considerably, while the material is a coarse-grained limestone, and the general effect weighty and rude rather than grand.

The magnificent ruins of Pæstum, standing, as they do, solitary and alone with no human habitation in view, seem as if they had risen from the ground by supernatural power. Surrounded at present by a wilderness, they have seen the generations of men, one after another, die out and finally disappear, while they, in their grandeur and majesty, have defied alike the wasting of time and the elements, and now speak to us of the art and refine-



TEMPLE OF NEPTUNE AT PÆSTUM.

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ment of an age that was, doubtless, more ancient to that of Pericles than are the early colonial days of Virginia to our own time. The central temple, known as the temple of Poseidon or Neptune, is the largest, and evidently the most ancient. Wilkins says, "It is coeval with the earliest period of the Grecian emigration to Southern Italy;" and, also, "Low columns with a great diminution of the shafts, bold, projecting capitals, a massive entablature, and triglyphs placed at the angles of the zoöphorous, are strong presumptive proofs of its great antiquity." It is exceedingly interesting as being the only temple where the hypæthral structure is fully preserved. The floor of the cella is raised nearly five feet above that of the surrounding double peristyle, and, therefore, an ascent of five steps is necessary to reach it. The temple next in size is called the Basilica, although unlike other edifices of this kind in construction. It was probably a temple dedicated to two divinities, and differs from every other building known, by having nine columns in front. The capitals also differ in the form of the ovolo and the necking below, and the shafts in diminishing from the base to the top in a curve. At Corinth seven Doric columns of similar proportions belong, probably, to this early period, and, doubtless, formed part of a temple dedicated to Minerva.

The temple of Athena at Egina is of more recent date, as is evidenced by its lighter proportions as



well as the greater perfection of its pediment sculptures. Erected soon after the Persian wars, it is of peripteral form without, while an inner row of columns assures us of an hypæthral internal arrangement. The material employed is a poor sandstone covered with stucco, the roof alone being constructed of marble. The edifices subsequently constructed, not only far exceeded this in harmony of proportions and perfection of parts, but, also, in the material ; for in them we see every part wrought out from solid, enduring marble.

The temple of Theseus, erected under Cimon, is, perhaps, one of the best specimens of the Doric art in Attica. It is built throughout of Pentelican marble, and, in spite of all the natural and political changes that the country has suffered for upwards of two thousand years, it is in a tolerable state of preservation ; at least such as to allow of its use as a museum of ancient sculpture. It is one hundred and four feet long by forty-five wide, peripteral in form, and has six columns in the east and west porticoes, with thirteen on each side.

The columns are much lighter and more delicate than those of any previous structure, and the intercolumniations wider. Lubke says, "The forms breathe forth the purest harmony, the noblest softness and grace." The pediment sculptures are lost, but those of the metopes are supposed to represent the labors of Hercules and Theseus. A small

temple of Nike-Apteros, erected at the entrance of the Acropolis, probably belongs to this period. It is a prostyle of the Ionic order, and is divided within into a small naos and an opisthodom.







## CHAPTER VI.

GRECIAN ARCHITECTURE. — TIME OF PERICLES.

**T**HE most magnificent specimens of Grecian architecture, and, indeed, it may be said, perhaps, of all that this art has ever accomplished, were the buildings erected upon the Acropolis in the time of Pericles. They are now in so ruinous a condition that it is impossible to determine exactly either their internal arrangement or the entire design of their ornamentation; yet enough remains to fill us with wonder and delight, not only in contemplating the perfect proportions, the wonderful harmony of parts, the majestic beauty of the sculptured ornaments, the complete adaptation of the various edifices to the places they occupy and to one another, but also the observance of certain mathematical and optical laws, which render this harmony and proportion complete.

*The Propylea.* — The Propylea or gateway, which gave entrance to the Acropolis on the western side, was erected at this time, Mnesicles being the architect. The ascent to the hexastyle Doric portico, which formed the outward front, was by sixty marble steps, each seventy feet long. Passing beneath

this portico, the Athenian found himself in a magnificent hall, its marble ceiling, rich with gold and colors, resting upon immense beams, which were in turn supported by Ionic columns. These columns were arranged on either side of the principal gate in the opposite wall. Two other doors, five in all, pierced this wall — the central one being opened only once a year for the passage of the Panathenaic procession. The colonnade thus inclosed was thirteen feet wide, as also the corresponding gateway, while the ceiling rose to the height of twenty-nine feet. Passing through, the visitor found himself in another similar apartment, whose pavement, on account of the inequalities of the ground, was considerably elevated. This again opened with a hexastyle Doric portico upon an interior court, from whence roads diverged to the Erectheum and the Parthenon. Doric pediments and entablatures completed both façades ; but with such modifications as the fortress-like character of the building demanded. Wings were added on each side adjoining the outer portico, and these again opened by tetrastyle Doric porticoes into the inclosed central court. The graceful Ionic columns, the rich coloring and gilding, gave to the interior such festive cheerfulness as was well suited to the passage of gay processions, while the simple dignity expressed in the Doric porticoes without harmonized well with the rugged sides of the Acropolis, and its character as the citadel or stronghold of Athens.

*Erectheum.* — The Erectheum, which stood on the northern side, comprised several different shrines, especially those of Pandrosus and Cecrops; and also the tombs of the old heroes. More highly prized than all these was the sacred image of Athene, a rude wooden effigy which the Athenians believed to have fallen from heaven, and to whom a saffron-colored robe was offered every year, — the offering of this robe to the guardian deity of the city being the object of the Panathenaic procession. This temple had been destroyed by the Persians, and the edifice whose ruins still stand was not erected until after the death of Pericles. Its outward form is pretty well defined, and exhibits the perfection of the Ionic order as developed in Attica, but of the interior arrangement we can only gain vague and unsatisfactory ideas. The main building terminates in the east in a portico of six columns, while along the western front extended a wall with a sort of upper story, the entablature of which was supported by six half pillars with windows between them. To the north of this extended a very beautiful portico, said to have once inclosed the sacred olive. It was rather deep and supported by six columns, four ranged along the front, and two on each side; all the details are here wrought out with exceeding richness and beauty. A doorway of elegant frame-work, in a tolerable state of preservation, led from this portico into the temple, traversing which diagonally, one would have reached a smaller

but still more elegant portico. Here instead of pillars, caryatides — noble Athenian maidens wrapped about with graceful folds of drape-ry — supported the entablature, and lest it should seem too burdensome a support, and thus the Athenian taste be offended, the frieze is omitted, and the richly wrought cornice rests directly upon the architrave. In all parts of the building is exhibited a luxuriance and richness far beyond that found in any other of this order. The ovolos are wrought in horizontal flutings and wicker work ; the echinus is similarly decorated ; the neck is ornamented with palms and branches, and the volutes rolled together with unusual richness and elegance.



Caryatid.

*Parthenon.* — The greatest triumph of this period was the Parthenon, erected by Ictinus and Calli- crates and adorned with sculptures by Phidias. It was of Pentelic marble, and of considerable dimen- sions, the stylobate measuring 227 feet long by 101 broad, and the body of the temple 198 feet by 71, the whole height being 93 feet. It was an octostyle periptery, having eight columns on each front, and sixteen on each side — counting the corner ones twice ; this made forty-six in all, and their base di- ameter was six feet. Within the peripteral, which was distant from the body of the temple nine feet on the sides and eleven on the front, arose another row of eight columns, resting upon a second stylo- bate elevated above the first by two steps. Pass

ing through the Pronaos thus formed, one entered the naos or cellar, an apartment ninety-eight feet long, and which from its hypæthral arrangement, was undoubtedly lighted from an opening above. Ten columns on each side and three on the west end supported an architrave, which, in its turn, no doubt, formerly supported a second row of columns, forming an open quadrangular gallery. Fourteen feet in front of the western columns is the famous Peiraic stone, and upon this stood the cryselephantine statue of Athene or Minerva, wrought by Phidias, and considered by the Greeks as the perfection of art.

The eastern and western pediments were filled with groups of sculpture; that of the east representing the birth of Athene, and that of the west her contest with Poseidon or Neptune, for the protection of Attica. Upon the ninety-two metopes were wrought in high-relief, the contests between Hercules and Theseus, also those between the Centaurs and Amazons; while around the temple itself, under the peristyle, extended a continuous frieze in low-relief, representing the Panathenaic procession.

All this plastic beauty was materially enhanced by the judicious and tasteful employment of polychromatic art. Traces of color, distinct and strong, are apparent upon the frieze and cornice; it is probable that the triglyphs were of a rather deep blue, while the partially painted sculptures of the metopes were relieved against a back of rich brownish

red. This latter color was also used in the pediment, while winding patterns covered the plinth-like members, and leaf-patterns those of undulating form, some of which were richly gilded. Gilt shields and inscriptions were also placed upon the architrave, but the columns and walls presented their unsullied whiteness, and were rendered more brilliant by contrast. When visited by Wheeler in 1686, the Parthenon remained entire ; but the next year, the explosion of a bomb-shell — the Turks used it as a magazine — destroyed the whole central wall, and threw down most of the columns. Early in this century, Lord Elgin, then ambassador to Turkey, asked and obtained permission to remove most of the sculptures to England. The collection thus made was afterwards sold to the government for the British Museum, and is known as the Elgin Marbles. As study and observation began to make it evident that there were principles involved in the construction of the Parthenon, of which modern art was ignorant, the British government in 1845 sent out Mr. Penrose to make particular measurements of all parts of the ruin. He found that the edges of the steps composing the stylobate, as well as the different lines of the entablature, were not straight but curved ; that these curves were conic sections, and so great that the middle of the stylobate rose several inches above the extremities. The external lines of the columns were curved, forming a hyperbolic entasis ; and the axes of the col-



umns were also inclined inwards, so that if the lines were continued far enough, they would meet. The size of the capitals and inter-columniations were varied slightly according to their several positions. These curvatures and variations, combined, perhaps, with others, which the ruinous state of the temple do not permit us to ascertain, gave to the Parthenon that peerless beauty and harmony by which it takes precedence of all other edifices.

The erection of so many elegant and costly buildings at Athens seems to have given an impetus to architectural adornment throughout all the states of Greece. Ictinus, who had been the principal architect of the Parthenon, was called upon to erect the splendid Temple of Demeter at Eleusis, and also to furnish designs for the Temple of Apollo at Bassæ. The Temple of Jupiter at Olympus, and that of Nemesis at Rhamnes, also show his influence; especially in the union of the Ionic and Doric orders — the latter being employed in the exterior, while the more graceful Ionic supports the roof of the hypæthral interior.







## CHAPTER VII.

### GRECIAN ARCHITECTURE. — LATER WORKS OF GREECE.

**S**EVENTY years later, Grecian architecture had somewhat declined. Simplicity and grandeur were no longer its aim, but a striving after effect and even novelty is apparent ; while, through Macedonian influence, Oriental luxuriance and sensualism began to pervade the arts as well as the lives of the more refined Greeks. Then the Doric order was almost entirely lost sight of, and the richly ornamented Corinthian everywhere employed. Yet this style had in it too much of the delicacy and refinement which had originated it, to allow of very great degeneracy, and the edifices erected at this time forbid any censure of the architects who so wisely and variously used the order. Scopas, inspired by the same wonderful genius that produced the Apollo and the Niobe, erected at Tegea a temple justly celebrated as the most magnificent structure in the Peloponnesus. Here he accomplished what no artist had ever done before — the combination of the three orders in one building. He surrounded the cella with an Ionic per-

istyle, while the hypæthral roof was supported by a row of Corinthian columns resting upon an inferior row of the Doric order.

Among the most beautiful specimens of the Corinthian which remain, are the choragic monuments, erected by private individuals in commemoration of their success as leaders of the chorus in a musical contest. In regard to the music of the Greeks we know but little, although many writers tell us of its wonderful effects in soothing the passions, exciting courage, and even curing diseases. Plato in his Republic represents Socrates as having been in favor of its being considered, as it was by his countrymen, among the most important branches of education, and as saying that "The man who has music in his soul will be most in love with the loveliest."

The victor in these contests received a tripod as his reward, and this he placed as a consecrated gift in some public place, erecting either a single column, on whose capital it might rest, or some more extensive structure. The monument of Lysicrates, erected in honor of such a victory, consists of a small circular building, standing upon a quadratic substructure. Six Corinthian half-columns surround it, and upon these rest a richly sculptured frieze and cornice, while its dome-shaped roof, five feet in diameter, is composed of a single block of stone. From the summit arises a single column intended to receive the tripod; its capital is richly ornamented with acanthus leaves and branches. This little

building, only thirty four feet in height, is unique in its delicate grace and beauty ; yet much of the effect is lost from its being half inclosed by the walls of a modern convent. Another building of this kind is known as Diogenes' Lantern, and also as the Tower of the Winds, from the sculptures emblematic of the eight winds, which adorn the sides. Its form is octagonal, with two Corinthian porticoes, the columns of which are arranged in pairs. The roof of pyramidal form supported a brass Triton, and this so revolved that the staff in the hand indicated the direction of the wind. Thus the Greeks rendered beautiful even those edifices that served the ordinary necessities of life.

The Ionic order attained its utmost richness and grandeur in the wealthy commercial cities of Asia Minor. At Miletus are the magnificent remains of a temple dedicated to Apollo, which was 303 feet long, and 164 broad. Besides the beautiful Ionic columns, whose rich capitals vary considerably from the usual forms of this order, there remains a sculptured frieze, which surrounded the body of the temple. Here amid beautiful winding branches, is found a griffin with a lyre, showing that the grotesque had entered into the representations of art.

The colossal tomb erected by Queen Artemisia to her husband, Mausolus, belongs to this later period, and is a combination of Greek and Oriental forms. Upon a quadrangular substructure, which contained the tomb, was erected a temple surrounded by Ionic

columns, nine on each front, and eleven along the sides. Upon these rested a richly sculptured frieze, and above the roof rose in the form of a pyramid. This pyramid was flat at the top, so as to receive upon its summit a colossal marble quadriga, containing the statue of Mausolus.

Of Grecian tombs there are but few remains, none in such a state of preservation as to give us any certain ideas as regards their architectural merit. Like the Romans they buried their distinguished men along the public highways. Pausanias tells us that Athenians of distinction were interred by the way which leads to the Academy, and also that columns, upon which were inscribed the names and ages of the occupants, were placed above these tombs.





## CHAPTER VIII.

### ROMAN ARCHITECTURE. — ORIGIN AND PECULIAR FEATURES.

**B**EFORE proceeding to the consideration of Roman architecture, it will be well, perhaps, to notice some of the features which so essentially distinguished this people from their Grecian brethren. Not only in the mutilated remains of art that have come down to us, but also in their literature and philosophy, do we find evidence of the strong æsthetic feeling, keenly alive to every form and degree of beauty, which was peculiar to the Greeks. They were also by nature highly artistic, and thus their diction, as well as their architecture and sculpture, attained such perfection of finish, such artistic excellence, as no modern language can boast. The Romans, on the other hand, were a people of strong and vigorous mind, but eminently practical, and with no natural inclinations toward the beautiful. Indeed we may doubt whether national vanity — a modification of that remarkable patriotism which was the glory and strength of Rome — was not the most powerful motive that led her consuls and emperors to expend

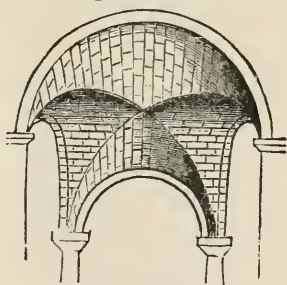
such vast sums in the erection and adornment of public edifices ; and also to make their city the asylum and foster-school of art. Whatever love of the beautiful they acquired was due to the influence of the Greeks, either through the contemplation of the numerous master-pieces which the conquerors of Greece had brought back to their native land, or by intercourse with the people themselves, who flocked to Rome after their country came under her dominion. Rome was the centre of the world, her great men its conquerors, and Rome should surpass all other cities, Athens not excepted, in magnificence, as it did in wealth and power. And this her rulers accomplished. While the temples of Greece stand unrivaled in chaste simplicity, perfect harmony of proportion, and unity of design — the true elements of architectural beauty — the remains of Roman architecture overwhelm us by their extent, grandeur of design, and variety of combination, — all of which correspond to the pomp and power of the Roman people.

Yet it was not Grecian influence alone that modeled Roman architecture. To the north of Rome, occupying a territory nearly corresponding to that now known as Tuscany, once lived a people called the Etrurians or Etruscans. Their origin is lost in the night of ages. They were evidently of Pelasgic origin, but whence they came, or when they first appeared in Italy, no one knows ; neither is the literature they have left intelligible to any one. Their



art alone — art whose language is the language of the soul, and ever its own interpreter — tells us of a vigorous, practical people, possessed of strong artistic feeling, however realistic it might be in character, and plain and forcible in its expression. From these their northern neighbors, the Romans borrowed the arch, the grandest feature not only of their own architecture, but of all subsequent triumphs of this art. Its simplest form is in the tunnel vault, where it serves to continuously connect two opposite walls. The disadvantage of this form is the pressure of the arch upon its supporting walls, and whenever the superimposed structure is of great weight and dimensions, strong counter-forts are necessary to resist it.

The cross-vault was invented by the Romans themselves, and allowed them much more freedom and variety in arrangement than had ever before been possible; at the same time securing greater strength and firmness. Here two circular arches



Cross-Vault.

cross each other diagonally, inclosing a quadratic space, and dividing the vault into four calottes or curved triangles.

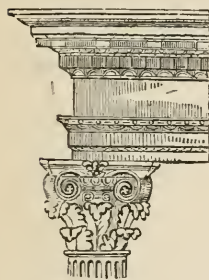
By the adoption of the arch, the Romans were enabled to place one story upon another, tier above tier, and thus construct edifices of such extent as seems never to have entered into the conceptions



of Grecian architects. Indeed the Greek mind seems never to have found delight in vastness more than in novelty, and this may be considered a rather forcible argument in the favor of the ground taken by Winckelmann and others, that Grecian art was the outgrowth of the Grecian mind, and owed nothing to Egyptian influence.

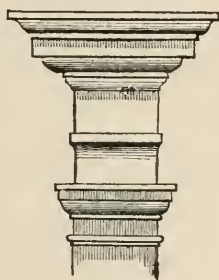
It was, however, by the adaptation of Grecian forms that these massive piles were rendered beautiful, and in this adaptation, the Romans showed their peculiar genius. Unity was to be secured and monotony avoided; variety there must be, but not an indiscriminate mingling of all orders in one; how was the problem to be solved? Nature had given the key, as she often does, if we will but listen to her voice. She first sets firmly in the ground the solid unadorned trunk; upon this she imposes the leafy branches, and crowns the whole with a coronal of rich blossoms. So the simple solid Doric column and entablature, corresponding to each other, ran along the lower story of the lofty façade, either in pilasters or full-moulded columns; above this was the Ionic, elegant in the simplicity of its volutes and dentilled corona, while the more luxurious Corinthian, with its richly-wrought capitals and cornice, crowned the whole. Everywhere was found the Grecian colonnade; sometimes as a periptery, sometimes dipteral, and again forming a portico to some edifice of a circular ground-plan—borrowed from the Etruscans—or entirely surrounding it.

*Roman Orders of Architecture*—To the three Grecian orders, the Romans added two others, the Tuscan and Composite. The Ionic they had varied so as to overcome its one objectionable feature ; for by curving outward the angles of the voluted member, they were enabled to give the same form to all of the four sides, at the same time considerably increasing the size of the volutes. This, the Roman



Composite Order.

Ionic, as it was called, they placed above the two rows of acanthus leaves arranged as in the Corinthian, and this new capital was known as the Composite. The



Tuscan Order.

Tuscan, which may be considered as a variation of the Doric, is said to have been derived from Etruria. The height of the column is about seven diameters, and the shaft, which is never fluted, rests upon a simple base, consisting of a plinth surmounted by a torus and a single fillet. The capital is like the Doric, but a short distance below it the necking is surrounded by an astragal and fillet. The architrave, composed of two fasciæ, is separated from the plain and unadorned frieze by an astragal, and this frieze is crowned with a cavetto and ovolo. The overhanging cornice is quite simple, and there are

neither modules, modillions, nor any similar ornaments underneath it.

Another innovation of the Romans was the squaring of the entablature, so that wherever a column was placed against a wall, its projection was equal to that of the column itself. Again, especially in the later architecture of Rome, each column was furnished with a separate pedestal, instead of having all the columns rest upon a continued stylobate; and to this the squaring of the entablature above frequently corresponded.

The remains of Roman architecture are not only in a better state of preservation as belonging to a much later period, but are also much more varied and extensive than those of Greece. They include bridges, aqueducts, viaducts, gates, palaces, amphitheatres, baths, basilicas, and triumphal arches; and the period of their erection extends over nearly ten centuries, from the time of Tarquin, 614 B. C. to 329 A. D., when Constantine removed the seat of government to Byzantium. Yet in all we are compelled to admire the durability and excellence of the materials employed, the solidity and strength of construction, as well as the exquisite beauty of whatever is ornamental; and though the latter be less simple and delicate than in Grecian art, this is partially compensated for by its brilliancy and variety. For convenience we may divide the period above mentioned into three epochs; the first, extending from the early ages of the Republic to the

time of Augustus ; the second, beginning with the reign of Augustus and ending with that of Titus ; and the third, beginning with the reign of Domitian and extending to the removal of the capital, and the founding of Constantinople.





## CHAPTER IX.

### ROMAN ARCHITECTURE. — ROME DURING THE REPUBLIC.

**I**N the earlier years of the Republic, the Romans devoted themselves to the construction of works of utility, such as aqueducts, roads, bridges, etc ; and in all we are enabled to trace the influence of the Etruscans. The Cloaca Maxima, or great sewer, built by the elder Tarquin, is the most remarkable of these early works on account of its complete preservation, and, also, as an evidence of the architectural skill of the nation at that early age. It consists of three concentric arches, formed by huge stones so fitted together as to supersede the necessity of mortar. The height of the interior arch is thirty feet, and its width fifteen, and, therefore, we need not be incredulous, when told that a wagon and mules have been driven through it. This immense sewer was built to drain the marshy ground between the Palatine and Capitoline hills ; and although twenty-five centuries have elapsed since its construction, it still serves its purpose. The Mamertine Prisons on the declivity of the Capitoline Hill, and the rampart or agger of Servius Tullius, also belong to the period

of the early kings ; all are constructed in the Etruscan style, of large quadrangular stone blocks, usually of volcanic tufa.

The first temples of Rome, modeled after those of the Etruscans, — from whom the Latins also received their ritual and ceremonies, — were of circular form, and, we have reason to believe, quite simple both in design and ornament ; nor was it until after the final conquest of Greece by Metellus, 150 B. C., that a temple of pure Greek form was erected. This was a magnificent peripteral edifice, its colonnade being constructed of the spoils brought from the conquered cities of Macedon. About this time, also, the basilica assumed that completeness of form which gave these buildings rank among the principal ornaments of the capital.

*Basilica.* — A basilica consisted of an immense nave or hall, with one or two aisles running the entire length on both sides. From these it was separated by a continuous arcade of marble columns, which supported the lofty walls ; and the aisles, in turn, were similarly separated from one another. This nave terminated in a semi-circular apartment, whose pavement was a little elevated above that of the hall itself. At the same time, its walls were of much less height, and it was usually roofed by a half-dome, or cupola. This circular apartment was called the tribune, and a broad triumphal arch spanned its line of union with the nave. Within it were held the higher courts of law, while inferior

tribunals had their sittings in different parts of the edifice. Besides these judgment-seats, the lofty hall and widely-extended porticoes furnished room for trading purposes, — that is, for sale by sample, and commercial exchange, — and also for public meetings and public recitations. The first basilica was built by Cato the Elder; but in the time of the empire their number had greatly increased, and one or more bordered upon each of the nineteen fora found in various parts of the city.

*Roman Fora.* — The fora of Rome, like the agora of the Greeks, were large open squares, surrounded by porticoes and public buildings. Of these there were two kinds, — the *Fora Venalia*, and the *Fora Civilia et Judicialia*. In the former, provisions and merchandise of every description were offered for sale, and there were sixteen, located in various parts of the city. Of the *Fora Civilia et Judicialia* there were but three; the *Forum Judiciale*, built by Cæsar; the *Forum of Augustus*, adjacent to this; and that situated between the Capitoline and Palatine hills, probably as old as the city itself, and known as *The Forum*, or *Forum Romanum*. These latter were used by the judicial courts, and, also, for popular assemblies, and were adorned with commemorative columns, statues of illustrious men, and trophies of various kinds. They were also furnished with *rostra*, from which the orators addressed the assembled multitude. The *Forum Romanum* was the great political centre of Rome, and indeed, of the whole



empire, and was surrounded with the most splendid edifices ; temples, palaces, baths, triumphal arches, basilicas, and amphitheatres, crowded it on all sides, while its population of statues equaled, if it did not outnumber, all those now collected in the Vatican.

The modern traveller, as he stands beneath the column of Phocas, and contemplates the magnificent ruins that meet his eye whichever way he turns, feels that if he could but bid this part of Rome arise from the dust and resume its former glory, he would care but little for the rest. Nearly in the centre of this forum stand three columns which all architects admit to be the finest models of the Corinthian order extant ; but the edifice of which they could have formed a part has been a subject of endless controversy.

The Temple of Fortuna, first erected by Tullius or Ancus Martius, is the best specimen of the Ionic in Rome. It was destroyed by fire, and rebuilt in pseudo-peripteral form, five of the seven columns along the side being sunk in the cella walls. The frieze is richly ornamented with heads of oxen and festooned garlands, supported by candelabra and figures of little children.



Festoon.

The two circular buildings, one at Rome and the other at Tivoli, called temples of Vesta, are referred to this period, and are exquisite specimens of the Roman Corinthian. The one at Rome has lost its

entablature, and also its dome-shaped roof—the latter being replaced by one of coarse red tiles. Its diameter is about twenty-six feet, and it has been consecrated as a church to the Virgin Mary. The beautiful little structure at Tivoli, crowning a sharp spur of rock which overhangs the Anio, is only twenty-one feet in diameter. Its eighteen columns have their capitals richly wrought in olive leaves, while the entablature is ornamented with heads of oxen and garlands. The simple solid style of this period is shown in the tomb of Cecilia Metella, about two miles from Rome, on the Appian way. It is of circular form, and about seventy feet in diameter, constructed of huge blocks of yellowish travertine. It was probably once ornamented with pilasters, and it has a beautiful frieze and cornice with bas-reliefs in white marble. The roof has long since disappeared, and in the Middle Ages it was used as a fortress.

*The Late Republic.*—During the last century of the Republic, the architecture of Rome assumed a magnificence before unknown. Severe were the struggles for individual power, and whoever held it endeavored to make himself acceptable to the people by the erection of such edifices as should add new splendor to the city, then rapidly increasing in wealth and power. Thus, M. Scaurus, being elected *ædile* in the year 58 B. C., built a theatre of unparalleled magnificence, expending his entire fortune in the building and the celebration of games which followed

its completion. The interior was adorned with three hundred and sixty columns arranged in three rows ; the lower one of marble, the second of glass, and the upper one of gilt wood. Nor this alone, for three thousand statues, disposed within and without, added to its beauty and magnificence, and these, doubtless, perished in the flames that consumed it.

Pompey, three years afterwards, erected a similar edifice, but of more enduring materials. This step was greatly opposed by many of the elder citizens, who saw in the use of stone for such buildings a sign of the degeneracy of the Roman people. Yet the triumvir continued his work, and added to the front a portico supported by a hundred columns, and inclosing a wide plantation. It was richly adorned with paintings and statuary.

Cæsar, as dictator, far surpassed all that his predecessors had done in adorning and beautifying Rome. Besides building a vast amphitheatre, for which he furnished an immense silken awning, he enlarged the Circus Maximus, so that it accommodated two hundred thousand people. He then commenced a second stone theatre, built a new forum, and extended the old forum between the Palatine and Capitoline hills. To accomplish the latter, it must have been necessary to pull down many private dwellings ; and it is the opinion of some archæologists that this dislodgment of numbers of the citizens first led to the occupation of the Campus Martius. Upon the extension thus made, he erected the Basil-

ica Julia, which contained thirteen judgment seats, so extended were its precincts ; while its magnificence led to its use for the splendid ceremonials attendant upon the reception of foreign ambassadors, at the same time serving the ordinary purpose of the basilica. Its lofty roof was supported by a hundred Corinthian columns, arranged in four rows, their capitals richly ornamented with gold. Gold, silver and precious stones were used in decorating other parts of the building, and everywhere was lavished great beauty and wealth of ornament.





## CHAPTER X.

### ROMAN ARCHITECTURE. — ROME FROM AUGUSTUS TO TRAJAN.

**R**OME UNDER AUGUSTUS. — As the reign of Augustus is designated the golden age of Roman literature, so also may it be considered in regard to art. He did not exaggerate in saying that he found Rome brick and left it marble. Besides completing the many edifices left unfinished at the death of Cæsar, Augustus built a new forum, several basilicas, a magnificent palace, and a circular mausoleum, which Strabo considered the most remarkable monument of the Campus Martius. He also restored eighty-two temples, among them some of the most celebrated, both for their antiquity and magnificence. Nor was the money of the emperor alone used for the adornment of the city. Many of the wealthy nobles erected temples, baths, basilicas, and fountains, at their own expense; besides splendid palaces and villas, in place of the more humble edifices that had hitherto sheltered them. Indeed, the whole known world was laid under contribution for marble and other costly building materials, wherewith to enrich the imperial city; while many of the temples

of Greece and Asia Minor were stripped of their columns and statues.

*The Pantheon.* — Among the nobles who added to the magnificence of Rome, Agrippa deserves honorable mention ; he erected porticoes and baths on a vast scale in the Campus Martius ; and of these the Pantheon, the noblest remains of the early empire, formed a part. This edifice is of circular form, and hence some antiquarians have been inclined to date its erection at a period preceding that of Augustus by one or two centuries, when Etruscan influence still prevailed. They give to Agrippa the honor of remodelling it, and adding the beautiful Corinthian portico. The diameter of the interior, and the height of the circular opening of the dome from the pavement below, both measure one hundred and forty-two feet. In the wall are seven large recesses ; fluted columns of grallo antico, with Corinthian capitals and bases of white marble, inclose four of them, and similar columns of pavonazetto marble the other three. These columns support a richly sculptured marble cornice, above which rises an attic with pilasters, niches, and a second cornice. From this springs a beautiful dome, whose opening gives a subdued and solemn light in perfect keeping with the simple regularity and complete harmony of the building itself. It is said that the Pantheon has been robbed of many of its ancient treasures ; that beautiful caryatides once adorned it, and that the handsome cassettes of the

dome then boasted of bronze or silver ornaments. It is certain that the marbles of the attic have been replaced by paintings of the most ordinary character. The roof of the quadrangular portico is supported by sixteen Corinthian columns of remarkable beauty ; eight are arranged along the front beneath the pediment, while the other eight are disposed in four rows, so as to divide the portico into three aisles. Aside from the portico, the exterior presents a simple circular wall without adornment, for its marble coating has been removed, as well as the bronze plates that once glistened on the dome. This wall, said to be twenty feet thick in some places, is nowhere broken by windows or other apertures. The doorway is of marble, and of the same architecture as the portico, while the bronze doors are hung upon pilasters of the same material, and of the Corinthian order. Originally a part of the baths of Agrippa, probably the calidarium, it was afterwards dedicated as a pagan temple to Jupiter the Avenger. But it is now a Christian church, and sometimes called the Westminster Abbey of Rome, for here repose Cardinal Bembo and Count Castiglione, with several other Italian savans ; and here, also, sleep several of her great painters, and among them, most glorious, greatest of all — Raphael, immortal Raphael.

Mæcenas, also, expended much in public buildings ; and he is said to have been the first one to erect Thermæ with such wealth of material and



architectural magnificence as have made these ruins rank among the most interesting and imposing to be found.

Of the buildings erected from the time of Augustus to that of Vespasian, there are but few remains. Nero's Golden House fell beneath the fury of an outraged people, and so complete was the ruin, that it is not now certain where it stood. The rich Corinthian columns and entablature, known as the Temple of Castor and Pollux, belonged undoubtedly to the Temple of Dioscuri, as restored during the reigns of Tiberius and Caligula ; while Claudius, who succeeded the latter, built for himself a monument likely to prove as enduring as Rome itself. This was the magnificent double aqueduct, whose long line of arches, stretching across the Campagna, and festooned about with ivy and creepers, still conveys to the city waters whose source is distant thirty-eight miles.

*Rome under Vespasian and Titus.* — With Vespasian and his son Titus, architecture again resumed something of the magnificence of Octavius's reign. The former reërected the old Temple of Jupiter, which had been destroyed in the Vitellian riots. It had been burnt in Sylla's time and rebuilt, many columns of Pentelic marble, brought from the Temple of Jupiter Olympus at Athens, being employed in this reconstruction. It was now again reërected with great magnificence, but it was burnt during the reign of Titus, and subsequently restored by Domitian.

*Coliseum.* — The most splendid monument of the Flavian reign is, undoubtedly, the Coliseum. This vast amphitheatre is of elliptical form, its greatest diameter being 615 feet, and its least 510 feet. Three arcades of eighty arches each rose one above another, the lower arches giving entrance to passages which formed radii towards the arena. Within, an arched corridor traversed these, running entirely around the building, and from this, staircases ascended to the second story. Corridors arose above, but not continuously, and from these staircases led to the third and fourth stories. The marble seats surrounding the arena, and elevated as they receded from it, rested upon these intersecting arches. The first tier, close to the arena, was called the *prodicum*, and was occupied by the emperor with his suite, the nobles, senators, and vestal virgins. The emperor's seat, called the *suggestum*, was upon one of the longer sides of the ellipse. Probably there were four tiers of seats, a high wall intervening between those of the plebeians above and the more honorable seats below.

The three arcades are bordered by half-columns of the three Greek orders, with their respective entablatures, arranged as usual, — the Doric below and the Corinthian above. To these is added a fourth story, adorned with Corinthian pilasters. The wall of this story is pierced with windows, and along the cornice are holes, in which were, perhaps, placed the masts that supported the awnings neces-

sary as a protection from the sun. This vast edifice furnished seats for eighty thousand spectators, and, it is presumed, standing places for at least twenty thousand more. Of the splendid exterior, less than one half remains ; yet, on the northern side, the three arcades are in a good state of preservation. We here find, as frequently in the Roman adaptation of the Doric, the shaft resting upon a base instead of a stylobate. In the Ionic and Corinthian order each column is furnished with a pedestal, but the pilasters of the fourth story rest their bases upon a continuous stylobate, which rises above the Corinthian cornice of the third. The rich marbles that lined the interior have entirely disappeared, and there remains only a series of broken arches, rising one above another, and covered in many places with the tangled herbs and vines that have found a foot-hold amid the debris of brick and mortar. Yet this destruction is neither the work of time or of foreign invaders ; for centuries the Coliseum furnished building material for modern Rome, nor did the great Michael Angelo shrink from laying ruthless hands upon this magnificent monument of imperial power, for he employed the huge blocks of travertine in constructing the Farnese Palace. Finally, Benedict XIV. consecrated it as a Christian church, and thus prevented its further ruin ; while several succeeding popes have caused walls to be built to support the falling arches, and otherwise exerted themselves for its preservation.

*Arch of Titus.* —The Arch of Titus, erected on the Via Sacra in commemoration of the taking of Jerusalem, is perhaps the most interesting of all the triumphal arches. It consists of a single arched passage-way between firm masses of wall, relieved by window-like recesses. Half-columns of the Composite order, and furnished with pedestals, adorn the walls on either side of the entrance. The entablature above is squared, and this squaring is continued by pilasters to the cornice overhanging the attic, the space thus inclosed above the arch containing the inscription. A sacrificial procession is sculptured in small figures upon the frieze of the entablature. The platform, which forms the roof, once supported a bronze chariot with four horses; but this has long since disappeared. The most interesting features of this structure are the bas-reliefs on the inside of the supporting piers. On one side is a procession, laden with the spoils of Jerusalem, — the golden table, the silver trumpets, and the seven-branched candlestick — all agreeing in size and form with the descriptions of Josephus. On the other pier, the emperor is represented as seated in the triumphal chariot drawn by four horses. Romans, carrying the fasces, surround the car, and Victory has just placed the crown upon his head. Sunk panels with rich rosettes adorn the vault above, while a bas-relief in the centre represents the apotheosis of the conqueror. This arch is believed, from the inscription,

to have been erected after the death of Titus by Domitian. Titus erected baths of considerable extent to the north of the Coliseum on the Esquiline Mount. But these were built upon a substruction formed from more ancient edifices, especially the palace of Nero ; and therefore, amid the remains of vaults and walls, and passages which intersect and crowd one another, it is impossible to define the limits of the Thermæ with any degree of accuracy. Indeed, the long corridor, whose graceful arabesques of flowers and birds and genii are said to have suggested to Raphael the beautiful decorations of the Vatican Loggie, is now believed to have been anterior to the reign of Titus, and perhaps formed a part of the "Golden House"





## CHAPTER XI.

ROMAN ARCHITECTURE, CONTINUED. — ROME  
UNDER TRAJAN.

**O**F the emperors who succeeded Titus, Trajan, Hadrian, and Diocletian are especially noticeable for additions to the public edifices of the capital. Trajan's wise management of the public funds gave him an ample revenue ; and this, in the early part of his reign, he expended in building substantial roads, bridges, aqueducts, and other useful works. But on his return from the Dacian expedition, whereby he relieved the empire from an onerous and disgraceful tax, Trajan undertook the erection of a new forum between the Quirinal and Capitoline Hills. Apollodorus was made the architect, and he proceeded to level the high ground intervening, and then erected the Basilica Ulpia, — so called from the emperor's family name, — a column, a triumphal arch, a temple, and, probably, the Greek and Latin Libraries, the collection and preservation of whose manuscripts would have been alone sufficient to render Trajan's name forever honorable. The basilica was evidently surrounded by a double range of granite



columns, and the fragments of marble capitals, entablatures, etc., that have been disinterred, indicate a high style of art. The arch has long since disappeared, but many of its bas-reliefs are preserved, as they were built into the one erected by Constantine to commemorate his victory over Maxentius. They seem to show, by their superiority to those sculptured especially for this monument, how rapidly art degenerated in the third century. The Column of Trajan occupied the centre of the forum, and is regarded as the most beautiful of all commemorative columns. It is composed of blocks of white marble, and the height of the column, exclusive of the pedestal and the statue which crowned it, was one hundred and twenty-seven and one half feet, the exact altitude of the hill removed for the construction of the forum. The architecture is mixed, the mouldings of the pedestal being Corinthian, while the base and capital are Tuscan. The pedestal is ornamented with bas-reliefs of helmets, shields, and other warlike instruments, together with an inscription, supported by winged figures, and stating that the column was erected by the Senate and Roman people. The shaft is surrounded throughout its entire length by a spiral belt, wrought in rich relief, and representing various incidents of the Dacian expedition. These sculptures contained at least 2,500 human figures, besides horses, fortresses, etc. Those of the lower part are about two feet in height, with a gradual increase toward



the summit, where they measure nearly four feet. These designs are especially valuable as illustrations of the ancient military costumes and equipments. An interior spiral staircase leads to the summit of the column, and here formerly stood a colossal statue of Trajan, holding a gilded ball. But this has long since disappeared, and Sixtus V., during his pontificate, placed there a statue in gilt bronze of St. Peter.

*Rome under Hadrian.* — After the death of Trajan, Hadrian erected close to the forum a magnificent temple, dedicated to the great emperor. Of this, a part of the substruction, mostly covered by a modern palace, is all that remains; yet fragments of capitals, an entablature, and frieze, which no doubt formed a part of this edifice, have been recently excavated. They are of pavonazetto marble, and their decorations prove that this temple was of extraordinary richness and beauty.

Hadrian devoted much of the leisure afforded by his peaceful reign to literature and art. During his extended travels in the East, he visited Athens, and delighted with its temples, groves, and ancient seats of learning, he determined to restore it, if possible, to something of its former splendor. He therefore built an aqueduct, a Pantheon, and several other edifices, besides completing the great temple of Jupiter Olympus, the plan of which extended back to the time of the Pisistratidæ. The effect of his Greek studies was seen in the architecture of his

times, which was much less decorated, and exhibited more of the Hellenic simplicity and regularity than that of the preceding reigns.

The double temple of Venus and Rome, he erected from his own designs, and it was evidently one of the noblest buildings that encircled the Forum. It consisted of two cellæ placed back to back upon a raised platform five hundred and ten feet long and three hundred feet wide. A portico of gray granite columns, forty feet in height, surrounded it, while at the end of each cella — one opening toward the Forum, and the other the Coliseum — was an inner portico of ten marble columns. Within, each cella terminated in a deep vaulted niche, which contained the statue of the divinity to whom it was dedicated. The fragments, gathered around the walls yet standing, prove that the ornamental portions were wrought with great splendor and regularity of design.

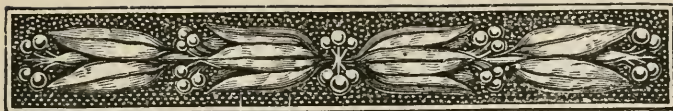
The Mausoleum of Hadrian, now known as the Castle of St. Angelo, consisted of a circular tower nine hundred and eighty-seven feet in circumference, resting upon a square basement. As it now stands, the outside is formed of huge blocks of peperino laid in regular courses ; but Procopius, who saw it before it was despoiled, says, “ It is built of Parian marble ; the square blocks fit closely to each other without any cement. It has four equal sides, each a stone’s throw in length. In height it rises above the walls of the city. On the summit are statues of men and horses, of admirable workmanship in

Parian marble." He also says that the statues were torn from their places and hurled against the Goths, when they assailed the tower after its conversion into a fortress. The walls are of enormous thickness, and every part of the edifice shows the best workmanship, the stones being fitted together with the utmost nicety, even when coated with marble.

Hadrian's architectural tastes were not yet satisfied, and he determined to build at Tivoli, a villa in which he might include all that he had most admired during his travels in the East. The Lyceum, Academy, Poëcile, and Theatre of Athens, were to adjoin a Tartarus, Elysian Fields, and Vale of Tempe; and the Serapeon of Alexandria was to stand close beside Greek temples and Prætorian barracks. Thus a space, at least eight miles in circuit, was covered with buildings of varied architecture, while the grounds were laid out in groves, lawns, and plantations, intersected by beautiful streams, and enriched with numberless works of art. The villa is supposed to have been mostly destroyed during the invasion of the Huns; but for centuries the Romans converted its rich marbles into lime, while statues and columns removed thence are found in almost every palace and church of Rome. Many of the mosaic floors of the Vatican were brought from thence, as well as some of the finest statues of its galleries; while the Capitoline Museum boasts, as a part of its spoil, the mosaic known as Pliny's Doves and the

beautiful Faun in rosso antico. Neither are these treasures confined to Rome, but are scattered through the various galleries of Europe, and everywhere reckoned among the gems of the collection.





## CHAPTER XII.

### ROMAN ARCHITECTURE. — BATHS AND PRIVATE DWELLINGS.

**P**ERHAPS in no other way is the gradual decline of the Romans, from the stern simplicity of the old Republic to that indulgence in luxury, extravagance, and sensuality, which finally rendered them powerless against their barbarian foes, more distinctly marked than in the construction and use of the bath. Among the Greeks, the bath formed a part of the *gymnasia*, and was but of little importance. So in Rome, during the Republic, they were wooden structures of simple architecture, and without ornament, to which the citizen resorted in the morning to perform his daily ablutions. But the luxurious reign of Augustus brought great changes. *Mæcenas*, *Agrippa*, and other nobles, built *Thermæ*, which not only furnished accommodation for hundreds of bathers, but inclosed gardens, courts for various games, halls for recitation, music rooms, and extensive colonnades. The best architectural skill, as well as the richest material, was employed in their construction; the massive walls were incrustated with costly marbles; marble columns, the spoils of eastern cities, upheld the vaulted roofs;

brilliant frescoes glowed wherever stucco was employed ; the floors were either tessellated or mosaic ; the baths often cut from solid blocks of marble or porphyry, and many of the appliances of the toilet of silver or bronze, while the masterpieces of Grecian sculpture were here enshrined. The principal apartments used especially for bathing purposes were, the natatorium or swimming bath, the tepidarium or warm bath, the sudatorium or vapor bath, and the frigidarium or cold bath. The luxurious Roman passed from one to the other, not only enjoying the sudden transition from the sudatorium to the frigidarium, but believing it highly conducive to health : or he left the tepidarium or sudatorium for a game at tennis, or a promenade beneath the lofty portico, where he discussed politics and the latest fashions, and then came back for his cold plunge. Besides these apartments, there was the apodyterium or spoliatorium, opening directly from the vestibule, where he laid aside his apparel, and the elæothesium, where, after the bathing was completed, slaves rubbed his body and anointed it with various oils and unguents, highly perfumed, — one being used for the hair, another for the beard, another for the neck, another for the arms and hands, and so on. With all the attractions accumulated within these vast edifices, it cannot be wondered at that the wealthy Roman should spend the greater part of the day here, or return again and again to enjoy the luxuries that it offered ; so that some of the nobles

bathed seven or eight times a day, and thereby became so enervated that they could not eat at all until they had just entered the bath.

*Baths of Caracalla.* — Caracalla determined to erect Thermæ which should exceed all then existing, although there were already several hundred in the various parts of Rome. He chose for the site of the baths the Via Nova, subsequently one of the most magnificent streets of the imperial capital; but even then the value of the land must have been enormous, and historians of the time tell us that these baths surpassed in splendor all other edifices in the city. Besides accommodations for sixteen hundred bathers at a time, and the usual apartments and porticoes of the Thermæ, there was an immense hall, used, probably, for gladiatorial exercises, and a large reservoir, supplied from the Claudian aqueduct. One apartment, supposed to be the frigidarium, is described by Spartian as a masterpiece of architecture. He says that the roof was supported by bars of brass interwoven like the straps of a sandal, and being surrounded by columns of gray granite, it was one of the noblest halls in the Thermæ. Among the precious marbles discovered here are the Farnese Hercules, the Toro Farnese, the Flora of Naples, and the Gladiators; also numerous cameos, bronzes, medals, and other treasures. Many of them are now in Naples, and others are scattered in various collections.

*Baths of Diocletian.* — The Baths of Diocletian,



built nearly a century later than those of Caracalla, furnished accommodations for double the number of bathers ; yet the style of building as well as the ornaments indicate the decline of art. Two circular halls which opened into the front area still exist, one of them being dedicated as a church ; also the vast calidarium, which Michael Angelo converted into the church of Sta. Maria degli Angeli. Eight columns of Egyptian granite are standing in their original position, and in the vaulted roofs are seen the rings from which the Roman lamps were suspended.

The Temple of the Sun, erected by Aurelian, and the Basilica of Constantine, both show in their remains the decline of art ; yet the plan of the latter is grand and of especial interest, as it seems to have been subsequently followed in the erection of Christian houses of worship.

*Roman Dwellings.* — Of the private dwellings of ancient Rome there are no remains, nor do the minute descriptions of Vitruvius serve to give a correct idea of their general arrangements. In vain did Palladio and other architects, following him, attempt to make plans and models accordingly ; nor was it until the discovery of the buried Pompeii, in 1748, that we were enabled to understand the domestic economy of the Romans. Still we must not conclude that the dwellings of the imperial city were planned exactly like those of Pompeii, a small provincial town. These are low, seldom exceeding one

story in height, never two, while Augustus published an edict commanding that no private dwelling in Rome should exceed in altitude seventy feet. Again, Pompeii was liable to earthquake shocks, and this might have been the reason that the buildings were low ; but why the various apartments should have been so small, we cannot tell, and only conjecture that the inhabitants, passing most of the time in the open air, did not feel the need, as we do, of spacious, well-lighted, and convenient dwelling-houses.

The general arrangement of the Roman house was in two divisions ; the front or public part, where the gentleman of the house received his friends, political adherents, and clients ; and the posterior or private part, which was sacred to private family life. The entrance to the house was through a narrow porch, opening into a broader vestibule, which contained one or two rooms ; and these, probably, served either as waiting-rooms or as a porter's lodge. This vestibule led to the principal apartment of the first division, a large hall or atrium, partially surrounded by smaller apartments, called *alæ*, or *hospitia*. The *hospitia* was a suite of rooms set apart for the entertainment of strangers, and furnished with all the conveniences of a small private dwelling, so that the guest was as retired as in his own house. The flat roof of the atrium had a large square opening in the centre, and here it was supported by columns, either of marble or stuccoed brick. An open cistern, called the *impluvium*, was sunk beneath the marble

floor to catch the rain, and the interior walls were painted in brilliant fresco. Beyond the atrium a cavædium, or open court, was sometimes found; but usually the atrium opened into the tablinum, which is supposed to have been the depository of family records, and contained the busts and statues of the occupant's ancestors. Sometimes this room opened directly into the posterior part of the house; at others the communication was by means of narrow passages on either side, called fauces.

The principal apartment of this interior dwelling was a spacious court, surrounded on all sides by a covered colonnade, supported by handsome columns. It inclosed a garden decorated with fountains, vases, and statues. This was called the peristyle, and communicated with all parts of the house. On one side was the triclinium or dining-room, surrounded with broad seats projecting from the walls. These supported the luxurious couches, on which the Romans reclined at their meals. This apartment, never very large, had its walls richly decorated with frescoes, and adorned with columns and bas-reliefs, as did the œci or sitting-rooms connected with it; and all were handsomely furnished. The exedra, a more spacious apartment, is supposed to have been the drawing-room in which were received the family visitors. The bibliotheca or library was a small closet-like apartment, nor was a larger one necessary for the few vellum or papyrus rolls that then constituted a family library. Then there was the

pinacotheca or picture gallery, always opening into the peristyle; the bathing-rooms, and the lararium or oratory, which enshrined the household gods. The cubiculæ or sleeping rooms were scarcely more than closets without doors or windows, several opening upon the same narrow corridor. Those of the men were usually on one side of the house, and those occupied by the women on the other. The former were called the andronitis, and the latter, the gynæconitis or gynæceum. The second story was generally built of wood, and its divisions were storerooms and apartments for servants.

The space on either side of the porch which gave entrance to the house, was occupied by shops, and this we find in the richest mansions of Pompeii. In only one dwelling is this entrance-porch approached by a portico, and yet so universal is the portico found in public buildings, that we are led to believe that the more pretensions private dwellings must have also been furnished with them.

*Roman Remains Outside of Rome.* — The remains of Roman architecture are found in various parts of Italy, and also in other countries once forming a part of the great empire.

At Verona we find the best preserved amphitheatre; at Susa a triumphal arch erected in honor of Augustus; at Brescia the remains of a colonnaded edifice, while in the cities of the South are ruins yet more extensive. Arles and Nismes in France, each boast of a tolerably well preserved amphi-

theatre, and the former of a theatre, amid whose broken arches was discovered the Venus d' Arles of the Louvre ; while Autun still preserves a magnificent gateway surmounted by a Corinthian arcade.

Germany also boasts many interesting fragments, but in the East, especially at Baalbec and Palmyra, are the remains of temples whose splendor is unequaled. Yet they are not in the highest style of art, but show the influence of Orientalism in superabundance of ornament, and whimsical and fantastic deviations from rules considered inviolable in the West.





## CHAPTER XIII.

### EARLY CHRISTIAN ART.

“**Q**UAD things have passed away, behold all things have become new,” said St. Paul in describing the renewing and vivifying power of Christianity upon man himself; and it is equally true when extended to all the circumstances which surround him. Ever since that glorious Pentecost, when the Gospel was declared to “Men out of every nation under heaven,” Christianity has been the great central and centralizing idea in the world’s progress and development, quietly shaping and bending all things, so as best to serve its purpose and aid in its advancement. Nowhere is this more plainly to be seen than in the history of art, which at once took new forms in order to give expression to new ideas.

For the first three centuries, to be sure, while imprisoned, and burned, and slaughtered by wild beasts, pursued with all the hatred and malice of which a Nero and a Domitian were capable, the Christians met only by stealth, and no place was safe to them save the Catacombs — dark, winding, underground passages where they interred the holy



dead. Here they hollowed out, tier above tier, low oblong recesses, so narrow that the uncoffined body must have been forced into them. They were, when occupied, closed with a marble slab, engraved with the name of the deceased or some symbolic sign. More spacious tombs were excavated for the bishops and higher clergy, and of these the walls were painted with the symbols of the Christian faith in rude frescoes. Not unfrequently, a larger chamber, similarly ornamented, terminated the narrow corridor, and these were probably used as chapels. Yet to worship here surrounded by the dead inspired no fear, no superstitious terror. The sting of death had been removed ; it was the passage to everlasting life. God was everywhere, the universe was his, and, moreover, what could man create that would be worthy of his acceptance? Simple childlike faith, trusting love, humble prayer and praise,—these were his requirements, and these they gave out of the abundance of the heart.

But when, relieved from persecution, the Christians were free to erect edifices in which they might gather all who desired to come to them, there arose the necessity of choice in regard to the form of such buildings, and this choice must be guided by ideas of suitability and convenience. Pagan worship had only required a splendid shrine to inclose the sculptured effigy wherein the god himself was supposed to dwell, and a place for sacrifice,



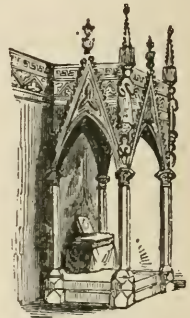
which might be either an open area or an inclosed portico in front of the temple. But Christianity declared "God is love," and "ye, yourselves, are taught of God to love one another," and this love, binding all hearts together, must find a common expression in united praise and prayer, and in celebrating together the Holy Communion. Therefore, the Christians turned from the old temple as unsuited to their needs, and seized upon the basilica which offered due space and convenience. Another circumstance may have influenced them in this decision. Many of the Roman palaces and villas had large basilica-like halls attached to them, which were probably used for the reception of clients and the transaction of business; and it may be that when some of the nobles came to embrace the new faith, the Christians had secretly worshipped in these halls, and thus had become accustomed to the basilica form.

*Christian Basilica.* — In remodelling the plan of the old pagan edifice, the elevated tribune or apsis was retained and set apart for the bishop and his clergy, — their seats being arranged against the semi-circular wall. The walls and vaulted roof above were painted with figures of Christ and his apostles, and these were generally the



Basilica.

only decorations that were essentially Christian. In the new edifice, a space intervened between the columns which separated the nave and apsis, and this was occupied by an altar, elevated several steps above the pavement, and visible from all parts of the building. A baldachino, supported by four columns, was raised over it, while beneath reposed the ashes of some holy martyr. Sometimes this space was spanned by a triumphal arch, resting upon massive columns; if so, these were of porphyry or granite, or in some other way distinguished above those used in other parts of the basilica. A small portion of the nave near the door was set aside for penitents, and called the narthex, a name derived from the iron ferrule with which they inflicted penance upon themselves. The rest was known as the aula. This part of the church was lighted by large broad windows, which pierced the wall above the supporting arcade or architrave, while the side aisles were illumined by windows in the outer wall. The entrance was at the end opposite the apsis, and there was generally one doorway for each aisle; but in large basilicas, where the nave was very broad, it was furnished with three portals, making five in all. This, the west front of the building, formed the façade, and was more carefully finished and more richly ornamented than any other part of the exte-



Baldachin.

rior. Sometimes it had only a simple portico, but usually a quadrangular court, inclosed by a colonnade, extended its entire length. This court was called the atrium or quadriporticus, and in the centre arose a cantharus or fountain. The quadriporticus seems to have formed a part of the church building until the eighth century, when it gave place to the less imposing vestibule with its vase of holy water.

No attempt was made to create anything new, either in form or proportion, as regarded the details of these buildings. The ancient worship falling into decay, its temples were neglected, and finally shafts, bases, capitals, and entablatures were seized upon and employed in erecting the new basilicas. No regard was paid, however, to the laws which had regulated every part of the Pagan edifice. The different orders were indiscriminately mingled, — Corinthian, Composite, and Ionic capitals alternating in the same arcade ; if the shafts were too long they were shortened ; if too short, higher bases or pedestals brought them up to the required height. All the rules that had governed the intercolumniations were of course no longer applicable, and their size was such as either convenience or necessity required. The roofs of these edifices were of wood, and the frame-work was usually visible from below, though sometimes hidden by a wooden ceiling, adorned with painting. Not unfrequently, as in the Pantheon, the old heathen temple was duly conse-

crated as a Christian church ; and again, as we find in the Church of San Lorenzo in Miranda, and many others at Rome, the substruction and a part of the walls of the heathen temple remaining, additions were made, and thus the new basilica formed. Occasionally, the old judicial basilica was remodeled and became the Christian edifice, as in the basilica of Constantine.

*Peculiar Features Introduced.* — In the city of Ravenna, important in the first centuries of the Christian era as the capital of the Western Empire, are preserved some of the best specimens of early Christian art. They exhibit certain modifications, which, originating here or adopted from Byzantium, were afterwards copied in various parts of Italy. First of these may be mentioned the independent bell-tower or Campanile — a structure confined exclusively to Italy. Although in rather close proximity to the church, it had a separate foundation and was in no way connected with the main edifice. The most ancient towers were of cylindrical form ; they preserved the same diameter from the base to the top, and were covered with a slightly-sloping roof.

Another distinguishing feature in these edifices is the use of mosaics instead of paintings for the decoration of the walls. Among the ancients, mosaics had only been used for floors, and their employment as a wall-decoration first appears in the Christian church. Although lacking the lightness, variety, and power of adaptation, belonging to painting,

mosaic possesses a certain solemn dignity, which renders it especially suitable for the representation of sacred personages such as Christ and the Apostles ; and this the more when applied to those vast architectural spaces, unbroken by ornament, that the walls of the apses and triumphal arches afforded.

Such columns as were made especially for these basilicas did not follow the ancient forms, but seemed in the adornment of their capitals to be striving after something more in unison with the new faith. Above the leaves and scrolls of the Composite, considerably modified however, rose a finished impost with a cross cut in low relief upon its face. This impost had the form of an inverted pyramidal frustum, and together with its fillets was of about the same height as the leaves and scroll.

*Eastern Edifices.* — The buildings erected in the East for Christian worship are, many of them, of earlier date than those in the West. Their general form is that of the basilica, but with some significant alterations. In Syria are found the remains of more than a hundred towns, in which entire streets with their houses, villas, burial-places, and churches, still stand just as they were left when the inhabitants fled before the blood-thirsty, devastating Saracens. There the basilicas are constructed exclusively of stone, the roof being composed of granite slabs, laid horizontally upon springers of the same material. The three aisles are all raised to the same height, the upper part of the side aisles forming galleries, which

opened upon the nave by windows in its upper walls. These galleries were occupied by the women, whom the Eastern custom of seclusion would not allow to enter the body of the house. The remains of early churches found in Egypt, Algeria, and other parts of northern Africa, are usually five-aisled, although of small dimensions, and the apsis is repeated in the western wall.

When Constantine removed from Rome to Byzantium, he was followed by many of the wealthiest nobles and citizens, all determined, if possible, that the new capital should equal the old. Consequently, many magnificent palaces and churches were at once erected, the latter following the western models, except in the addition of galleries for the women. However, this simple form was soon exchanged for designs more varied and complicated; then the dome with its appurtenances was added, and, as the ground plan became more complex, half-domes and cupolas roofing the various courts, until the columned structure was lost sight of, massive pillars being used instead to support the galleries and terminate the side courts opening into the main edifice. The walls were everywhere covered with colored marbles richly wrought in various designs, but these were stiff and lifeless. The domes and vaults of the niches were decorated with brilliant mosaics, many of them laid upon a golden ground, yet cold and dry in outline.

*Roman Basilicas.* — The basilica of San Paolo



fuori le Mura, at Rome, was considered, until its partial destruction by fire in 1823, the most magnificent monument of early Christian art. The body of the building, two hundred and ninety-five feet long and two hundred and fourteen feet broad, was divided into a vast nave and four aisles, two on each side. These were separated from each other and from the lofty transept, which intervened between the main part of the edifice and the apsis, by Corinthian columns of various kinds of marble. There were one hundred and thirty-eight columns in all, and they probably formed the finest collection in the world. The triumphal arch, the apsis and transepts, were covered with ancient mosaics, while a series of portraits of the popes — the early ones of course apocryphal — ran around the nave above the frieze which surmounted the circular arches of the walls. But the roof was of open frame-work, and this took fire, and, falling into the nave, burnt so furiously as to calcine many of the marble columns, while those of porphyry, supporting the triumphal arch and entablature, were split into fragments. In restoring this basilica, the columns destroyed have been replaced by others having granite shafts and white marble Corinthian capitals. Those of the triumphal arch, however, are Ionic, each wrought from a single block in the granite quarries of Montorfano, near Lago Maggiore.

The basilicas of San Lorenzo and Sta. Agnese have both preserved the ancient form with little



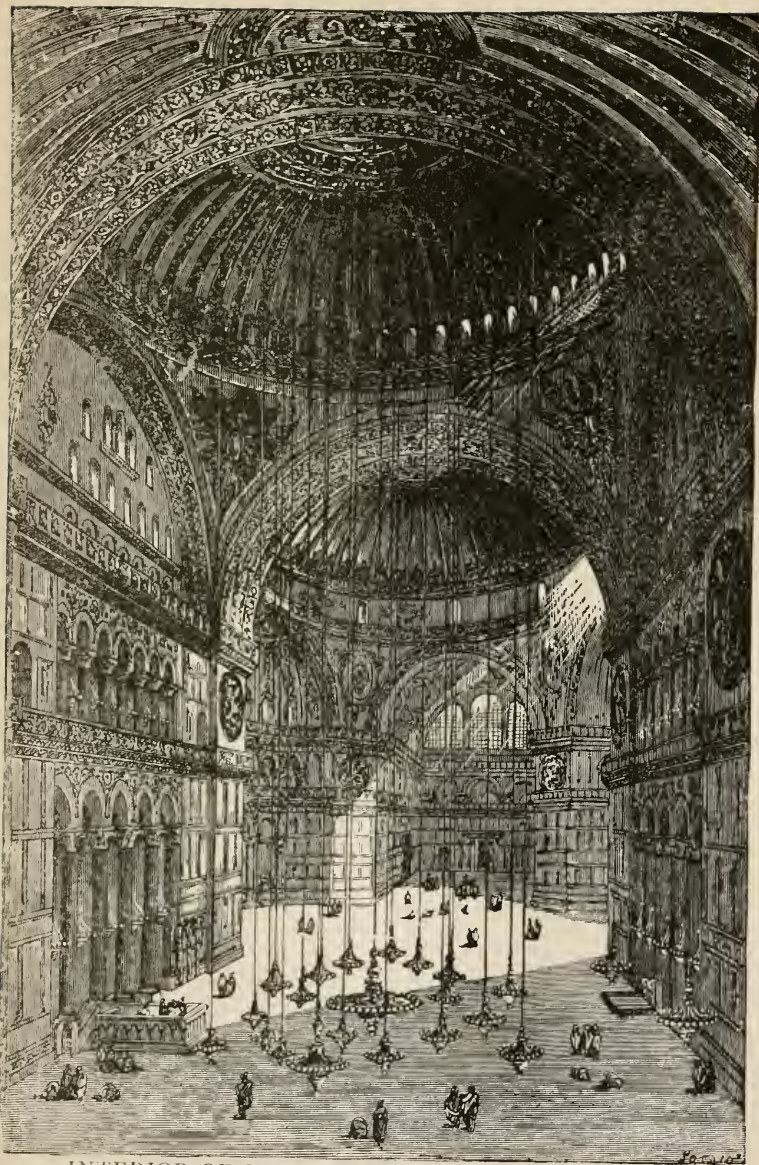
change. Both are three-aisled basilicas, and in the latter the nave is separated from the side aisles by sixteen ancient columns, some of the Corinthian and some of the Composite order, several being noticeable for the curious fluting of the shafts. Above these arises a second range of fourteen columns, which, doubtless, inclosed a gallery running around three sides of the nave, and set aside for females. Eight windows on each side pierce the wall above, while the roof presents the ordinary wooden framework.

*Chapels and Churches of Circular Form.* — Besides the basilicas we find edifices of circular or octagonal form set apart for religious worship. They are usually baptisteries, like the Lateran baptistery; or funeral chapels, like that built for the daughter of Constantine, now the Church of Sta. Costanza. Occasionally, churches were built of this form, especially in the sixth and seventh centuries, when the erection of Sta. Sophia at Constantinople had given a new model for church architecture. None of these edifices are more interesting than the Church of San Vitale at Ravenna, built in the reign of the Emperor Justinian, and modeled directly from Sta. Sophia. The central part or body of the church is an octagon forty-seven feet in diameter, and surrounded by eight arches, resting upon an equal number of piers, which support the dome. The wall above the arches and below the vaulting of the dome is broken by eight windows, one above

each arch. Upon either side of the windows, rise columns whose shafts are spirally fluted, while their capitals are of Byzantine form. These rest upon a projecting entablature, at the same time that they support a richly carved frieze above. Of the spaces between the arches, one opens upon the rectangular choir, that opposite upon an entrance court, and the other six lead to semicircular recesses, each terminating in a vaulted semi-dome, and divided into two stories. Each story is again sub-divided into three smaller arches by two columns placed between the principal piers. The upper walls and vault of the choir are covered with mosaics as old as the church itself, but as brilliant and beautiful as if just completed, while the walls of the edifice are everywhere incrustated with variously colored Grecian marbles. The dome of San Vitale is of curious construction. It consists of small twisted earthen vessels laid horizontally, the point of one being inserted in the mouth of the other. Similar vessels, twisted only at the point and arranged vertically, are used in connection with these to fill the spandrils. This plan of constructing domes frequently occurs in antique buildings, as the lower parts are thus rendered lighter than would be possible, if solid blocks were employed.

*Santa Sophia.* — The completion of the church of Sta. Sophia served to mark an era in the history of church architecture. The first edifice, erected

by Constantine, having been destroyed by fire, Justinian determined to rebuild it, and with even greater magnificence. This second edifice was begun in 532 and completed in 537, — an incredibly short space of time, when we consider the complication of the plan, and the richness of its decoration. The dome, having been much shattered by an earthquake in 558, was afterwards taken down, and a new one erected. The plan of Sta. Sophia differs essentially from that of the old basilica. The nave, or central aisle, has the form of an oblong oval, terminating at one end in a large apsis and two smaller side apses, connected with it, while the opposite end opens into an outer portico or entrance-hall, extending along the whole façade. On each side of this main entrance are circular recesses corresponding to the side apses. At the four corners of the central quadratic space thus formed, are built up strong pillars of masonry work, supporting four grand arches. Upon these rests an entablature, from which springs the dome, one hundred and six feet in diameter, but rather shallow, being the smaller segment of a sphere. This quadratic space opens into the side aisles by a continuous arcade supporting the lofty side-walls. The two half circles, one on either side of the square, are roofed by semi-domes, resting upon piers, two of which are connected with those of the main dome, while two others are built at the termina-



INTERIOR OF ST. SOPHIA AT CONSTANTINOPLE.

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TILDEN FOUNDATIONS.



tion of the side apses and recesses. On account of the projecting counterforts, necessary to strengthen the piers, the side aisles have not the continuity of basilica-aisles, but appear to be formed of several distinct departments connected by arched passages. Galleries for the women were placed above them, and these opened into the central aisle by colonnades. Lubke says of the interior decoration; "All the surfaces of the walls and pillars, even to the cornices, were covered with costly, many colored marbles; the choicest remains from the temples of Asia Minor were selected for the columns; the vaulted roofs, the dome, semi-dome, and apses, had a brilliant ground of gold mosaics set in colored ornamental frames, and interwoven like tapestry with figurative representations, the coloring of which stood out strongly from the golden ground." Add to this the rail and columns of silver, which inclosed the choir; the golden altar, ornamented with pearls and gems, and enshrined beneath a lofty silver tabernacle, hung about with gold-embroidered tapestries, and we have an accumulation of magnificent material such as the world rarely sees. Windows surrounding the domes and semi-domes, together with those piercing the outer walls, threw in a flood of light, and the combination of numerous, ever-varying circular forms with rich solid coloring, gave an effect at once brilliant and imposing, although it lacked the solemn grandeur of the simple basilica. To the front, beyond the

portico, was added a colonnaded atrium, after the manner of the ancient building. When Sta. Sophia fell into the hands of the Turks, minarets were erected at the four angles of the edifice, but yet it still retains its distinguishing features, and the requirements of the Koran, as regards the representation of animal or human form, were



Minaret.

considered as satisfied by hiding the mosaics beneath colorless draperies. As we have said before, the completion of this edifice marked an era in church architecture. It became the new model, and was frequently copied both in the East and West, though for the most part with a simplification of the ground-plan. Often, as in San Vitale at Ravenna, and later in the royal chapel of Charlemagne at Aix-la-Chapelle, it was a simple circular or octagonal building crowned by a dome; and again, the edifice took the form of a Greek cross with an imposing dome arising over the quadratic, formed by the intersection of the two parts of the cross, while smaller domes crowned the four ends.

*Buildings at Aix-la-Chapelle.* — Of the buildings erected by Charlemagne, and so much admired by Petrarch five centuries later, nothing remains except the chapel, which forms the nave of the great cathedral. This was doubtless copied from San Vitale, for we find the same central octagon with its surrounding side-aisles and galleries, and we may presume that the palace, capitol, and magnificent halls,



which, we are told, once existed, were built upon Italian models. In erecting this chapel the plan was greatly simplified, and there is a clumsiness and even rudeness in the arrangement of parts, which result from a want of taste and knowledge, and show that the emperor of the North could not always command such skillful architects as belonged to the more refined nations of the South.

It is worthy of notice that the form of edifice first adopted by the Christians has been strictly adhered to in its general plan and features through all ages and in all lands, and this may be considered strong evidence of its remarkable adaptation to the requirements of an edifice for social religious worship.





## CHAPTER XIV.

### ROMANESQUE ARCHITECTURE.

**T**O the architecture of the mediæval period, beginning in most countries with the tenth century, is given the name of Romanesque. This name, however, does not apply as that of preceding styles to forms alike, not only in general outline, but also, for the most part, in all the essential details. With Charlemagne perished the last attempt to establish in Europe a great centralizing power ; henceforth the different nationalities were left free to develop into such social and political bodies as best accorded with their peculiar characteristics. Yet there was one common basis for their civilization, one common bond that united them all. In their religion, in the great and vital truths of Christianity, all were interested — not only that God should be glorified and the church honored, but that these truths should be everywhere recognized and maintained. At the same time there were everywhere fierce political struggles — the warring of new forms against the fetters of the old. Hence the nobility in all lands sought only for military distinction

and renown ; there was neither time nor inclination to cultivate the arts and sciences, and so they were left to the ecclesiastics, to whom the security and leisure of the monastery gave ample opportunity for their pursuit. Thus the church became the exclusive source of culture, and the clergy the savans, scientists, authors, and teachers of the age. In such times of turmoil, the individual man is but one of the members of the political mass ; rights and privileges he has none, and his own personal merits or capabilities are never recognized. He must be protected by the more powerful in order to exist, and thus settlements of the people were made dependent upon some abbey or bishopric, where no feudal allegiance was due.

Such a state of society is fatal to the progress of art, and hence architecture, which could express the great universal ideas of Christianity, was the only one of the fine arts that received attention. The progress in this was due, in a great measure, to the rivalry existing between the different monastic bodies, each endeavoring to surpass the others in the richness of its refectory, cloisters, and chapel ; and also to the increasing wealth of the church, into whose treasury vast sums were poured, frequently as votive offerings, or with the hope of purchasing exemption from threatening evil.

*Romanesque Church Edifice.* — The Romanesque church edifice grew out of the Christian basilica, and yet we find many changes in its essential features.

The nave is no longer separated from the choir by pillars, but by an aisle, crossing it at right angles, and called the transept. This gives the building the distinct form of the cross. The ancient apsis being insufficient to accommodate the large number of monks, it is enlarged towards the transept by straight walls equal to its width, thus adding a square. This was called the choir or presbyterium, and was raised several steps above the rest of the building, from which it was sometimes divided by a screen of rich open arabesque work, in wood or bronze, and sometimes by a rail, wrought in marble or metal. Beneath the choir was the crypt, a vaulted room used for the interment of the abbots, founders of the church, and other persons of similar distinction. At the four corners of the great square, formed by the intersection of the nave and transept, were built up strong pillars supporting lofty open arches, which gave free view and passage to all parts of the building. The principal altar occupied this open court, which was frequently roofed by a circular or octagonal dome. The narthex was altogether omitted, and the atrium gave place to the simple vestibule before the main portal.

As the number of altars had increased, the side aisles, and also the transepts, frequently terminated in small apses, which served as altar-niches. In cathedrals or great abbeys, a second choir was frequently deemed necessary. When this was the case, it was added at the west end, occupying the

place of the main portal. Several modifications were also made in the walls of the nave. Pillars were introduced as supports in place of columns ; at first mingled with them, every alternate or third pair being pillars ; but later, when stone roofs took the place of wooden ones, the columns disappeared altogether, and the nave walls were always supported by arches resting upon pillars. Again, a cornice was introduced above the arcade, strips of which extended vertically downwards to the capitals of these pillars ; or the cornice was employed to span a larger arch over every two arcades. The windows, smaller than those of the early basilica, but like them terminating in semicircular arches, were placed above this arcade, and were beveled within and without, in order to afford the greater amount of light. These walls were also enlivened by the colonnades opening from the galleries over the side aisles, and so happy was the effect that the colonnades were often introduced, when there were no galleries.

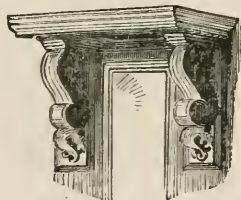
*Vaulted Roof.* — The exchanging of the wooden roof with its light, combustible framework, for the solid vaulted one, was a great advance in church architecture. The frequent occurrence of fire, which had destroyed many of the finest ancient edifices, as well as an improved æsthetic taste, led to this change. In some localities the roof took the form of the tunnel vault, and sometimes of the dome, but generally the cross-vault was employed. This

had been hitherto confined to smaller spaces than the broad and lofty church naves afforded, and hence great technical skill was necessary on the part of the architects ; but the perfection of these vaults at the present time, after the lapse of six or seven centuries, shows how complete was their knowledge of their art. A projecting half-column or pilaster was placed against every second pillar of the side arcades, and from these sprung an arch spanning the nave ; at the same time the pillars furnished points of support for the intersecting arches. The side-aisles were similarly vaulted, pilasters placed against the outer walls supporting the arches. The nave no longer afforded the same unbroken vista, as in the ancient edifice, but neither did it present the same rigidity and fixedness. The long unbroken lines had given place to a series of curves harmonizing with one another ; these were repeated in the side aisles, and thus all parts united seemed to swell into one majestic whole, like the tones of some great organ when called forth by a master hand.

*Romanesque Exterior.*— The exterior of the Romanesque building has also its peculiarities. The walls rise from a socle, which surrounds the whole building. This socle is sometimes formed of mouldings, similar to those of the Attic base, and at others is a simple plinth, beveled at the top. From this ascend lisenes, or small pilasters, which have their base in the socle, and usually mark the



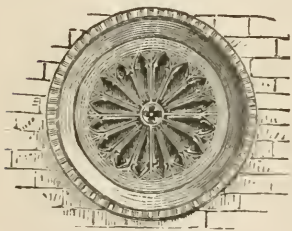
internal divisions of the building. Sometimes, in the earlier edifices, these terminate in a bevel just below the gable, but generally they are connected by a series of small circular arches, which form a frieze not far below the roof cornice. This frieze is a characteristic of Romanesque architecture, but it varies greatly in construction. In Italy we sometimes find columns or half columns taking the place of the pilasters, and the intrados of the arcades richly wrought in leaf forms or mouldings. In Germany and France mouldings are most frequent, and they are wrought out in every variety of detail ; but sometimes the frieze is merely indicated by projecting one or more rows of bricks from the wall surface. Another frieze is sometimes added above this and below the roof-cornice. The chess-board pattern, consisting of several rows of stones alternately elevated and depressed, or a row of rectangular blocks placed diagonally, are the favorite forms for this frieze, although round mouldings are not unfrequently employed. When consoles are added, they are not of the antique forms, but are rather square and solid.



Consoles.

In the façade we find the side-aisles supporting lofty towers, which were ornamented, like the walls, with lisenes and arch-friezes. The main portal, occupying the centre of the façade, and no longer

overshadowed by the atrium, is one of the peculiar features of this edifice. Built out from the façade, its walls form deep angles, and these side walls are covered by slender columns sometimes forming two stories, and sometimes continued to the arch above, but divided by projecting bands. A straight beam or lintel is inserted above, so as to set off the arched part of the doorway and form a circular tympanum. Here was displayed, especially in Germany, the best specimens of mediæval sculpture, the subjects being Christ enthroned among saints and angels, the Last Judgment, or something of similar import. The columnar ornament was continued along the arch above, and this whole frame-work was covered with linear and flower designs wrought



Wheel-window.

into every conceivable variety of form and combination. The façade was further enriched by the wheel-window, a circular window in which the sashes, frequently called cusps, radiate from the centre and terminate in the trefoil or similar forms. They are filled with stained glass, and add no little to the richness and beauty both of the exterior and interior in this style, but more especially in the Gothic.

In these general features the Romanesque architecture of all countries for the most part agreed, but in others, as before mentioned, it widely differed in different localities.

*Italian Romanesque.* — Among the Italians, and especially at Rome, lingered the love of classic art ; and therefore no edifice differing in form from the basilica, was erected in the old capital until the latter part of the thirteenth century. The erection at Pisa of the remarkable group of buildings which now forms the most attractive feature of that city, gave a new and independent form to church architecture in Tuscany. The Cathedral, Baptistery, Campanile, and Campo Santo are by different artists, and yet each — in the rare and successful combination of light and delicate ornament with noble and enduring material, in enchanting grace and airiness united with firmness and solidity — proves its architect possessed of superior genius. Looking up to the lofty leaning tower profiled against the clear blue sky, when the morning sunlight glints the slender columns of its balconies, or turning to the sparkling dome of the Baptistery, with its crocketed ribs and surrounding pinnacles, the traveller finds himself delighted with the rich and varied decoration ; but this delight is greatly enhanced when he learns that it is united to noble supports, massive walls, and most solid foundations. A tablet upon the façade of the Duomo tells us that Busketus was the architect, but whether he was an Italian or Greek, it is impossible to determine ; as also to decide whether he deserves the greater credit for the grand architectural forms due to his invention, or the skill with which he has combined into one

harmonious whole, shafts, bases, capitals, cornices, and other fragments of ancient art. The cornerstone of the edifice was laid in 1067, but it was not consecrated until 1118. In the five aisles, the uninterrupted arcades and architrave, and the wooden roof, we have several features of the old basilica, but the nave is crossed by a three-aisled transept, and the ground-plan is that of a Latin cross. Moreover, an elliptical cupola supported by pendentives, and interrupting the straight lines of the roof, covers the quadratic formed by the intersection of the nave and transepts, while the exterior preserves none of the ancient characteristics. It is surrounded by a wide marble platform with steps, having the effect somewhat of the Grecian stylobate. The walls are composed of alternate layers of white and dark green marble, the monotony being relieved by arcades, resting upon pilasters or half-columns. The façade has five of these arcades, the lower one supported by half-columns, and the remaining four by insulated columns, so that they have the appearance of slightly projecting galleries. In the panels thus formed are ornaments either of mosaic or antique sculpture.

The Campanile, or bell tower, known as the Leaning Tower, was begun about 1174. It overhangs the perpendicular upwards of thirteen feet; a defect due, no doubt, in the first place, to an imperfect foundation. The same peculiarity is found in two towers at Bologna, the Torre degli Asinelli,

and the Torre Garisenda, in both of which the inclination has slightly increased since the commencement of the present century. This inclination evidently exhibited itself before the tower had been carried up to half its height, and an attempt was made to restore it, as far as possible, to its vertical position by lengthening the columns of the surrounding galleries on the side of the inclination. There are eight of these open galleries, rising one above another, and formed by semicircular arches, resting upon Corinthian columns of rather delicate proportions. A winding staircase of two hundred and ninety-four steps leads to the summit, where the seven bells are so arranged that the heavier ones shall, as far as possible, counteract the leaning of the tower. The largest weighs twelve thousand pounds, and they are all remarkable for their strength of tone as well as wonderful harmony, for the Pisan bell foundries enjoyed great reputation at this time.

The Baptistery and Campo Santo were both begun in the thirteenth century, and in the use of classic ornament did not differ much from the other edifices, but as they were not completed until the fifteenth century, when the pointed Gothic had found its way into Italy, several of its features were added, especially the pointed arch in the arcades of the latter ; producing, not an incongruous whole, but rather a pleasing variety.

The Pisan buildings were copied in various parts

of Tuscany, that is, so far as the general form of the exterior and the galleried façade, though nowhere were such noble materials employed, or such fine effects produced. San Frediano at Lucca approached it somewhat, its rich marbles being taken from the ruins of the amphitheatre; while San Michele in the same city, although grand and imposing, lacks the classical regularity and severe simplicity of the Pisan edifices.

*San Marco at Venice.* — The architecture of eastern Italy continued to be influenced, more or less, by that of Constantinople, and nowhere is this more plainly seen than in the Cathedral of San Marco at Venice, formerly the Ducal Chapel, and as such consecrated in 1111. The plan is that of a Greek cross with the addition of spacious porticoes, according to the Byzantine usage. The nave with its four aisles is crossed by a three-aisled transept, and the whole is inclosed by a lofty vaulted roof, from which arise five domes, one over the middle of each of the arms of the cross, and the fifth, six feet higher than the rest, crowning the square of intersection. The nave, and the two contiguous aisles, terminate in circular apses, those of the side-aisles being so divided as to accommodate the various altars. The central apsis is occupied by the altar of the Holy Sacrament, and its rich canopy is supported by four spiral columns of oriental alabaster, said to have once belonged to the Temple at Jerusalem. The principal altar is in front of this, under



the dome crowning the short arm of the cross, and the whole choir is separated from the nave by a screen of open arabesque work. Arcades divide the nave and aisles, and support the upper galleries. The shafts are of highly polished marble of various colors, and the capitals are wrought in foliage so delicate and graceful that it seems to be gently swayed by the wind. Slabs of alabaster and brilliant marbles everywhere cover the walls, while the vaults above are resplendent with mosaics wrought upon a golden ground. The floor is of rich marquetry work ; statues in bronze and marble crown the various altars, and nowhere does the eye fall that it is not charmed by powerful combinations of color, and beauty of form. The light, however, is extremely defective, being only such as is supplied from the domes and a few high narrow windows piercing the outer wall ; and therefore where we might expect splendor, warmth, and brilliancy, we have dimness, if not actual gloom. The exterior corresponds well with the interior in its richness, and, like it, owes its attractiveness to brilliancy of coloring and picturesqueness of effect rather than to grand architectural forms. Here the light is uninterrupted, and the rich warm marbles of the façade, the golden mosaics of the arched gables and portals, the time-mellowed whiteness of the pinnacles, and the metal-sheeted domes, combine to produce a whole whose splendor, increased by the brilliant glow of a Venetian sky, is beyond descrip-

tion, and which, as Ruskin says, is "A confusion of delight, amidst which the breasts of the Greek horses are seen blazing in their breadth of golden strength." These columns of the façade, which are arranged in two stories, and continued within the deeply-recessed portals, were brought from the East, and are therefore of various styles, many of them being engraven with oriental inscriptions.

*Lombard Romanesque.* — Although Venice, from its maritime situation and intimate commercial relations with the East, adopted many of its peculiar art characteristics, their influence did not extend further westward. The Lombard architecture inclined rather to that of Germany, but yet had so many distinctive features of its own as to render it a recognized style. Brick was the principal building material, and the outlines were consequently heavy, although it was sometimes coated with marble, and, more frequently, layers of marble were introduced, at the same time strengthening the brick walls and relieving their monotony. In the Lombard edifice, the nave rises to a great height, and the aisles are somewhat depressed, giving a lofty façade gable which is unrelieved by tower or other projections. The portals terminate above in a semi-circular arch, and the supporting columns rest upon the backs of animals. Most frequently lions, as symbolical of strength and vigilance, are thus employed ; but sometimes we find other animal forms or griffons. These porticoes are further adorned

by sculpture, the subjects taken not only from the Scriptures but from ordinary life, and frequently descending to caricature and the grotesque. These are stiff and formal in design, and usually exceedingly rude in execution. Another feature of this edifice is the wheel-window, one of the earliest of which is that of San Zenone at Verona, — the best preserved of the early Lombard churches.

Columns and pillars alternate to support the roof in this style, but the former no longer adhere to the classic forms which still prevail in the South. A new form of capital known as the Cubic Capital is most frequently used. It is quadrangular in the upper part, with a deep projecting cornice, more or less ornamented. Below, the corners of the abacus are cut away in a circular or bowl-like form, so as to adapt it to the rounded shaft. The sides of this abacus are variously ornamented; sometimes with vegetable forms, sometimes with linear combinations or symbols, and sometimes with animal or human figures. The base of the column resembles the Attic base, except that the ovolo expands into a leaf-shaped ornament over the four corners of the plinth below, while the shaft is simple, and usually of the same diameter throughout. The Church of San Ambrogio at Milan, and that of San Michele at Pavia are good examples of this style, although the former has an atrium after the manner of the old basilica, and the



Cubic  
Capital.

circular arches of the interior are concealed by pointed ones built up under them, in order to strengthen the roof. In the latter, small open galleries take the place of the arch frieze ; bands enriched with sculpture are carried along the façade ; modillions are let into the walls ; and the windows are divided by columns, — thus presenting one of the noblest and most richly varied of Romanesque exteriors.





## CHAPTER XV.

### ROMANESQUE ARCHITECTURE.

**F**RENCH ROMANESQUE. — Turning to France, in order to trace the development of the Romanesque among the more northern nations, we find it assuming different forms in two distinct sections of that country. The influence of Italy pervades the South, and hence we find here a strict adherence to classic forms; but in the North the architecture assumes new and peculiar features, and is known as the Norman Style. In the South the form of the old basilica prevails, but combined with the tunnel vault. The side-aisles are roofed with half-tunnel vaults, which, reposing upon the outer side walls, receive, as would buttresses, the thrust of the nave-vaulting. With this construction, a series of strong piers necessarily take the place of the supporting columns, and from these project pilasters or half-pillars, upon whose imposts repose the arches spanning the nave. Sometimes, galleries resting upon cross-arches are placed above the aisles, and these are also roofed by half tunnel vaults. These galleries open upon the nave by arched windows, the arches supported by richly

ornamented columns. The transept usually forms a part of the French edifice, but its distinguishing feature is a low aisle surrounding the choir and containing numerous chapels. The cathedral at Toulouse, a magnificent five-aisled basilica of this style, has five of these apsidal chapels. The transepts, also, terminate in apses, while over the square of intersection rises a slender tower, the centralizing feature of the design. The Cathedral of Angoulême and the abbey church of Conques have similar towers, but of octagonal form. In the church of Notre Dâme du Port, at Clermont, the apsidal chapels are arranged in pairs, and here we find a rude mosaic of colored stones extensively employed in external decoration — a style peculiar to the region of Auvergne.

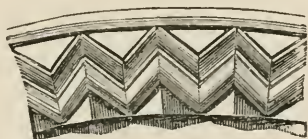
The portals and façades of these Romanesque edifices are more or less ornamented with groups of sculpture, especially the flanks and tympanum of the doorways. Many of these are fantastic in design, and all of them stiff and lifeless in outline and arrangement.

In the western part of France, we find an inclination towards the Byzantine style, especially in the plan of the dome, which rests upon pendentives supported by a cornice after the antique manner.

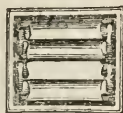
*Romanesque in Normandy.* — In Normandy we find the Romanesque edifice simple and regular in plan, and severe in ornament, partaking of the hardiness of the Normans themselves. Bold, lofty



towers rise above the façade, usually over the side entrance, while one more massive, and of octagonal or quadrangular form, is placed over the transept. The ornament of these Norman buildings usually consists of combinations of simple linear forms — diamond, zigzag, chess-board, linen-scroll, and cable patterns, but seldom breaking into curves and scrolls. In later times this produced a brilliant effect from its delicacy and profusion, as may be seen in many buildings of this epoch in England.



Norman Zigzag.



Linen-scroll.

One of the best examples of the early Norman is the Church of St. Etienne at Caen. This edifice was intended by William the Conqueror for his final resting-place, and was dedicated in 1077. It was not completed until some years after, when the Gothic prevailed, and, consequently, the choir is of this style. The façade is extremely simple, having no other ornament than four pilasters, beveled at the top, which mark the termination of the side and division walls. Above the side-aisles rise two quadrangular towers to the height of three stories, terminating in a lofty pyramidal roof. Heavy cornices separate these stories, which are ornamented, the lower one with lisenes, and the two upper ones with mock arcades. Eight small turrets,

one from each corner, and one from the middle of each side, spring from the base of the roof to no less than half its height. Above the intersection of the cross rises a low octagonal tower, while small turrets inclose the gables of the transepts. The interior presents the massiveness, simple security, and grandeur of proportion, characteristic of this style. The arches of the gallery nearly equal those below in span, while the windows are formed of tall and short arches, placed alternately in one side or the other, according to the curve of the vaulting above.

*Romanesque in England.* — As the Norman conquest gave to England new customs, laws, and language, so, also, it introduced a new system of architecture. The Norman took the place of the rude and ponderous Saxon, but not without adopting some of its elements, and hence known as the Anglo-Norman. Yet it preserved the same predilection for linear ornament, and a similar placing of the overhanging towers. Its details were variously modified. In the Anglo-Norman building, the pillars of the nave are not quadrangular but circular, and rest upon a simple beveled slab as a base. The capital is the so-called Plaited Capital, the lower or rounded part of the abacus being channeled vertically into wide scallops or plaits. The galleries, as in the French Norman, open upon the aisles with broad arches, and the windows above are fronted with galleries, forming a third series of

similar arches. Half columns, resting upon the capitals below, separate these arches, and rise the whole height of the wall, as if they were to support a vaulted roof. Indeed the whole system of the



Norman Staircase in Canterbury Cathedral Close.

building is one intended for a heavy roofing, and yet everywhere are found flat, wooden roofs, inclosing the central nave, and showing the Saxon predilection for wood as a building material.

In this style, also, the portals opened in a semi-circle, which gave no opportunity for a pediment,

and consequently there is but little display of plastic art. Indeed the ornamentation is almost confined to the scale, zigzag, and lozenge forms, which everywhere cover the arches, galleries, and frame-



Lozenge Moulding.

work of the portals. Many of the Anglo-Norman buildings were subsequently transformed into the Gothic, yet the more ancient form is still preserved in the crypts, as in the cathedrals of Worcester and Canterbury.

In the Cathedral of Peterborough, however, we have a splendid specimen of this style; the interior with its simple cylindrical columns, two tiers of galleries, and rich linear ornamentation, remains entire, although a rich Gothic porch has been added to the façade.

*Romanesque in Germany.* — Germany at this period, under the Saxon emperors, was slowly but steadily advancing to a higher state of civilization. There the feudal system, though in a milder form, still bore sway, and gave that mixture of rude valor and chivalric gentleness, of haughtiness and humility, of passionate cruelty and tender childlike pity, — those severe contrasts, which were everywhere its unvarying fruits. This character is impressed upon the artistic efforts of the age, and as the Germans were further removed from the influence of classic art than the other nations, so in moulding anew the conventional forms, they gave to

them characteristics essentially differing from those of any other country. Thus the roof cornice is more complicated in its outline, and is more frequently separated from the arch-frieze by another. The number of towers does not, as is usual in the French edifice, adhere to any fixed rule, but is greatly varied. Sometimes they terminate the transept; sometimes a second transept is added; and, consequently, a second octagonal, or quadrilateral tower; sometimes they are raised on either side of the apsis at its union with the straight walls; and, again, the central tower is flanked at the corners by small heptagonal ones richly ornamented. Besides the lisenés, arch-friezes, and mock arcades, these towers are frequently lightened by apertures in the upper stories which, subdivided by columns, have the appearance of open arcades. Not unfrequently the transepts are finished in circles, and in some instances the apsidal gallery, bent around the choir, is also continued so as to inclose them both. Here the cubic capital is found in its greatest perfection. Rich carvings of plant and animal forms — tendrils, flowers, and leaves, united with figures of lions, horses, stags, and dogs, and with monsters either of the fancy or of deep symbolical significance — are everywhere displayed, and these are variously combined, sometimes with great taste and elegance, and sometimes in a most rude and clumsy manner. This ornament is not confined, however, to the capitals. It overruns the friezes, cornices, and



arcades, but is most abundant in the portals, where the fancy seems to have had free play, for it takes every conceivable form and variation.

In the Saxon parts of Germany are found specimens of the early flat-roofed basilica, many of them being monastic churches. They have usually the alternating columns and pillars, yet sometimes the pillared structure is found executed in a severe and simple style. The Cathedral of Mayence was the first edifice in Germany covered with a vaulted roof. It was designed as a flat-roofed basilica, and was probably vaulted after being partially destroyed by fire in 1081. It has two choirs flanked by towers, a second transept, and two domes — one over the eastern transept, and one over the choir.

As in France, so in Germany, we find variations of style confined to different localities. Thus in Cologne and the surrounding country, we see an effort to make the choir the central part of the design. This is effected by shortening the transepts, and encircling the apsis, either by an aisle or a series of inclosing chapels, while above it rises a dome or a massive tower flanked by smaller ones. While this centralizing of the plan prevailed here, the churches of Westphalia assumed something of a hall-like character, inasmuch as the aisles were carried up to the same height as the nave, and the choir terminated in a straight instead of a circular wall.

In the baptisteries and funeral chapels of this



period, we find the circular or polygonal form still adhered to. Sometimes these were surrounded by aisles, supported by columns or pillars, but when the aisles were wanting, richly ornamented niches relieved the monotony of the walls ; these were usually coated with marble.

The churches of this period were mostly connected with monastic establishments. As before mentioned, the monks also expended vast sums in the erection of cloisters, refectories, and chapter-houses. The cloister was an open quadrangular court, surrounded on all sides by a vaulted hall, opening towards the inclosed space by arcades, and affording communication between the different parts of the abbey or monastery. A rich tessellated or mosaic pavement usually formed the flooring ; the vaults were often decorated with frescoes ; and a handsome cornice terminated the arcades. Yet the most beautiful part of the cloister was usually this arcade. Great variety was admitted in the columns ; sometimes the shafts are spiral, sometimes twisted, sometimes knotted about with ribbons, or with beautiful leaf and flower forms. Nor is less variety displayed in the capitals ; the beautiful, the grave, the gay, and the fantastic — all are allowed, either in cheerful combination, or with one or the other prevailing, as taste or fancy dictated. In the beautiful cloisters of St. John Lateran at Rome, we find the shafts covered with a rich inlaid work composed of marbles of various colors, united in an endless

number of linear patterns. This form of decoration is also found in the altar-rails of many of the Italian churches of the Romanesque period. The chapter-house, where were held the various conferences of the monks, partook of the architectural style of the church, which it frequently adjoined ; while in the rich adornment of the refectory, the brethren seemed determined to compensate themselves for the poverty and barrenness of their cells.

*Moorish Influences.* — In the early part of the twelfth century, the Romanesque style began to be influenced by Moorish or Saracenic architecture, especially in those countries in which the Arabs had gained a permanent footing, as in Spain and Southern Italy. Wall spaces were covered with intersecting mock-arches, or with that endless variety of “gay and gilded arabesque,” with which the Mohammedan consoles himself for the lack of sculptured forms, forbidden by his religion. Then the high, circular, and pointed arch were introduced. At first, the latter was purely ornamental, but it soon found its way to the arcade and vaulting ; the quadratic arrangement disappeared ; cross springers were thrown from pillar to pillar ; and numerous slender arches roofed the nave. Then these were finished with mouldings ; cross-ribs edged the vaultings, columns and half-columns of delicate proportions clustered around the pillars, and the indented arch, the horseshoe arch, and the trefoil, crept in by way of ornament. The simple grandeur

of the Romanesque had disappeared before the longing for ornament and embellishment, and thenceforth, the Transition Style held sway until it was displaced by the Gothic. The date of the Transition cannot be exactly fixed, but it may be considered as bearing sway from 1170 to 1270. Its peculiar features were such innovations as we have numbered, combined with more slender and delicate proportions and great exuberance of ornament.





## CHAPTER XVI.

### GOthic ARCHITECTURE.

**W**ITH the twelfth century began that great social and mental revolution which marked the end of the Dark Ages and the dawn of mediæval civilization and culture. Then the human intellect awoke from the lethargy which had enthralled it for six centuries; feeling and fancy were aroused, the taste for classical literature revived; and the restraints and burdens imposed by a powerful hierarchy and a no less powerful but more barbarous feudality, were recognized, denounced, and, in a few instances, resisted. In France, and especially at Paris, the faint glimmer soon brightened into a clear and steady flame, sending its rays in all directions, and drawing to itself the youths of all nations and tongues. There Lanfranc and Anselm, Roscelin and Abelard, followed each other in quick succession, devoting themselves not only to the acquisition of knowledge, but to the instruction of young men and the diffusion of a taste for classical literature and philosophy. A writer of the time, speaking extravagantly, of course, says the number

of students exceeded the number of citizens ; while John of Salisbury, visiting Paris in 1176, wrote of it : " When I saw the abundance of provisions, the gayety of the people, the good condition of the clergy, the majesty and glory of all the church, the diverse occupations of men admitted to the study of philosophy, I seemed to see that Jacob's ladder whose summit reached heaven, and on which the angels ascended and descended. I must needs confess that truly the Lord was in this place." Art as well as literature felt the influence of this new vitality. Awakening from her long repose, she sought to put off the old traditional forms, and clothe herself anew in such guise as should best express the depth of feeling and religious exaltation that everywhere marked the new life. Studied stateliness and dignified repose were exchanged for tender enthusiasm, deep emotions, and ardent longings, as the human soul sought to lay hold of the vital truths of religion instead of empty formulas, and kindled into rapture as it recognized their power and beauty.

Architecture was the first of the arts to give expression to this new-born freedom of thought, and these fervent aspirations after truth and holiness. The solemn imposing grandeur of the Romanesque gave way to a style which combined lightness and delicacy with freedom of construction and variety of form, and which, breaking out into numberless combinations of arch, foliage, and tracery forms,

crowned everywhere with delicate spires pointing heavenward, might not inaptly be compared with the spirit that full of holy zeal centres all its desires in heaven, while it includes all the nations of the earth in those desires. To this style the term Gothic was applied by the more southern nations, and, probably, in derision ; for they were so wedded to the old traditionary forms as to believe that barbarians only would venture upon any innovation.

If it be asked to whose genius is to be attributed the creation of a style, so in unison with those loftier feelings which Christianity alone has been able to awaken that it is sometimes denominated Christian Architecture, the only reply is that its originator is unknown, and of its development no record exists. It is a singular fact in history, that of architects, before the time of the Renaissance, we scarcely know anything but the name. Their personality is almost a myth, and the most splendid architectural monuments are associated with the prince or ruler under whom they were erected, while of the genius which gave them birth, there remains not a single trace. In connection with Gothic Architecture, not even the names are preserved. The Freemasons claim it as theirs, the outgrowth of united talent and well-directed effort. The monks claim it, and with considerable degree of reason, as it first appeared in the choir of St. Denis at Paris, rebuilt under the Abbé Suger ; and the monks were then well versed in all the arts as

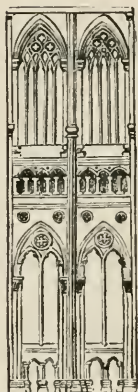


well as the learning of the times, and had frequently shown themselves skillful builders. Perhaps the best theory is, that it was cradled with the latter, but grew into complete development under the fostering care of the former — not through the genius of any one or any several men, but rather through the simple honesty and religious enthusiasm with which many united to render more glorious the temples of the Lord.

*Features of the Gothic Interior.* — Ruskin defines Gothic architecture as “Foliated Architecture which uses the pointed arch for the roof proper, and the gable for the roof-mask,” and this definition of it will perhaps serve as well as any, while considering the peculiarities of the style. In the Romanesque, the pointed arch was sometimes combined with the circular, but it was invariably by way of ornament, while in the Gothic it became, as Lubke expresses it, “The fundamental law of construction.” A freer arrangement of the ground-plan is an advantage at once apparent. Arches of various span may be carried up to the same height, or different heights in the same arcade are possible ; while in the lofty central nave, an adherence to the quadripartite arrangement is no longer necessary, nor are more arches required than in the side-aisles. This not only gives life and animation to the style, but also an appearance of more complete unity in the design. Moreover, in the pointed arch the tension of the different parts was less, and the thrust rather

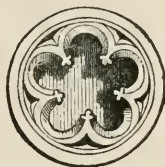
downwards than sideways. Consequently, walls of remarkable thickness were no longer demanded ; that the points of support should be able to resist the pressure was all that was required, and this was secured by building strong counterforts at the place where the springers of the arches and the ribs of the roof fell upon the pillar. In order to support the central aisle, which in this style, although much narrower, was carried to a greater height than in the Romanesque or the old basilica, flying arches were thrown across from these points in the nave walls to the counterforts or buttresses which supported the outer walls of the side-aisles. In later times, when edifices of vast dimensions were erected, and there were five aisles instead of three, a second row of buttresses rose above the pillars dividing the side-aisles, and these received the flying arches of the nave, while similar arches were thrown from them to the outer wall buttresses. Sometimes two arches were used instead of one, so that four flying arches spanned the space above the roofs of the side-aisles. This system of buttresses allowed another innovation which entirely changed the character of the edifice. The strength of the wall being concentrated at these points, the arrangements of the intervening space was of but little consequence. Broad, high windows at once took the place of the narrow apertures belonging to the Romanesque, and these were filled with rich stained glass, inclosed in a frame-work of gorgeous tracery.

The form of the window was that of a lofty pointed arch, and this was divided vertically by a stone bar, called a mullion. Each section terminated above in a pointed arch, and the space, between and above the points of these two smaller arches, was filled with a circle or other geometric forms. As the Gothic began to assume those peculiar modifications which mark the florid Gothic, the tracery in the upper part of these windows became continually more varied and complicated, — trefoil, quatre-foil, and cinque-foil forming numberless combinations.



French Gothic Window,  
Tournay Cathedral.

The choir in this style took the form usual in the south of France, that is to say, that it was surrounded by an aisle and apsidal chapels, but the circular apsis was exchanged for one of polygonal form. Usually, there was an uneven number of sides, so that the longest radii of the circle would terminate against a wall and not against an angle. The transept had three aisles, and terminated in large portals crowned by lofty gables or by towers, but of smaller dimensions than those of the façade. The pillars of the arcades also underwent transformation. They no longer presented a single



Cinque-foil.

pier or shaft, but were composed of several shafts,



Clustered  
Column.

— a number of three-quarter columns, — clustering around a central stem. In most cases there are eight of these three-quarter columns, — four strong ones to receive the transverse and longitudinal springers, and four lighter ones for the cross-rib work. These are considered both in plan and description as one member, being connected below by a polygonal base, and above by the cornice which is carried around the whole

pillar. Yet this basis is subdivided into distinct

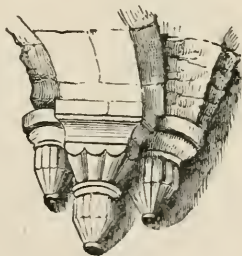


bases of the same form, one for each shaft, though bound together by small fillet-like mouldings, extending around the whole. The capital is usually ornamented with a light

wreath of leaves, and in these the conventional forms of the Romanesque are no longer adhered to. The artist evidently had recourse to nature for his models, and whether he has carved the oak or the vine, the ivy or the thistle, the rose or the holly, he has worked with such freedom and such inspiration that the foliage often appears as if blown about by the wind. In the springers and roof-work, we trace the influence of the trefoil and quatre-foil. The stiff rectangular forms of the Romanesque were first exchanged for a semicircular sectional outline, composed of alternate roundings

and deep flutings. These were afterwards so modified, that the outer circumference terminated in a pear or heart-shaped moulding, with similar ones of smaller size on either side, and separated from it by deep flutings. When the quadripartite arrangement disappeared, the cross-ribs which supported the diagonal lines of the vaulting were made of quarried stones in the same manner as the cross-springers, and thus a firm scaffolding, varied and graceful in design, was secured. This was sufficient to support the outer roof, and therefore only thin light calottes were necessary to fill the interstices. These were sometimes plain and sometimes covered with tracery, while bosses, more or less ornamented with foliage, were placed at the intersection of the ribs.

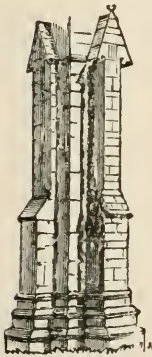
The arches of the outer aisles, at the point where they met the buttresses, were sometimes supported by clustered columns, as were the inner ones; sometimes by half columns, but not unfrequently they rested upon a corbel which projected from the supporting buttress. This corbel was variously ornamented, a mask or buckle, a mitred head or a tuft of foliage, being the usual designs; and sometimes more than one design was employed in a single line of corbels.



Corbels.

The side-aisles were no longer surmounted by galleries, but their openings had served to break up and vary the space between the arcade and the clerestory or clear-story above ; therefore a series of mock windows took their place, and this was called the triforium or blind-story.

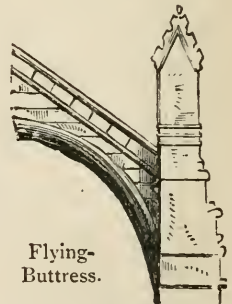
*Gothic Exterior.* — The Gothic exterior differed as much from the Romanesque as did the interior. In the one, simple solemn masses, unbroken save by the unobtrusive lisenés, and converging to a single point, betokened the quiet earnest faith of the primitive church ; in the other all was life, ani-



Buttress.



Niche.

Flying-  
Buttress.

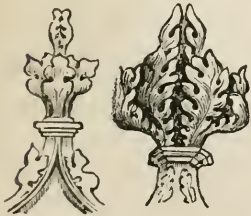
mation, and enthusiasm, reaching forward and upward as if to pierce the skies ; striving to make itself known and felt, as did the Christian churches in those centuries, when the preaching of the Crusades awoke such religious zeal and earnestness as exceeded all that had been known since the Apos-



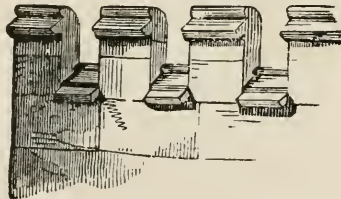
bles' time ; when men sought for martyrdom, theological disputation ran high, and the great minds of all nations were occupied with the solemn mysteries of man's life and destiny. As before said, all seemed pushing outward and upward. The continuity of the walls was broken by the huge buttresses projecting therefrom and built up of strong masonry work. These buttresses tapered towards the top, and their surface was varied by bands of entablature, and sometimes by niches inclosing statues. They terminated some distance above the wall and the flying arches of the nave, either in a slender open tower, or a baldachino overshadowing the statue of some saint or angel. This termination, called the pinnacle, was crowned with an ornament, usually of foliage, but sometimes it was a cross of



Pinnacle.



Finials.



Battlement.

rich design, or, in a few instances in France, an apparent modification of the fleur-de-lis. This was known as the finial. The wall itself, in the

earlier Gothic, was surmounted by battlements ; but, at a later period, this was exchanged for a balustrade of open stone work, richly ornamented with tracery. The spaces between the buttresses



Crocket.

were filled with windows, above which rose pointed gables, usually crocketed and supporting pinnacles. The surface of the gable was more or less ornamented, sometimes with such varied and abundant tracery, as in St. Stephen's Cathedral at Vienna, that they have the appearance at a little distance of being

covered with rich lace-work.

*Gothic Façade.* — In the façade the two lofty towers above the side aisles, so remarkable a feature of the Romanesque, are still retained, but flanked at either corner by strong buttresses — not only in conformity to the general plan of the building, but also for support, as the walls of the towers are perforated on all sides by large windows. These buttresses usually terminate in pinnacles at about half the height of the tower, and their surface, like that of the wall-buttress, is diversified by entablatures and niches for statues. The windows of the towers are often exceedingly beautiful. Piercing the wall in three or four consecutive stories, separated by entablatures, they are bounded by receding arches of rich and varied designs. Single or clustered columns usually separate them into three

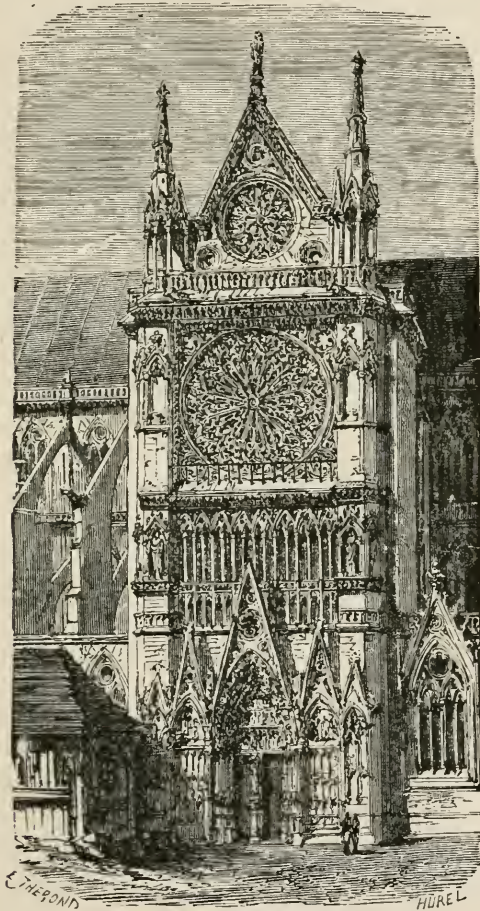
divisions, and these are filled with elegant geometric tracery, sometimes open and sometimes glazed. These towers usually terminate far above the façade in a quadrangular gallery of open stone-work ; although the plans of the architects evidently contemplated a steeple of delicate stone pillars or bars of iron and open tracery work. The cathedrals of Strasbourg and Antwerp have each one tower thus completed ; in Cologne both are approaching completion ; but in none of the larger edifices of northern France do we find the crowning steeple.

The portals, as in the earlier style, are composed of a number of receding arches, but exhibit even greater variety and splendor in their ornamentation ; for the deep channelings which separate the arches, are frequently filled by statuettes, placed one above another upon pedestals of corresponding size, and overshadowed by baldachinos. The archivolt above are filled with groups representing the most remarkable events recorded in Scripture, as the Fall, the Redemption, and the Last Judgment. The sides of the portals are also frequently wrought in bas-reliefs, the subjects being Scriptural or legendary ; although the twelve signs of the zodiac, agricultural designs illustrative of the seasons, and others similar are sometimes employed. In these plastic ornaments, the vigor and animation that characterized the mental regeneration of the age is especially manifest. The conventional stiffness of the Romanesque is laid aside, and the figure often

expresses a nobleness of character which approaches to that of the old Greek portrait-statues. Sometimes, however, when an attempt was made to express tenderness or emotion, the result was only an affected sentimentality. Moreover, the figures often appear constrained and unnatural, from the necessity of placing them so as to conform to the radius of the circle of which the portal formed a section. Sometimes, as in the cathedrals of Rheims and Cologne, the portals were surmounted by gables, but in less pretentious edifices they were without ornament, save a projecting moulding which shed the rain, and was known as the drip-stone.

The Gothic style especially manifests itself as the product of a northern clime in the inclination of its roof. Great accumulations of snow and ice, which, gradually melting, would trickle down and wear away the delicate carving, are impossible ; but even if this were not to be considered, the steep roof would seem to be the only one in harmony with the rest of the edifice. Pointed arcades, pointed windows, pointed gables, and pointed steeples demand a pointed roof ; the rule stated in the first chapter is complied with, and the requirements of convenience and good taste found to be in unison. The gable of the façade is often, like the window-gable, covered with tracery, so rich and varied in design that one may say, as Dr. Whewell says of Strasbourg, " It looks as if placed behind a rich open screen or in a case of woven stone." In

the French Gothic, however, a gallery of open tracery work runs along the façade, including the towers and buttresses, and continued on the outer



Southern Transept of Notre Dame. See p. 170.

walls of the towers. This gallery is usually filled with statues, and completely hides the pinnacled gable.

In the later Gothic, the transepts terminated in portals ornamented like those of the façade ; and these were often crowned with pinnacles and crocketed gables, while rich wheel-windows filled the space above. In the southern transept of Notre Dame at Paris, we find two of these windows placed one above another — the lower one measuring thirty-six feet in diameter. Gables and pinnacles also surmount the windows which fill all sides of the polygonal apsis, and these, together with the pinnacled buttresses, the slender tower rising at the intersection of the cross, flying arches and ornamented balustrades, give such multiplicity of detail, such varied and ever changing outline, that the mind grows weary in contemplating it, while at a little distance, so minute and delicate appear all the details, and so complete and harmonious the whole, that it seems as if a hand more spiritual and tender than that of man must have fashioned its wondrous parts.







## CHAPTER XVII.

### GOthic ARCHITECTURE, CONTINUED.

**I**N Paris, as before mentioned, was the new style first developed. The choir of St. Denis, consecrated 1154, is said to have been the first building in which the complete buttress system was united with the pointed arch. This style was soon adopted in other parts of France, and also in the Netherlands; but it did not make its way into Germany and Italy until the latter part of the thirteenth century. Although Romanesque details were frequently employed, yet the tendency was to break away from the old traditional forms and perfect the new system. This may be considered as accomplished about the beginning of the thirteenth century, for then the Gothic had lost all trace of that heaviness, rigidity, and conventionality, which it had received as an inheritance from the Romanesque. It everywhere exhibited that animation, boldness, and airiness, by which it seemed to be rather a petrification of some aerial substance than substantial stone wrought by human hands.

The heavy galleries had given place to the triple-

arched triforium ; the clustered pillars had assumed more slender and reed-like proportions ; delicate leaf work wove itself around the capitals ; while the nave, narrowed in width, was so extended in height that the light from the rich stained windows of the clere-story no longer fell on the pavement below, but was dissipated in the upper air. Thence a warm glowing twilight prevailed below, heightening the solemn grandeur produced by the wonderful combination of vastness, height, unity, and overwhelming variety. During the fourteenth century, France had neither time nor money to devote to art, as the long and frequently unsuccessful struggles with England exhausted all her energies. In the fifteenth, however, the country became more prosperous ; the arts revived ; many new churches were erected, and many old ones repaired and remodeled.

*Florid Gothic.* — But the architects were not content to follow the beautiful models of a former generation.



Flowing Tracery.

The desire for novelty and change must be satisfied, even at the sacrifice of beauty. The decorations which, however rich and varied, had before been kept within the bounds of true æsthetic requirements, became extravagant, whimsical, and capricious. Gables, windows, and

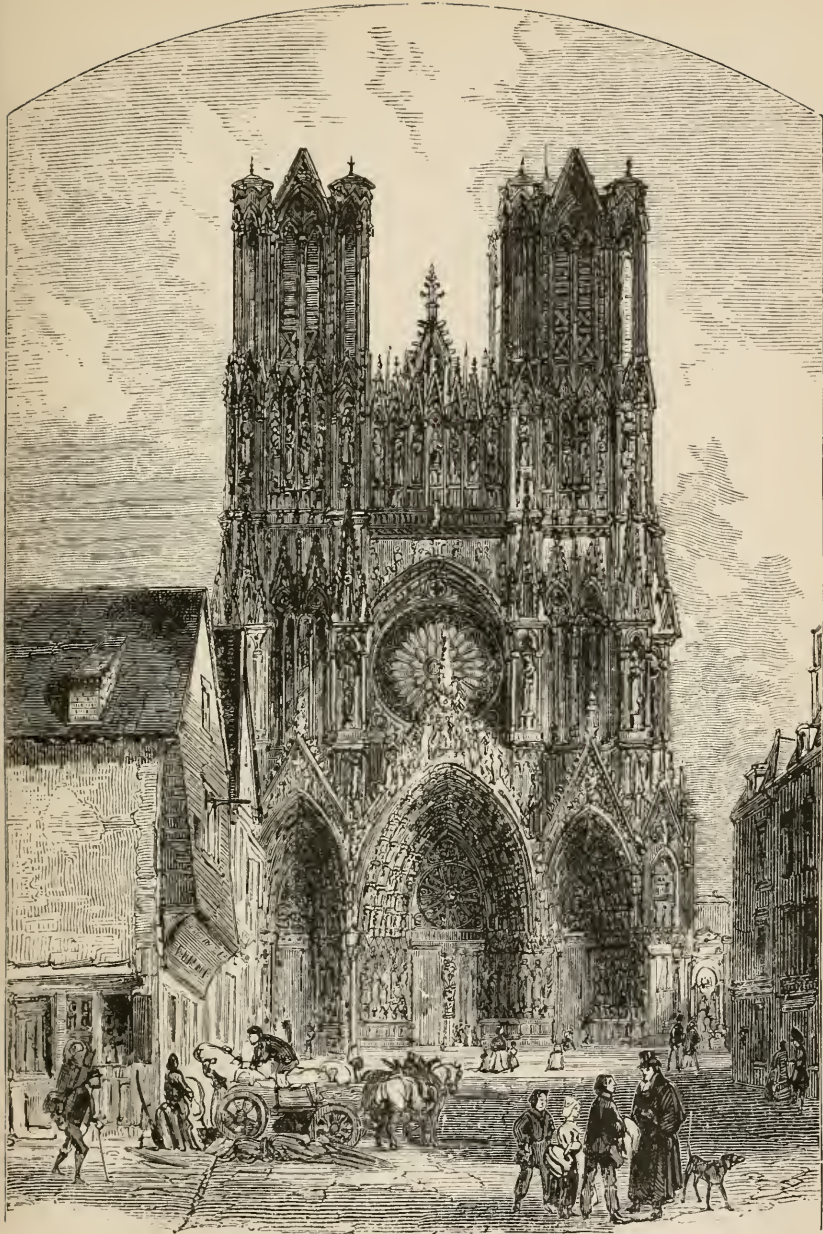
arches were overburdened with ornament. The simple geometric forms were exchanged for flame-like curves, especially in the window cusps; the arches, also, lost their simple lines, curving outwardly in some parts, while depressed in others, and so slender as to forbid the idea of firm support; fanciful tracery covered the exterior; the harmony of the early style had departed, and this combination of exaggerated fancies, which had taken its place, was known as the Flamboyant.

*Gothic at Rouen.* — Perhaps no city in France gives a better opportunity for comparing the two styles than Rouen. In the Cathedral and Church of St. Maclou, everywhere loaded with sculpture and ornament, we find examples of the vicious taste of the fifteenth century; while St. Ouen is one of the most perfect Gothic churches in existence. It is peculiarly remarkable for the arrangement of the shafts composing the piers — the front ones running up to the roof, without interruption, and there forming the ribs, while the side ones are bent under the arches. The rose windows of the two transepts, as well as that of the façade, are of rare beauty, as is also the octagonal tower which rises above the intersection of the cross. Composed of open arches, richly interwoven with tracery, this tower throws out flying arches to the turrets of the four corners, and terminates above in a richly wrought finial, having the form of the fleur-de-lis. The portal of the southern transept is a remarkable specimen of

Gothic work in its purest style. The doorway is surrounded with a fringe of open trefoil arches, while two groined pendants, six feet in length, drop from the vault above. A group of sculpture, filling the archivolt, represents the Death and Assumption of the Virgin, while the door itself is covered with groups of marmozets.

*Cathedrals of Notre Dame and Rheims.* — Among the most celebrated examples of the early or pure Gothic in France, are the Cathedral of Notre Dame at Paris, and that of Rheims, — the latter especially remarkable, and perhaps the best specimen in the world, if we except Milan, for the unity of the plan. The two rose windows of the front are nowhere excelled, either in beauty of design or the richness of the glass, which gleams with the brilliancy of pure gems. Strasbourg is remarkable not only for the wealth of ornament lavished upon the façade, but also for its spire, rising to the height of four hundred and sixty-eight feet, and composed of open stone-work exquisitely finished in every part. M. Viollet-le-Duc, a distinguished French architect, says of the Cathedral of Amiens, “As to plan, it is the church of the pointed arch par excellence.” At first sight, the plan of the nave seems so complicated as to defy all attempts at comprehension, but a few minutes’ contemplation, and it resolves itself into a unity, where simplicity and elegance delight both the eye and the understanding. “The stalls of the choir, one hundred and





CATHEDRAL AT RHEIMS.

THE NEW YORK  
PUBLIC LIBRARY

ASTOR, LENOX AND  
TILDEN FOUNDATIONS.



twenty in number, present one of the best specimens of mediæval wood-carving extant. They are covered with bas-reliefs, representing historical and allegorical scenes from the life of the Virgin, and inclosed in a frame-work of geometrical designs.

*Gothic in the Netherlands.* — The Netherlands, situated between France and Germany, was influenced in architecture, as in all other things, by both countries ; and hence the Gothic style was not long in finding its way into the Low Countries. There commercial wealth permitted the erection of many costly edifices in which was retained the simplicity of the earlier style. Conspicuous among these is the Cathedral of Antwerp. It presents seven aisles, all constructed on the same plan, a uniformity which greatly heightens the impression of vastness, but which is again diminished by the glowing colors of Rubens, whose pictures cover the walls of the nave and transept. Color, except as it subdues the light of the immense windows, does not harmonize with the strong lights and shades produced by the outline of the Gothic. In this building only one of the façade towers is complete. This is supported by corner buttresses, and rises to the height of four hundred and three feet, divided into several stories. It carries one hundred bells, one of which is so large as to require the strength of sixteen men to ring it. The whole structure is remarkable for the beauty of its tracery, which increases in delicacy from story to story towards the top, and which Napoleon I. compared to rich Mechlin lace.

*Gothic in Germany.* — In Germany the preference for the Romanesque style continued long after it had been superseded by the Gothic in all other countries, except Italy. The new style was first introduced in constructing the choir of Magdeburg, but united with many Romanesque details. In pure Gothic edifices, the ground-plan often varied considerably from that of the French, as the apsidal aisles and chapels were wanting, and the three aisles terminated each in a circular apsis, forming a choir and two side-chapels. Moreover, there were but few German edifices in which the nave was carried up to a great height. Frequently, the hall-like arrangement, which had formed so peculiar a feature of the Romanesque, was resorted to, and the nave and aisles were of the same height. This gave a vast expanse of roof, at the same time dispensing altogether with the system of lofty buttresses and flying arches. Thus the buttress was so contracted as to scarcely exceed in projection the lisene, which had been a prominent feature of the previous style. In the Cathedral at Vienna we find this form, but the immense breadth of the roof and gable is concealed by a richly wrought screen of open stone tracery.

In the fourteenth and fifteenth centuries this style degenerated in Germany as elsewhere, the vaulting and tracery assuming various fantastic forms. The finest specimen of the Gothic in Germany is undoubtedly the Cathedral at Cologne,

begun in 1248, and not yet completed. The loftiness of the nave — one hundred and sixty-one feet in height; the beautiful simplicity of its vaulting; the light airiness of the supporting columns with their delicately foliated capitals; the magnificence of the choir with its rich adornment of colossal statuary, its surrounding aisle and seven chapels, its wonderful mosaic windows, — all these united render this edifice one of the most grand and impressive of modern times. Nor is the exterior less imposing. Its double flying arches are everywhere covered with rich tracery; crocketed gables of rare and elegant design crown its sculptured portals and windows; clustered pinnacles spring from every available place; while the towers, bristling at every point with crockets, crosses, baldachinos, statues, and delicate foliage-ornaments, are crowned with lofty steeples, which seem overlaid with a delicate network of quatre-foil tracery.





## CHAPTER XVIII.

### GOTHIC ARCHITECTURE, CONTINUED.

**I**N England, the Gothic style first appeared in 1174, when William de Sens undertook to rebuild the choir of Salisbury Cathedral. This part of the edifice had been destroyed by fire, and the architect was obliged to make his work correspond to that still preserved, so that he was not free to adopt all the features of the new style. This choir may, therefore, be rather considered as transitional, but the transepts and lady-chapel, erected by his successor, and out of view from the main body of the edifice, are purely Gothic. There, as in Germany, the style was considerably modified. While the inclosing aisle and chapels were seldom present, the choir was lengthened to the same extent as the nave, and terminated in a square — the lady-chapel beyond forming no part of it. The English still cherished a preference for wooden roofing, and several of the cathedrals were thus inclosed. Even when stone-vaulting was employed, it did not rest upon the piers of the side aisles, but upon consoles projecting from that part of the wall which inter-

vened between the arches. The peculiarities of the English Gothic give but little opportunity for plastic ornament, but yet in Wells and Lincoln Cathedrals there is a rich display of it, especially in the cyclical groups that enrich the façade of the former. In monumental sculpture belonging to this period, England excels all other lands, both in rich reliefs of Scriptural subjects and in sculptured effigies of the great and good, who sleep within the sacred inclosure of her churches and cathedrals.

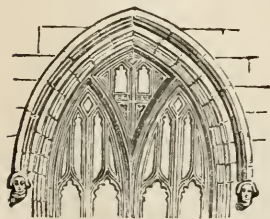
English Gothic is usually divided into three classes, as erected at three different periods and differing considerably in detail ; yet these so run into one another that it is impossible to designate exactly the time or peculiarities of either. They are known as the Early Gothic, the Decorated, and the Perpendicular.

In the Early Gothic, the vaulting is simple and usually of wood ; the flying arch is rare, and there is but little ornament, the trefoil and quatre-foil being very sparingly used. The Decorated, into which this gradually developed, exhibits all such features of the perfected Gothic of the continent as contribute to its richness and magnificence. Yet the pinnacles are seldom so slender or so richly ornamented ; the plastic ornament is comparatively meagre ; and the brilliancy of the stained glass or the rich designs of the rose-windows nowhere equaled. There, as in other countries, the style degenerated by excess of ornament, though some-

times producing such richness and variety of form that we are ready to pardon the lack of simplicity in contemplating its overwhelming magnificence. This is sometimes called the Tudor style, and the chapel of Henry VII., one of the apsidal chapels of Westminster Abbey, is the best example of it. The exterior is everywhere covered with tracery, mouldings and panneling, and this in connection with the so-called Tudor arch, a shallow flattened arch curved in the middle, and more remarkable for its novelty than its harmony. The roof is remarkable for its beautiful groined pendants and its wonderful interlacing of rib-work, wrought from a delicately colored free-stone.



Pendant.



Window of the Perpendicular Style.

*Perpendicular Gothic.* — This florid style was soon exchanged for another particularly distinguished by the tracery of its windows. The graceful lines of the former period were exchanged for the straight mullions, extending the whole length of the aperture, while similar bars subdivided the space on either side. Half way between the sill and the spring of the arch, these were crossed by another bar, called the transom, which divided the window into an upper and lower sash. The whole surface of the building — wall, but-



tress, tower, and pinnacle — was covered with panneling whose mouldings presented the same perpendicular line. In this class of buildings, the portals have the form of a depressed arch; they are less deeply recessed, and surmounted only by a dripstone, which does not follow the line of the arch, as in other Gothic edifices, but is formed by a straight horizontal moulding, meeting two vertical ones at right angles. The Divinity School at Oxford affords a fine example of this style, and, also, the choir of York Cathedral.

*Gothic in Italy.* — The Italians were so fondly attached to the Romanesque style, as being more closely allied to those classic models which they had received as their ancestral inheritance, that Gothic architecture never took root among them. The only example of the pure Gothic that Italy affords is Milan Cathedral, and that was erected by German architects. Heinrich Arler of Gmünden was first employed, and the corner-stone was laid in 1388. Others from Paris, Ulm, and Bruges — all Freemasons like himself — were then called in, and although some parts of the work were carried on by Italian architects, it was under the supervision of German masons for more than a century; for in 1486, Gian Galeazzo Sforza wrote to the magistrates of Strasbourg asking them to send Hummers, then employed upon their Duomo, that he might have his advice in erecting the central tower. This central tower, however, was not completed until three centuries later. Meantime the plan of the façade had

been lost, and in 1560, Carlo Borromeo had employed Pellegrini to erect one upon a magnificent scale. He chose the Renaissance style with an extensive Roman portico, but being summoned to Spain, left it in the hands of Ricchino, who proceeded to complete the doors and windows according to the designs of the former, but with a much greater degree of ornament. In 1790, it was determined to finish the façade in Gothic style, thus conforming it to the general architecture of the edifice, but to preserve Pellegrini's doors and windows. This façade therefore, presents the anomaly of classic portals where all else is pointed.

The cathedral is built in the form of the Latin cross, and is 486 feet in length, with the width of the transepts 288 feet and that of the central nave 63 feet. It is of white marble of peculiar transparency and brilliancy, with numerous pinnacles and flying buttresses rich in a tracery almost approaching the Flamboyant, while it enshrines several thousand statues within its sculptured niches, and is further ornamented with numerous arabesques and bas-reliefs. The roof is reached by a staircase of one hundred and fifty-eight stone steps, erected at the end of the southern transept. Emerging from the dim light upon the roof, spread out like a broad terrace, and formed of immense slabs of brilliant marble, one feels as if he had stepped into the court of an enchanted palace. On every side rises a forest of white pinnacles, and from their niches

look down an "army of saints," — knights in armor, queens in royal robes, bishops with mitres, priests with cowls, shepherds and hermits clothed in skins, and all standing white and shining as if ready to step out when the spell should be broken. Above is the octagonal cupola over the choir, with its two staircases winding through turrets of beautiful open tracéry work, and crowned by a crocketed spire.

Within, the body of the church is divided into a nave with two aisles on either side, the outer one being continued around the transept. The clustered pillars, composed of eight shafts, are eighty feet in height, and wreathed about with rich foliage forms — delicately carved lilies, sunflowers, and fruits, mingled with cherubs' heads and animal forms. Above these wreaths are eight niches, filling the intervals between the shafts, and enshrining statues of the saints, while the shafts themselves terminate in crocketed pinnacles surmounted by statuettes. From these columns springs directly the vaulting, there being no triforium — an arrangement which very much increases the apparent height. The vaulting is quite simple, but so disposed in concentric circles as to appear like a succession of domes. The calottes are painted to represent richly elaborated fret-work. The interior is of a dark stone, and, partly from contrast with the white exterior, partly for want of sufficient light, seems rather gloomy. A partial adoption of the Gothic was frequently attempted in Italy as in the

cathedrals of Siena and Florence, where the pointed arch and crocketed gable are united with the dome and other features of the Byzantine style. In the latter edifice, the union is so effected as not to offend by want of harmony ; but in the former, where there is more attempt at ornament and display, there is confusion and a jumbling together, so that the parts seem stuck to each other, rather than developed one from another as belonging to the same plan. Wherever the pure Gothic was attempted, it received considerable modification. Thus the columns of the piers were so arranged as to give a Gothic vaulting, while the pier-arches instead of being lofty and narrow as in the North, were low and wide, their span equaling that of the nave. Then the beautiful arches of the triforium and clere-story were altogether wanting, their place being occupied by large empty circles. This afforded more space for the rich fresco coloring, an ornament deemed indispensable in Italy. The side-aisles were of very shallow construction, the windows high and narrow, and the apsidal arrangement of the old Romanesque was generally retained. Yet in minor works, such as choir-seats, altars, and reliquaries, Italy has equaled if not excelled all other countries in the richness of its Gothic designs. These gems of art are scattered in the various churches and galleries, and display that rich playful inventive faculty that especially distinguished the Florentine goldsmiths of the fourteenth century.



## CHAPTER XIX.

### GOTHIC ARCHITECTURE, CONTINUED.



#### SECULAR GOTHIC ARCHITECTURE.

—In the architecture of the period following the downfall of the Roman Empire was reflected the turbulence, disorder, and anarchy, that everywhere reigned. Strength to repel an assault, space for the food and stores required in a long siege, a forge and workshop for the manufacture of arms and armor, shelter for the helpless and infirm, — these were indispensable, and these were alone considered, while beauty of form, proportion, or material were of little consequence. Thence the feudal castle of the tenth and eleventh centuries was built of rough unhewn stone, with but little if any ornament; yet these rough stones were often piled up to the height of one and two hundred feet, with a thickness of eight, ten, and sometimes fifteen feet, and crowned with dark overhanging battlements, which seemed to defy alike the power of man and the elements. Within these high walls — of which there were often three courses, each defended by a deep moat — were

artisans of all kinds ; for not only the wants of a family, but also of a large garrison were to be supplied — all that the outward or inward man might need in times of peace or war — and, therefore, not only the weaver, the armorer, and the tanner, but the priest, the surgeon, the apothecary, and the minstrel here followed his peculiar calling and found accommodation. To be sure the latter was somewhat limited, and many trades were carried on in the same building, while all were ill-lighted, ill-ventilated, and heated only by a fire built upon the stone floor, the smoke of which escaped as best as it could.

The villein who tilled the soil, receiving only so much of its products as sufficed for bare subsistence, had no better shelter than that afforded by an ill-built cottage of wattle, mud, or logs, inclosed by a rude thatch. Windows and chimneys were wanting ; the doors were ill-contrived, nor was there, probably, any other floor than the cold earth. Yet the dwellers in the lofty castle on the heights did not find much more actual comfort, and in case of real or threatening danger, the peasants were glad to find shelter behind its walls ; and so they looked up to it with pride and delight, and were content to plod all day long for its support.

The old Norman castle was usually situated upon some steep precipitous cliff, accessible only on one side, and its base not unfrequently washed by the waters of some foaming torrent or some estuary of



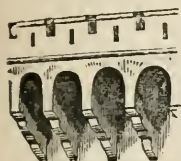
the sea. The encircling walls consisted of curtains of solid masonry work, ten or twelve feet in thickness, enfiladed between short square flanking towers; while loftier turrets and extensive bastions protected the angles and other exposed points. A deep wide moat prevented all access to the wall, save by the draw-bridge, which was generally raised. When lowered, it was defended on the outside by the barbican, which was really a second castle of inferior size and provided with curtains, towers, and sometimes a narrow exterior moat and wooden palisades. On the side toward to castle, however, it was so exposed as to be untenable by a hostile garrison. The draw-bridge led to the only break in the wall, save the low, narrow, and partially concealed sally-ports. But this aperture was formed by a single lofty arch, and defended by flanking towers and by a huge portcullis or gate, made of pointed iron bars. Moving up and down in stone grooves, it was ever ready to descend upon him who should be so bold as to attempt to pass under it, unless bearing the white flag. Within, one frequently encountered a second moat and wall, but so disposed that it was necessary to traverse half its circumference before reaching the second portcullis. Here the workshops, armory, and warehouses were ranged beneath the walls, while the donjon or keep occupied the middle of the inclosed space, and sometimes was surrounded by its own special moated and bastioned wall. A round or square

tower some two hundred feet in height, it was flanked at the four corners by massive towers seldom rising much above it. In the square tower a flat buttress or lisene was usually built up against the middle of each outer wall, while the interior was frequently divided in the lower stories by a wall, built of rubble filled in between an inner and outer course of masonry work. In the edifices of the thirteenth and the following centuries, the apartments were everywhere vaulted, but earlier than that they were separated only by wooden floors. The windows were high and narrow that they might be out of the reach of the arrows, and there was no attempt at ornament, except in the main portal, the staircase, and the chapel. In the earlier castles there were no interior stairways, and the upper stories were only reached by a stone staircase, so narrow that only one could pass at once, and then exposed to assault from the battlements above as well as the walls below. This terminated at a narrow doorway in the third story, and formed the only means of access to the rooms above, where dwelt the women and children of the household, while the prisons and the treasure-rooms lay deep beneath the foundation.

The Castle of Loches, celebrated for the horrors enacted within its walls in the reign of Louis XI., is of this description. Its white donjon, rising to the height of one hundred and twenty feet, is built of strong masonry-work fifteen feet in thickness, and

strengthened at the angles by circular buttresses. The staircase is without, but protected by a projecting lower tower. Plessis les Tours, also used as a state-prison under the same Louis, is of much later date. Instead of the imposing keep, we find only a large mansion-like edifice of red brick with stone quoins. The mansion itself is mostly in ruins, but the fortifications remain, and these consisted of three walls, one within another, and each furnished

with wet and dry ditches, machicolated turrets, barbican, portcullis, and all the means of defense employed in those times. England, Spain, the Netherlands, Italy, and the Rhenish districts of Germany, all furnish ex-



Machicolation.

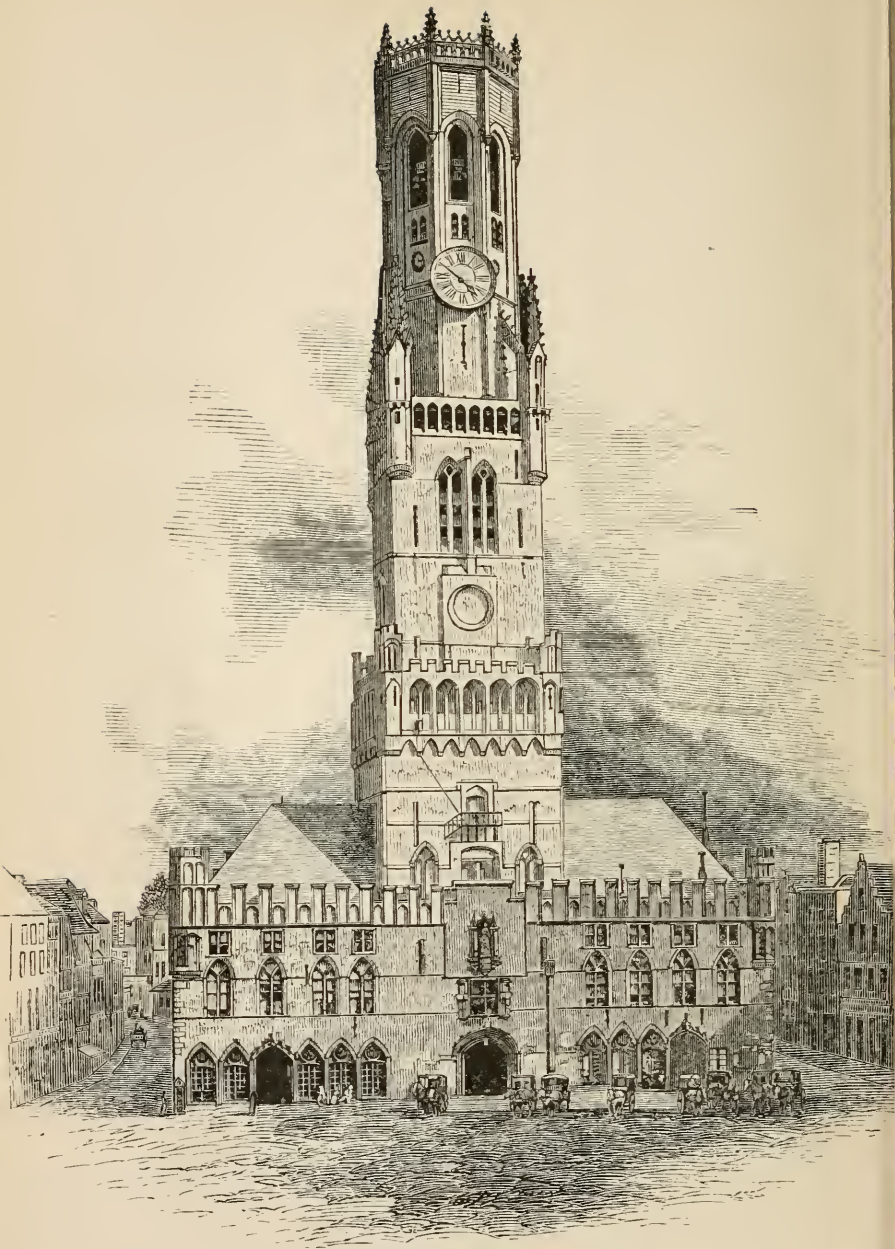
amples of the feudal strongholds of this period, for in no land was either the law or public opinion sufficient to protect against violence and force. In the thirteenth century, however, when the modern kingdoms of Europe had become more firmly established, and the dignity of law better recognized, the grim severity of the castle became considerably modified. Then larger windows were introduced into the upper part of the donjon, and as the features of the Gothic style grew into favor in secular architecture, they were divided by columns and further ornamented with tracery, although still placed high in the wall. The state apartments still continued to be located in the upper part of the tower ; but the great hall, the scene of rude feasting,

and ruder revelry, descended to the first story, reached often by a noble Gothic staircase, leading from the vestibule below ; while the portal opening into it was formed of receding arches, richly ornamented with sculpture, and its double door of oak thickly studded with iron bosses. A cloistered court was often added, and shaded walks ran along the ramparts. Then followed further changes to meet the conveniences of a more enjoyable and settled life. The battlements were enlivened by open tracery ; crocketed gables rose above the several portals ; the corner buttresses were crowned with light pinnacles ; the vaulted halls and passages presented the cross rib-work, the masked corbels, and foliated bosses of the perfected Gothic ; and the edifice was rather a fortified mansion than a castle.

*Public Secular Edifices.* — Yet the use of the Gothic in secular architecture was not confined to the feudal castle. In the northern countries great privileges were granted to municipal corporations, as a sort of equipoise to the power and ambition of the nobles. Thus enfranchised, as it were, cities formed commercial centres, whose burghers rapidly increased in wealth, while trade-guilds and other corporations rose rapidly in importance. These vied with one another in the erection of costly edifices, which now remain among the finest specimens of mediæval art. Of these may be mentioned the Artushof at Dantzic, erected by the Merchants'

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HOTEL DE VILLE AT BRUGES.



Guild, and remarkable as one of the best specimens of fan-shaped vaulting, the vaults being supported by two rows of richly polished granite columns, which divide the hall into three aisles. The side vaults rest outwardly upon projecting corbels.

Most magnificent of all these edifices are the *Hotels de Ville*, or town halls, erected in the larger cities of the Netherlands, which at this time surpassed all the other countries of Europe in wealth, as in addition to its large carrying trade, it manufactured woollen goods for the whole civilized world. These buildings usually took the form of a parallelogram, with projecting towers at the four corners and an immense bell-tower over the central part of the building. They were usually three stories in height, and covered by a lofty steep roof, whose inclosed space was divided into three stories, as places of storage, etc. The walls were pierced by numerous windows ornamented with tracery; a gallery of open stone-work ran along the edge of the roof above the cornice; and the main tower was richly ornamented. In the lower story, a series of arches, corresponding to the windows, frequently formed an arcade upon one or more sides, while above was a large central hall for the meeting of the magistrates. Committee rooms, offices, etc., filled up the remaining space. The most perfect specimens of this kind of architecture are the town halls of Brussels and Oudenarde, the former erected in the early part of the fifteenth century, and the latter a hundred years later.



## CHAPTER XX.

### RENAISSANCE ARCHITECTURE.

**T**O the influence of Petrarch and his friends is, doubtless, to be attributed in great measure the revival of classic art and literature in Italy ; yet other circumstances conspired to foster and develop the spirit thus awakened, until it had achieved such successes in all directions as render the age worthy of comparison with that of Pericles. Among these circumstances may be especially mentioned the multiplication of books by printing, and at so cheap a rate that the text of the old classics became accessible to the poorest and lowliest scholar ; and, also, the taking of Constantinople by the Turks, then regarded by all Christendom as the greatest possible calamity, and yet, perhaps, its salvation, for the Christian Greeks, fleeing from the conquerors, found refuge in the various learned and commercial centres of Europe, and thence spread broadcast the knowledge of their language and literature ; and although this may have tended to increase the luxury and corruption of the republican courts of Italy, yet it led to a more critical study of the New Testament in the original Greek, and thus paved the way for the Reformation.

The effect of these studies upon the art of Italy was a return to the old classical forms ; yet these had never been entirely lost sight of, for, as before mentioned, the Italians, in following Byzantine or Gothic models, had ever preserved many features of the old Roman edifice. But now the revival of the antique, with such modifications as should adapt it to Christianity and modern civilization, was attempted, and this new form was known as the Renaissance. Fillippo Brunelleschi, a Florentine architect, is usually regarded as its originator. After spending years in drawing, studying, and measuring the magnificent remains of Ancient Rome, he struck out into a new path, and with such success that this style still retains in Italy its supremacy ; while in more northern countries, it has struggled with the Gothic and, if not triumphed, has at least maintained an honorable footing. The period of the Renaissance is usually reckoned from about 1420 to the close of the sixteenth century, and it has been divided, in accordance with its various changes, into the Early Renaissance, the High Renaissance, and the Bizarre.

*Early Renaissance.* — The fundamental idea of the Early Renaissance is that of all Italian architecture — the securing of noble and beautiful spaces ; and while Brunelleschi looked to the antique for general plan, harmonious proportion, and beauty in detail, he did not hesitate to adopt some of the finer and bolder mediæval forms. Hence the semicircu-

lar arch again took its place in the arcade, instead of the pointed. The single shaft supplanted the clustered one, and the three orders were again brought into use, — sometimes singly, and sometimes, as in the façade, combined somewhat after the Roman style. A less pleasant feature was that of the entablature above the arcade as a wall-support, for this brought back the long parallels which had given monotony and heaviness to the old basilica. The lofty mediæval windows were preserved, but the round arch here supplanted the pointed one; the tracery was reduced to a simple circle, filling the space between the two smaller arches into which the aperture was divided; and a handsome Doric or Corinthian column replaced the straight mullion. Corresponding columns or half-columns were placed on either side of the windows as supports to the smaller arches. The same year that Brunelleschi returned to Florence, 1407, an assembly of architects and engineers was convoked in that city, for the purpose of considering the completion of the Duomo or Cathedral. This edifice, begun by Arnolfo in 1298, was still partially unroofed, as no satisfactory plan had been offered for raising the dome. Brunelleschi was invited to be present at this meeting, and proposed that instead of following out Arnolfo's idea, which had supposed the spherical roofing to spring directly from the eight arches erected for its support, an octagonal drum base should first be carried up to a certain height, and

the dome rest upon this. No doubt the study of the Pantheon had suggested this idea to Brunelleschi, but his hearers believed the plan an impracticable one, and the convocation ended without coming to any decision. The subject was not resumed until 1420, and then, after much earnest persuasion on the part of Brunelleschi, — for he had to contend not only with the citizens but with all his brother architects, who laughed at what they considered his madness, — he was allowed to begin the work. So vast a space had never before been inclosed by a spherical vaulting, neither had a dome ever before been erected upon a drum, and yet Brunelleschi, confident in his own powers, proceeded at once to erect a double dome, and that without any centering. His success was complete. Before his death in 1446 both were finished, except the outer coating of the interior drum, and thus when Michael Angelo proceeded to “Hang the Pantheon in the air,” he had before him what Brunelleschi had not, — a model. Meanwhile Brunelleschi erected several churches and chapels, in which he employed the new style. Conspicuous among these are the churches of San Lorenzo and San Spirito. In both we find a return to the old flat-roofed basilica with a dome above the intersection; in both, arcades of beautiful Corinthian columns supporting circular arches; while in San Lorenzo, the side-aisles are vaulted, and their breadth increased by spacious chapel-niches. In

San Lorenzo the arcades and aisles are carried quite around the transepts.

*Early Renaissance in Secular Edifices.* — Nor was Brunelleschi less successful in secular architecture. Indeed, the combination of antique and mediæval forms known as the Early Renaissance, and whose period extends to 1500, was most successful in the courts and façades of such palaces as supplanted the feudal strongholds of Italian princes and nobles. Sometimes there was an excess of ornament, and the effect was fantastic if not overburdened, but with this exuberance there was such freshness, such grace in form and finish, so much of true artistic feeling, that we realize the presence of the same inspiration that moved the heart of Nicolo Pisano, when he turned for instruction to the old Greek forms, and paved the way for all that subsequent art has accomplished.

Yet in the construction of the façade, these palaces retained much of the heaviness and solidity of the old castle. It was built of rectangular blocks of stone laid in a solid wall, and unrelieved by lisene, buttress, or pilaster. In the Pitti Palace, Brunelleschi caused these stones to be finished in what is known as Rustico, and this being immediately adopted by his contemporaries, continued in use for the lower story long after pilasters, columns, and cornices everywhere lightened the rest of the façade. The small high windows — little better than loopholes — of the ground floor, and the single arched



entrance closed by massive gates, evidenced the want of security, the fear of popular insurrection, midnight robbery and assassination, or the avenging of old affronts, that everywhere reigned ; but above these were courses of arched windows, ornamented with beautiful columns, and flooding with light the noble halls and saloons whose majestic proportions still remain unsurpassed. The façade terminated in a heavy cornice, which seemed to frown upon all intruders as had the machicolations of the ancient castle ; yet this soon grew lighter : first consoles were added, then medallions ran along the frieze, and in the next period its delicate proportions seemed to melt away in the upper air. But then the heavy gates could at any time be barricaded ; the small windows below be filled with musketeers ; and the whole front, stern and solid, put on the grim aspect of defiance. Yet once within the gates, and the appearance was that of security and cheerful dignity.

The square, usually paved with a mosaic of rich marble and ornamented with statues and flowering shrubs, or a noble fountain, was inclosed on all sides by the edifice and surrounded by a colonnade, or by loggia rising one above another. In either case the vaulting above was supported by columns of antique form and noble proportion ; while the inner walls were sometimes covered with frescoes, and sometimes relieved by niches, enshrining busts or statues.

The Palazzo Strozzi, begun by Benedetto da Majano in 1489, may be considered as one of the most perfect specimens of this style. The façade is relieved by the introduction of cornices marking the various stories, while the whole is crowned by a magnificent corona by Cronaca, modeled after a Roman fragment. The windows, with their beautiful columns supporting the two divisions, are in harmony both as regards their number and proportions, and the whole may be considered one of the most successful attempts to adapt ancient forms to the requirements of modern civilization.

*Early Renaissance in various parts of Italy.*— The new style was soon adopted in various parts of Italy. At Siena, the Palaces Piccolomini and del Magnifico are remarkable for their façades, as also those of Scrofa, Fera, and Bevilacqua at Bologna. In the latter city, we find some of the noblest efforts ever made in brick-work in this style, and such as no country, unless it is Lombardy, has ever equaled. Bordering the principal streets and squares, they are finished in the lower story with open arcades composed of semicircular arches and supported by pillars. These add much to the picturesque beauty of the street, while they lighten the façade, rendering them less gloomy and severe than other edifices of the same period.

Bramante, who was destined to achieve such renown in connection with this style, was then a young man, and employed at Milan upon the Church

of Santa Maria della Grazia. The body of the edifice had already been some years erected, and was of the Gothic style ; but Bramante, instead of conforming to this in the choir and transepts, which he was called upon to erect, determined to follow his own inclination and adopt the antique forms. He therefore terminated them in semicircular niches, ornamented with medallions, antique entablatures, and half columns, and covered the outer walls with a rich coating of marble arranged in graceful panels. Above the intersection he reared a dome of fine proportions, lighted by windows disposed in pairs between Corinthian columns, and resting upon an entablature of rich but rather massive design. The Ospedale Maggiore, or Great Hospital of Milan, belonging also to this period, is remarkable for its noble court. The ground plan of the edifice is that of a perfect square, and the inclosed quadrangle measures two hundred and fifteen feet by two hundred and sixty-nine. It is surrounded by an upper and lower colonnade, — the latter consisting of semicircular arches — twenty-one on two sides and nineteen on the other — supported by eighty Roman Ionic columns of red granite. The archivolts and entablatures are ornamented with arabesques and figures in relief of excellent design. The effect of the upper colonnade, formed of Composite columns, is much less imposing, as a part has been walled in, in order to increase the number of apartments ; yet the whole, both by its noble space, beautiful

detail, and wondrous symmetry, gives us a fine example of the early adaptation of this style in the secular edifice. In the façade we have a superior example of the brick-work of Lombardy. The surface is varied not only by courses of windows richly ornamented with designs, in which the forms of children and foliage are finely intermingled, but also by niches containing statues of saints and allegorical personages, — all arranged with the utmost symmetry. In Verona and Venice, the Early Renaissance presents features peculiar to itself, inasmuch as the classic orders were freely mingled with Byzantine forms. Hence the solidity and heaviness which marks this style in other parts of Italy, is replaced by a variety and grace which, though sometimes inclined to the fantastic, is exceedingly picturesque. Especially is this true in regard to palace architecture, of which both cities present noble specimens. In Verona, in the Palazzo del Consiglio, we have not only the columned windows, semicircular arches, and Grecian columns, but also pilasters with elegant arabesques, brilliant marbles, and a much gayer and more fantastic arrangement than belongs to any Florentine edifice. The building along the border of the canal had necessitated in Venice, long before the fifteenth century, the construction of open loggie. But these were now enriched with noble columns, supporting the dividing entablatures, and with heavy overhanging cornices, while rich medallions and bas-reliefs

ornamented such intercolumniations as were not left open.

Yet this richness of classic ornament was neither so effective nor so beautiful as the Gothic brilliancy of the preceding century ; and the few Venetian façades that remain from that time, weather-stained as they are, form the noblest adornment of the Grand Canal, and must have been in striking harmony with the gorgeous pageantry and glittering ostentation that then belonged to Venetian life.





## CHAPTER XXI.

### RENAISSANCE ARCHITECTURE, CONTINUED.



STYLE which incorporated so many features borrowed from ancient Rome as did the Renaissance, was sure to find favor in the modern city. Soon after the opening of the sixteenth century, Julius II. ascended the papal throne, and proceeded at once to push forward the rebuilding of St. Peter's, but on a far grander scale than had been contemplated by Nicholas V. Bramante was summoned to Rome; Raphael his nephew, Michael Angelo and others, soon followed; and the most brilliant period of modern art was fully inaugurated. Cardinals, princes, and nobles now vied with each other in the erection and decoration of palaces, churches, loggie, and chapels, while the artists, full of ardor and enthusiasm, were continually busy, not only in perfecting designs and plans, but also in studying the magnificent remains of the ancient city, that their own genius might hence receive both inspiration and right direction.

Just at this time, also, Fra Gioconda, a monk of Verona, gave the first correct edition of Vitruvius' celebrated work on architecture. This led to the



better understanding of Roman forms ; and so completely were the architects enamored of them that such features as had been borrowed from the mediæval edifices were entirely laid aside, and the style known as the High Renaissance speedily attained its full development. Yet noble spaces still continued to be the leading idea, and these were so arranged as to produce freedom, breadth, and beauty. The arched and mullioned windows were exchanged for those of rectangular form, sometimes crowned by heavy cornices supported by columns, and sometimes by a rounded or pointed gable inclosed by a cornice, so as to resemble somewhat the ancient pediment. In the façade these windows were separated by columns or pilasters arranged in pairs, a niche inclosing a statue or a medallion wrought in low relief usually occupying the intercolumniation. The lower story was for the most part rusticated, while the different orders were employed in the different stories above ; and again, the Doric or Tuscan order was employed below, and the Ionic and Corinthian, or Composite above. Entablatures separated these various stories, while the whole was surmounted with a noble cornice, crowned by an open balustrade frequently supporting statues.

The church architecture of the High Renaissance was everywhere marked by the dome over the intersection, while smaller cupolas above the transepts were frequently added. Pillars instead of columns

supported the heavy entablatures, from which sprung the ribs of the upper vaulting. The noble groined vault, so beautiful in the endless variety of its lines, and yet so complete in its unity that not a single piece could be spared, — every part an ornament, and yet every part an essential, — was entirely laid aside ; superseded by the tunnel-vault, whose monotonous rigidity even the magnificent details of St. Peter's fail to render beautiful. The square pillars supporting the arches, and of massive structure, were coated with rich marbles. Pilasters of the antique order, two on each side in the larger edifices, projected from these, supporting either the entablatures or the heavy imposts upon which these entablatures rested. Instead of the enthusiastic, aspiring freedom, the life and boldness of the Gothic, all was frigid, formal, and lifeless. It was the attempt to clothe the new, the living, the triumphant, in the cast-off ceremonies of the dead ; to express the sentiments of a living faith in the forms of an old worn-out mythology, and it signally failed. St. Peter's and St. Paul's in London may delight us not only as monuments of wonderful architectural skill, but also by their grand spaces, harmonious arrangement, elegant ornament, and fine finish ; but when we look to them for that solemnity and religious inspiration that are found at Rheims, Cologne, and Strasbourg, we shall look in vain.

*High Renaissance in Secular Architecture.* — The

attempt to employ the antique in palace architecture, in satisfying the demands of social and domestic convenience, at the same time gratifying the æsthetic tastes, was far more successful; and the edifices erected not only in Rome but in other Italian cities, at this time, have never been equaled. Conspicuous among these is the Palazzo Giraud, erected by Bramante for the Cardinal de Corneto. The lower story is rusticated with a deep socle of massive stones, bordered above and below with heavy mouldings. The windows, which rise from the upper moulding, are small narrow apertures without ornament, such as are found in the buildings of the Early Renaissance. The various stories are separated by cornices; and the pilasters which, arranged in pairs, fill the spaces between the windows, rest upon pedestals rising from these. A Roman cornice crowns the whole façade, which is unsurpassed in simplicity of arrangement, harmony of parts, and nobleness of proportion. The same simplicity and harmony distinguishes the court of the Palazzo della Cancelleria, also a work of Bramante's. It is surrounded by a lower and an upper portico, supported by Doric columns of red granite. From these spring simple semicircular arches, nor is there other ornament than the stucco rosettes which relieve the barrenness of the triangular space above the spring of the arches. The columns of the upper portico rest upon pedestals supported by the cornice, — a Roman device in which Bramante

seems to have especially delighted. The effect of the whole is heightened by the addition of an attic ornamented with Corinthian pilasters, but it is still the result of just proportion rather than magnificent detail. Bramante was also employed by Julius II. to make designs for uniting the Belvidere Villa and the Papal Palace, and to him is the Vatican indebted for its noblest courts and some of its most spacious apartments. Yet these works were not completed until the pontificate of Sixtus V. Bramante only lived long enough to erect the terrace uniting the courts of the palace with the villa garden and the celebrated Loggie.

The other artists who had been summoned to Rome did not fail to distinguish themselves in secular architecture, and the various palaces erected at this time are now the chief repositories of ancient and modern art. To Peruzzi is due the noble loggie of the Farnesina and the faultless Palazzo Massimo; to Michael Angelo the Palazzo Farnese and the trio of palaces crowning the Capitoline Hill; and to Maderno the Palazzo Chigi and the present form of the Rospigliosi. Even Raphael devoted a portion of his short life to architecture, and the Palazzo Pandolfini at Florence, where were first introduced rusticated quoins, as well as the Vidoni at Rome, exhibit that same harmony and grace that everywhere mark his genius.

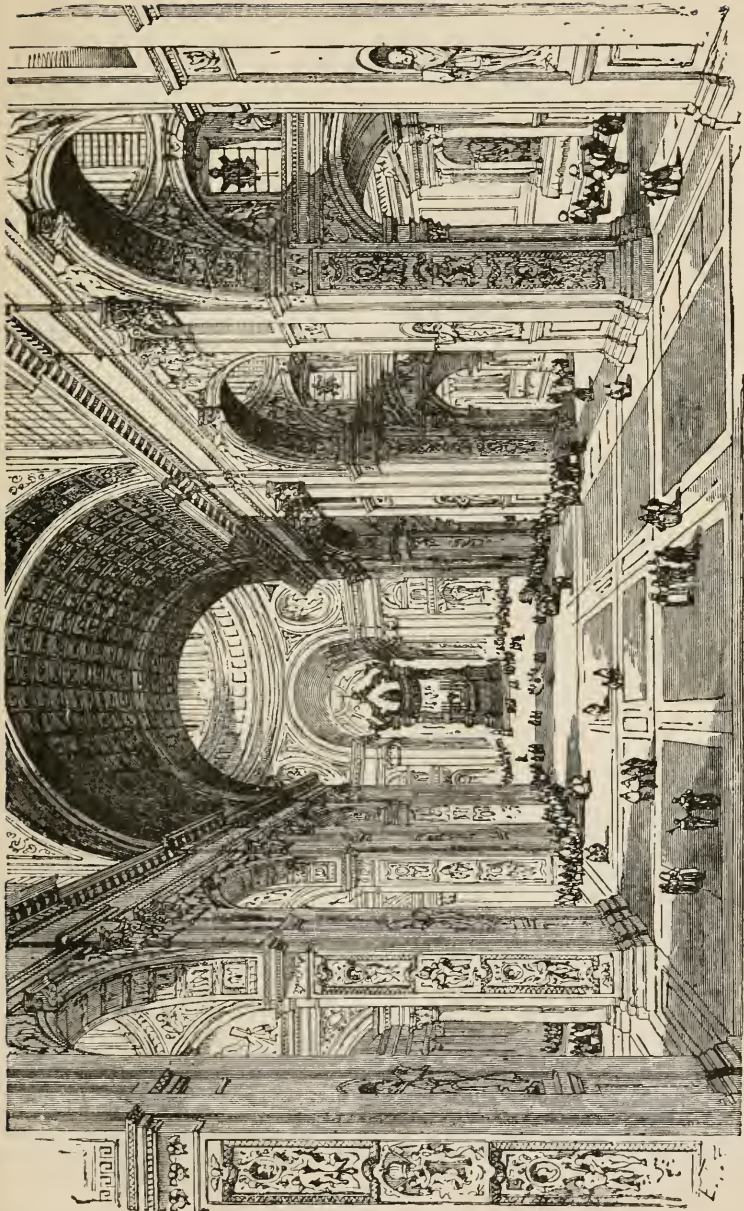
In all of these edifices we find the same distinguishing features, — the antique orders, circular

arches, porches, and pediments variously employed, and yet in conformity to one general plan. These are ever combined in accordance with the Roman rather than the Greek idea, and in no structure of the time do we see an attempt to reproduce the simplicity of the single storied Greek peristyle.

*St. Peter's.* — The crowning work of the period and the most perfect model of Renaissance Church Architecture is admitted by all to be St. Peter's at Rome. Yet this edifice has many defects, while its perfections are not due to any one man, but have resulted from the united efforts of several of rare genius laboring, for the most part, under circumstances of peculiar advantage. The old basilica, founded by Constantine to mark the spot where the great Apostle was supposed to have suffered martyrdom, was begun in 306. In 1450 it had fallen into so ruinous a state, that Nicholas V. began to tear down the old edifice and build anew, according to the designs of Alberti and Rosselini, two distinguished architects of his time. But little progress had been made, however, when Julius began his pontificate, and invited Bramante to Rome. The latter immediately made new plans, giving the edifice the form of a Greek cross with an immense dome above the square of intersection, and the façade finished by a hexastyle portico. He then pulled down a part of the wall erected by his predecessor, and proceeded to erect the piers of the pendentives which were to support the dome. He had

just completed the arches, when his death occurred in 1514, and Sangallo the younger, Fra Gioconda, and Raphael were appointed his successors. Finding that Bramante had miscalculated in regard to the strength of the piers, and that they would be insufficient for the weight of so vast a dome, they proceeded to strengthen them from the foundation ; while Raphael made new designs by which he changed the form from the Greek to the Latin cross. Yet the early death of Raphael and the immense sums of money necessary to carry out his plan prevented its adoption ; and Peruzzi, appointed his successor, returned to the form designed by Bramante. Under Peruzzi the work progressed very slowly for want of funds, and only the tribune approached completion ; but so admirable was his judgment that his plans were adhered to by his successors with scarcely an alteration. After Peruzzi came Giulio Romano, and then Michael Angelo, in his seventy-second year, refusing all pecuniary recompense, undertook the work for "The honor of God." He adhered to the plan of Bramante, of whom he writes, "Bramante was, if any one deserves the name, one of the most able architects since the days of the ancients. He made the first design for St. Peter. Without confusion, clear and compact, well lighted and open on all sides, he wished so to place the church, that it should in nowise interfere with the Vatican palace. And, as is evident now, whatever the standard of beauty,





INTERIOR OF ST. PETER'S AT ROME.

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whoever departs from his idea as Sangallo did, departs from the very rules of art." Angelo enlarged the transepts but devoted himself especially to the dome, which he determined to construct after a plan of his own. Having no hope of living until its completion, he prepared a wooden model of exact proportions, so that his idea might be carried out by others. Like the dome of Brunelleschi at Florence, that of St. Peter's is double; but it is much lighter and more artistic in construction. Within the drum is formed by thirty-two Corinthian pilasters arranged in pairs and windows between each two pairs. These support a cornice from which spring the slender ribs of the circular vaulting, ornamented with gilded stuccoes. The intervals are filled with rich mosaics, rendered brilliant by the light of the spacious windows. Between the inner and outer dome winds a passage and staircases leading to the lantern; this is crowned by a ball and cross, the top of the latter being just 448 feet distant from the pavement below. The outer dome measures  $195\frac{1}{2}$  feet in diameter, which exceeds that of the Cathedral at Florence by 57 feet, that of the Pantheon by 53 feet. It is surrounded by Corinthian columns of fine proportions and these the architect intended to be crowned with pedestals supporting statues which should thus rise around the base of the circular roofing. Forsyth says of this cupola, "It enchants the eye, it satisfies the taste, it expands the soul. The very air seems to

eat up all that is harsh or colossal, and leaves us nothing but the sublime to feast upon."

This part of the work, however, was not finished until twenty-seven years after the death of Angelo, in the time of Sixtus V., who was so anxious for its completion that he employed six hundred men upon it, and they labored day and night. Giacomo della Porta was then the architect, and he adhered closely to the design of his great predecessor. But he died in 1601, and then Paul V. appointed Carlo Maderno to carry on the work. Maderno, abandoning the plan of Michael Angelo, returned to that of Raphael — the Latin cross ; but this was not altogether a matter of taste, for the Pope desired him to so complete the edifice that it should cover the whole space that had been occupied by the basilica, and in order to effect this it was necessary to lengthen the nave. He then proceeded to finish the façade, which has probably been the subject of more bitter criticism than any other piece of architecture in the world. It is three hundred and seventy-nine feet long and one hundred and forty-nine high, a space admitting of grand and noble features, such as would have been fitting to the central church edifice of the world. But Maderno's ideas did not rise beyond the limits of palace architecture ; and so he divided the noble space into three stories and an attic ; further diminished it by numerous small windows ; broke up the continuity of its Corinthian columns — the only noble feature — by the ugly projecting window bal-

conies, and finished it by an insignificant pediment resting upon four of these columns, which are ninety-three feet high. Beneath the portico thus formed are the entrances. Corinthian columns and pilasters, two on each side of the portico, further subdivide the space, while the windows of a low entresol above the doors, and a heavy entablature separating the attic from the stories below, so add to the multiplicity of details that it is almost impossible for the mind to regard the whole as a unit. Statues of Christ and the twelve apostles crown the cornice of the attic.

Yet the whole is prevented from sinking into entire littleness and insignificance by the magnificent galleries and colonnades which, inclosing an open piazza seven hundred and eighty-seven feet in diameter, at the same time hide all adjoining buildings and bring the whole into unity. But here is a matter of unceasing regret. Standing in this open square the spectator ought to behold Angelo's unequaled dome towering high above — the crowning glory of the whole. But this is lost, entirely lost. The lengthening of the nave has thrown it so far back, that Maderno's ignoble façade completely hides the drum, and only the circular roofing is visible; so that the dome really appears of inferior size, and its true dimensions are apparent only when seen from a distance. The colonnades were not built until the seventeenth century. They are from the designs of Bernini, and however much extravagance and affectation he has shown in other edifices,



he has here displayed not only excellent judgment, but perfect knowledge and appreciation of the essentials of architectural grandeur. The colonnades are formed of travertine columns of the Tuscan order rising from a Grecian stylobate. These columns, forty-eight feet in height, are so arranged in four rows as to leave a broad carriage-way between the two inner rows. They support a noble entablature crowned by one hundred and ninety-two colossal statues, one over each column, and terminate in straight galleries whose outer walls are decorated with Tuscan pilasters.

These galleries connect the colonnades with the façade of St. Peter's, thus inclosing the west side of the noble piazza, from the centre of which rises the famous obelisk with bronze fountains on either side.

Five open entrances, the three principal ones flanked with Corinthian columns, lead into the vestibule. This is four hundred and sixty-eight feet and is every way worthy of the edifice to which it belongs.

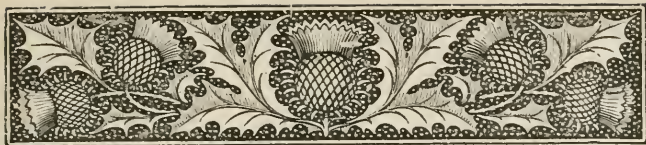
Within, the nave, upwards of six hundred and twelve feet long, is tunnel-vaulted with sunken coffers richly stuccoed and gilded. Massive piers supporting circular arches separate the nave from the side-aisles, while between corresponding piers on the other side of the aisles open spacious chapels. These chapels narrow the effect of the aisles, as do the massive piers the apparent size of the nave ;



then the lavish display of ornament, obtruding itself upon us, and the uniform colossal size of all — defying our efforts to obtain a unit of measurement — these combined, so diminish the size of the edifice and baffle our attempts to realize it that the traveller, perplexed and disappointed, invariably asks, “Where is the vastness, the massiveness, the overwhelming grandeur that mark the genius of Angelo, Bramante, and others?” He expects to feel as if viewing Mont Blanc tunneled into noble spaces and broad open courts, in which sit enshrined the “great and good of earth,” “chiseled with cunning hand ;” and lo, he finds himself gazing upon a pile of brick and marble thickly overlaid with the traces of human finiteness. No wonder that in the first moment of disappointment he undervalues whatever it has of merit. And so it is only by repeated visits, by hours and days devoted to St. Peter’s, that one comes to a true appreciation of its greatness — nor even then altogether. Indeed, we may sometimes doubt, whether the limit of our own mind has not something to do with this, and whether we can grasp and fully comprehend the size of buildings, beyond a certain limit, any more than we can that of the eternal hills. We say to ourselves Mont Blanc is about three times the height of Mount Washington, but did any human mind perceiving Mont Blanc comprehend this? So we may doubt if one ever really apprehends the dimensions of St. Peter’s.

The piers of this edifice are faced with double Corinthian columns, with two niches filling the intercolumniations and containing colossal statues. Everywhere these piers are faced with rich marbles, and these on the underside of the arches are wrought into medallions, bas-reliefs, etc., giving an endless, variety of ornament, which is also lavishly displayed in the tribune, and is there due to Angelo. The spandrils of the pier arches are ornamented with recumbent colossal statues representing the Virtues, an ornamentation rather doubtful as to its good taste, and still less pleasing when we know that these as well as the capitals of the columns are of stucco. Indeed it is the overabundance of ornament which is the chief defect of St. Peter's ; there are too many details, so that when we have passed the length of the nave and, standing just without the dome, have the transept, the noble square with its massive pendentives, and the tribune before us, — Bramante's St. Peter's, rather than Maderno's, — we feel that this plastic ornament is out of place, and that with all his greatness Michael Angelo was either too much a sculptor or too little an architect.





## CHAPTER XXII.

### RENAISSANCE ARCHITECTURE, CONTINUED.

**T**HE Renaissance, as developed at Rome, was soon introduced into other parts of Italy; not in slavish imitation, but with a boldness and freedom that evidenced remarkable genius on the part of the several architects. At Verona, Sanmicheli and Fra Gioconda found numerous opportunities for the exercise of their talents, and their palaces form one of the most attractive features of the city. The Palazzo del Consiglio, the work of Gioconda, unites all the most pleasing features of the Renaissance — classic columns, windows, pediments, entablatures, and cornices — in harmonious proportion, while it is further enriched with noble sculptures and bas-reliefs. The façade of this edifice is considered one of the best of this style, to be found in the North.

Sanmicheli in his palace architecture varied considerably from the practices of Roman and Florentine architects. Upon a basement of rustic work were directly placed the pedestals of the superimposing columns. These were then joined by arches, so as to form a continuous arcade. The windows

filled nearly the whole space of the intercolumniations, and, terminating above in a circular arch without pediment, seemed to form a subdivision of the arcade. Above the arcade was placed the entablature, of the same order as the columns. These palaces are very much admired, but no more so than the ecclesiastical edifices of the same architect, and of which he has left numerous examples, but principally in chapels, choirs, and interiors.

*Renaissance at Verona.* — While Verona was being thus enriched, the noble Palladio, distinguished alike for his palaces and his valuable treatise on architecture, was busy at Vicenza. Woods says the beauty of his works consists in “A certain justness of proportion with which he has distinguished all the parts of his architecture, the basement being neither too high nor too low for the order above it; the windows of the right size and well spaced; and all the parts and proportions suited to one another.” Yet his columns are too often merely ornamental, and his material so ignoble that many of his edifices have already fallen into decay. The façades and columns are frequently of brick with wooden entablatures crumbling and worm-eaten, and the noble proportions fail to impress us where the weather-stained shabbiness is so obtrusive. Yet two of Palladio’s edifices deserve especial mention. These are the Teatro Olimpico and the Villa Palladio, sometimes called the Rotondo della Capra. The former, erected for an association accustomed

to act the ancient Greek tragedies, for then Italy was enamored of everything Greek, is an attempt to reproduce the ancient theatre from the descriptions of Vitruvius. It is of horseshoe form, with two galleries above, the parterre formed of Corinthian columns. It was richly ornamented with statues, and had fixed scenery representing an open square with streets diverging therefrom ; but this was better fitted for the conventional placidity of Menander than the rugged sublimity of Æschylus.

The villa is a square edifice with hexastyle porticoes on every side. These are of the Corinthian order, and are approached by lofty and imposing flights of steps. All lead to a circular room, which occupies the centre of the edifice, and is remarkable for its beautiful proportions, as are the smaller apartments which occupy the remaining space. Yet the porticoes and steps make up the greater part of the edifice, and its effect as viewed from a distance is peculiarly imposing. Another celebrated work of Palladio's was the adding of Doric and Ionic galleries to the old basilica — a Gothic edifice —, so as to make the two styles harmoniously combine.

*Renaissance in Genoa.* — In Genoa, where the steep and narrow streets gave no opportunity for extensive façades, the architects sought compensation by making the vestibules the field of architectural display. Among these artists Alessi was most distinguished, and many of the noble entrance-halls bordering the Strada Nuova are from his de-

signs. Hitherto the Genoese had been satisfied with entrances of modest dimensions and simple arrangement, but these were now superseded by a lofty, vaulted hall, the roof of which was supported by independent columns, usually of the Tuscan or Corinthian order, and supported by pedestals. A double staircase, opening to the left and right, and resting often upon coupled columns, led to the saloon above. Here the ceiling was finished in coffers, ornamented with stuccoes or in rich fretwork, while the marble baluster was wrought in tasteful and fanciful designs or inlaid in a species of intertarsia work. The vestibule terminates sometimes in a fountain, sometimes in a statue-niche, and again, where there is sufficient space, in an elegant portal which gives entrance to a tasteful court surrounded by arcades. Sometimes the grand staircase is placed at the further side of the court, the space between its two arms being filled by the orange trees of the garden beyond, whose rich dark foliage enhances the beauty of the vista formed by vestibuled and pillared courts, everywhere ornamented with statues and bas-reliefs. This change found great favor not only among the proud Genoese aristocracy, but through all Italy, and in the later days of the Renaissance, the vestibule became one of the most prominent features of palace architecture.

*Renaissance in Venice.* — Sanmicheli, Palladio, and his pupil, or rather follower, Scamozzi, were



successively invited to Venice, and in connection with Sansovino added almost as much to her architectural beauty as did Titian, Tintoretto, and Veronese to her artistic wealth. That some mistakes were made, that there was too often an extravagant display of ornament, and that nobleness of proportion and architectural harmony were sometimes sacrificed to this, must be admitted, but yet the restored Ducal Palace, the Library of St. Mark's, the beautiful palaces bordering the Grand Canal, awaken our most enthusiastic admiration, whatever critics may tell us of their violations of artistic rule. In another place it might not be so, but Venice is unlike any other place under the sun ; we are in a city born of an exhalation ; and the imagination, breaking away from the fetters which the din and roar of every-day life everywhere else imposes, soars aloft and finds its highest delight in this defiance of rule, in the richness, fullness, and wild exuberance everywhere displayed.

The Ducal Palace, which Ruskin calls "The central edifice of the world," and which, together with the Duomo, first claims attention, belongs to no one period of architecture. The first palace erected on the spot was in 820. Having been twice destroyed by fire, it was rebuilt between 1364 and 1471 ; the most of it being the work of a family of architects by the name of Bon. Again in 1574 and 1577, it suffered by fire, so as to be reduced to a mere shell. Palladio, being then in

Venice, advised the erection of an entire new building ; but the Senate, after debating the subject for some time, determined to preserve all of the old edifice possible, and to restore the rest in conformity with this. Therefore, while presenting many features of the Renaissance, this palace retains, especially in the exterior, much of the Byzantine and Gothic styles. Its ground plan is an irregular square with two façades, one opening upon the Molo or sea-border, the other upon the Piazzetta. The walls are faced with marble of a rich warm tint, cut into bricks rather than slabs, and are supported by double arcades, which form the two lower stories. They are of great thickness, projecting both outwardly and inwardly some fifteen inches beyond the shafts of the arcades below. At the angles they are strengthened by twisted columns running the whole length of the wall and serving, as Ruskin says, " To bind the walls together, as a cable does a chest." The arcades are formed of low, pointed arches — seventeen on the Molo and eighteen on the Piazzetta — supported by columns. Those of the lower arcade are of greater diameter and rest upon a stylobate, but this is concealed beneath the pavement, as the inundations to which the Molo is subject have considerably elevated the ground in this vicinity. The spaces between the top of the arches are filled with quatre-foil, but here it is not, as usually in the German Gothic, merely ornamental, but is made a supporting member. The columns

have cubicular capitals, usually formed by eight leaves — four spreading in volutes to the corner, and four supporting figures on the sides. Yet these are greatly varied, and, in the upper arcade, no two are exactly alike. There, too, the figures, usually allegorical, are less finely wrought than those below, shewing that the mediæval architects understood, as did the Greeks, that the best effect was to be secured by finishing according to the distance at which an object was to be viewed. These façades are finished by a parapet of unusual lightness and beauty. It consists of detached pieces of stone held in place by iron clamps. They are carved into lily-forms, alternating with richly designed lance-like leaves. Age has mellowed but not impaired its whiteness. The wall on the side of the Molo is pierced by seven low broad windows terminating above in pointed arches. The central one is richly ornamented, having a projecting balcony with tracery, and this supports a canopy extending as high as the cornice. It terminates above in pinnacles, the central one crowned by a statue, while other statues ornament the angles of the canopy.

The gallery or loggia, formed by the lower arcade, was known as the Broglio, and here the Venetian signiori were accustomed to assemble for the transaction of business, for interchange of thought, or other purposes — the etiquette of Venice not admitting of visits to private houses.

The Porta della Carta, opening from the Piazzetta,

forms the principal entrance. It is distinguished for its symmetry, and like the passage and portal beyond, is incrustated with marbles richly and delicately wrought and ornamented with statues and pinnacles. This second portal opens into the Grand Court, surrounded on all sides by noble architecture of the Early Renaissance, and forming, as it were, four façades — all ornamented with statues, bas-reliefs, and medallions in such rich profusion as suited the lively imagination and luxurious taste of a wealthy, pleasure-loving people ; and yet there is no overcrowding, nor is this ornament anywhere disagreeably obtrusive. Two noble staircases lead to the state apartments, which, situated in the upper story of the edifice, run along the two façades, while several minor ones border the court. The ceilings, doors, and windows, richly ornamented, are from the designs of the four great architects ; but their beauty pales, and their true value is oftentimes overlooked, so much is the attention engrossed by the magnificent paintings that cover the walls ; for this is the richest treasure-house of Venetian art.

The Saloon of the Great Council, one hundred and seventy-five feet long, eighty-four broad, and fifty-one high, is the noblest of these apartments. It occupies the corner of the palace, so that its two outer walls fall along the two façades. It is richly ornamented with bas-reliefs, stucco ornaments, and gilding, and surrounded by a frieze of portraits —

being those of the seventy-two Doges. Yet its noblest ornaments are its paintings. There is the Paradise of Tintoretto, the largest oil-painting in the world ; here the grandest works of Bassano ; while the ceiling glows with the richest tints of Tintoret, Veronese, and the younger Palma, in three noble compositions ; each of which is a personification of Venice ennobled, triumphant, and glorious — queen of the seas, and receiving the homage of nations.

Besides their designs for the Ducal Palace, the great quartette of architects were employed by the nobles and wealthy corporations in erecting and remodelling palaces, churches, and chapels. Two of these edifices, the Zecca or Mint and the Library of San Marco, standing side by side, are among the noblest edifices of the time. Both were erected by Sansovino. The façade of the Zecca consists of the Doric and Ionic orders raised upon a lower story formed of rustic work. An open court surrounded by walls of similar construction, forming in the two upper stories galleries of connection, is said to occupy the middle space. Solidity and severe simplicity are the characteristics of the exterior, and this is increased by the walling up of the lower arcades to the spring of the arches. On the other hand, the adjoining library is all grace and elegance. The lower story consists of an arcade of twenty-one arches on the façade, supported by piers faced with independent Doric columns, and rising from a platform raised by

three steps. These columns support an entablature nearly as high as the columns themselves ; above this rises a second arcade composed of Ionic columns, the intercolumniations being filled with arched windows, flanked with columns of the same order. Again, a second entablature as disproportioned as the first, and only to be excused on account of the beautiful bas-reliefs — genii supporting wreaths, medallion slabs, masks, and rosettes which adorn the frieze. This latter member far exceeds in width both architrave and cornice. The details of the cornice are very elegantly and elaborately wrought, and it is finished with a balustrade crowned by statues, the piers of the former furnishing the pedestals. The statues are arranged one over each column. The latter are doubled at the extremities not only of the façade but on the sides facing the Molo and Piazza, where the same architecture is continued — the space being filled by three arches. The archivolts in both stories are filled with sculptures, while the metopes of the Doric frieze are enriched with bas-reliefs. In the Greek church and the Palazzo Manin, Sansovino has most harmoniously combined the classic orders, while the bronze door of the sacristy of St. Mark's as well as numerous statues, attest his right to high distinction as a sculptor. Among the celebrated works of Palladio in Venice may be mentioned the convent of La Carita, now the Academy of Fine Arts. The architect intended to make here a



Roman villa, according to the ideas derived from Vitruvius. He proceeded to erect an atrium, its open roof supported by Corinthian columns. A passage from this led into an apartment surrounded on all sides by porticoes, and from thence opened a chapel, living rooms, and saloons devoted to special uses. The greater part of the edifice was destroyed by fire, and of all Palladio's apartments, only one of the saloons remains entire. Another edifice worthy of mention is the Palazzo Foscari, outside of Venice, upon one of the lagunes. Like all of Palladio's villas, it is remarkable for its fine proportions, while the elegance of its Ionic peristyle has scarcely been surpassed in modern times. The Palazzo Grimani, now the Post Office of Venice, is the work of Sanmicheli, and displays the Corinthian and Composite orders in its richly wrought façade. Scamozzi, called to Venice, it is said, that he might give his advice in regard to the construction of the Ponte di Rialto, was here employed for many years, and to his genius are to be attributed for the most part such works of the later Renaissance style as do not show marks of positive degeneracy. The most remarkable of these was the Procuratorie Nuove, a line of buildings erected to accommodate the increased numbers of the Procurators, or church wardens, of St. Mark's, as these officers always dwelt together in houses bordering the Piazza. This adjoined the library, and Scamozzi, in the lower stories, conformed his architec-

ture to that of Sansovino. He has been censured for choosing to add another story, into which he introduced the Corinthian order, rather than to conform entirely to the design of his predecessor. In details he has also made variations, as the keystones of his lower arches are adorned with masks, the bas-reliefs of the metopes are symbolic in subject, and in the second story the imposts of the arches rise from a heavy entablature supported by short Ionic columns. Columns of the same order, reaching to the frieze above, are placed between these. In the upper story the windows are crowned with pediments, rounded and pointed ones alternating, while medallion slabs occupy the space above. The sculptures here, as well as in the archivolts and friezes, are, for the most part, well designed, but not so well executed, as they were not completed under the immediate direction of Scamozzi. Had this edifice been finished with as much care and attention as it had at the beginning, and then continued on the western side, the Piazza of St. Mark would have been the noblest in the world, while the edifice would have been a worthy offset to the oriental gorgeousness of the Duomo.

*Bizarre Style.* — With the seventeenth century the Renaissance began to show signs of decay. Those who followed the great masters of the sixteenth were not satisfied with beautiful spaces, harmonious proportions, and moderate ornament. They attempted works of colossal proportion, and these

they loaded with ornaments of novel rather than beautiful designs, so that architecture degenerated to that meaningless filagree which acquired for it the name of the Bizarre Style.

Moreover, it descended to the mere trickeries of art, and attempted to please by deceptive vistas, endless colonnades, and columns crowded together without any apparent object, being rather obstacles than supports.

The Genoese vestibule, as said before, was everywhere adopted; but it was so exaggerated in proportions and constructed on so vast a scale, that it seemed rather designed to accommodate a race of giants. Meantime, the noble colonnades which had formed the chief beauty of the façades were omitted altogether, or replaced by colossal loggie decorated with vulgar and useless ornaments.

Bernini, the architect to whom the world is indebted for the noble colonnades of St. Peter's, led the way in this frenzy for crowded decoration, but he is surpassed by Borromini, who, in his love for novelty and exaggeration, lost sight entirely of the effect of noble spaces, simplicity, and proportion, both in ecclesiastical and in palatial architecture. Their successors went even further, and indulged in the wildest eccentricities. Of these, the Church of the Jesuits at Venice is a notable example.



## CHAPTER XXIII.

### RENAISSANCE ARCHITECTURE, CONTINUED.

**D**URING the fifteenth and the greater part of the sixteenth century, the Gothic style prevailed throughout Europe outside of Italy, but in the sixteenth it had everywhere degenerated into an overloaded barbaric gorgeousness in detail, combined with fantastic and inharmonious arrangement.

In the latter part of this century, however, the architects of other lands began to imitate those of Italy by adopting the antique orders; but these were at first employed in connection with the pointed arch and other features of the old Gothic, producing an anomalous style which was beautiful in spite of its defiance of all architectural rules. It displayed such freedom of fancy, such lawless caprice, and yet produced such brilliant and dazzling effects, that it seemed rather the production of magic and enchantment than of imagination guided by judgment and reason. In Spain, where the influence of Orientalism tended to heighten the play of the fancy, it acquired the name of the Plateresco or Goldsmith's style.

But this was soon succeeded by the more correct High Renaissance, and Roman architecture everywhere held sway in the civilized world, as the Roman empire had done thirteen centuries before.

At this time palatial architecture in the central kingdoms of Europe combined the most striking features of the old fortified castle, with other borrowed from the Early Italian palace. One of the best examples of these edifices is the Chateau de Chambord, the Versailles of the earlier French kings.

The ground plan of this palace is a parallelogram, flanked by six immense circular towers, placed two on each of the longer sides, and one in the middle of the shorter ones. Added to these is a central tower, the old donjon or keep, which, rising high above the rest, terminates in a huge stone fleur-de-lis. The outer towers terminate in pyramidal roofs, bearing lanterns; turrets and minarets are disposed at the corners; dormer windows rise above the cornice; stacks of chimneys richly ornamented alternate with these; so that the roofing bristles with forms of every variety crowded together. The stories below are ornamented with cornices and columns, which form, along the straight walls intervening between the towers, open galleries or loggie. A remarkable feature of this edifice is the double spiral staircase, occupying the central tower. Each flight opens upon the different floors into two spacious corridors, lined with apartments; and yet

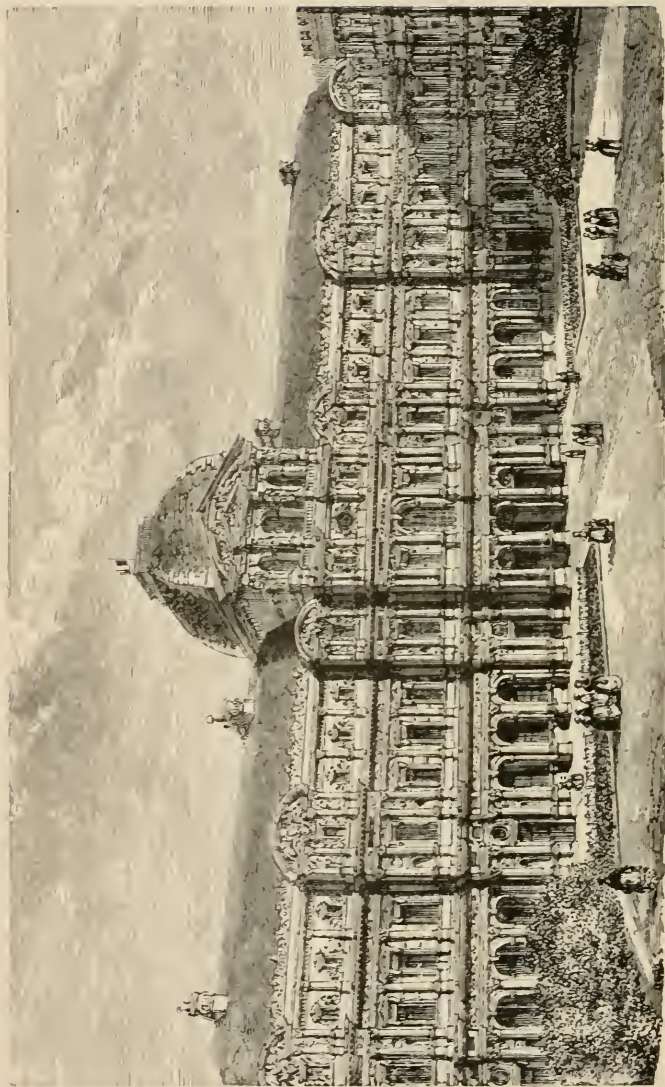
they are so arranged in respect to one another, that it is impossible, in ascending or descending one division, to recognize persons on the other. The Tuileries is also an example of the earliest French Renaissance. It displays the Ionic, Corinthian, and Composite orders in its façade. It was built at different periods, and consequently is by no means uniform either in arrangement or ornament. The shafts in the lower story are encircled by bands of mouldings, a style said to have been first used by Philibert Delorme, the architect of the central pavilion, in Toulon his native place. Being unable to find monoliths large enough for a shaft, he took this means of concealing or rather of calling attention to the joining of the sections.

One of the earliest specimens of a purer style is the noble western façade of the Old Louvre, erected by Pierre Lescot in 1541. And yet we must regret that this presents opportunity for serious criticism. It consists of two stories and an attic, and this upper and insignificant member is so richly ornamented that it seems to overshadow the principal second story. Aside from this, the general arrangement is pleasing. The centre is occupied by a noble pavilion, flanked by smaller ones. Two more, similar to these, terminate the façade; and again, one on each side divides the intervening space, relieving what might otherwise be a dull monotony. Three windows, separated by columns, fill the spaces between the pavilions, while in the pavilions these



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WESTERN FACADE OF THE LOUVRE.

columns are doubled on each side of a central window, statue-niches filling the intercolumniations. In the central pavilion, there are three windows, and this being carried up another story terminates above in a circular pediment filled with statuary; caryatides support the entablature upon which it rests. Similar small pediments are built above the attic windows of the pavilions, partially inclosing them. Quatremere de Quincey says that, in spite of the excess of detail and ornament, "There is not one of his decorative parts, one of his details of ornament, which is not grandly conceived as well as executed in a superior manner, both as regards the whole and the single parts." The eastern façade of this edifice, executed by Perrault more than a century afterward, is one of the noblest examples of the Renaissance out of Italy. In harmony, simplicity, and solidity, it compares favorably with Bramante's best works. The lower story is a simple solid basement, and from this rises three pavilions faced by coupled Corinthian columns and connected together with galleries of the same construction. The central pavilion forms the principal entrance, and terminates above in a pediment inclosing sculptures, while bas-reliefs fill the spaces above the gateway. The terminating pavilions have noble windows crowned with pediments, and above these are medallion-slabs wrought in low-relief.

*Versailles.* — To the latter part of the seventeenth century is to be ascribed the erection of the central

portion of that enormous pile known as the Palace of Versailles. A modest hunting-lodge had been built upon the spot by Louis XIII. in 1624. Louis XIV. determined to make it the site of a new palace, extensive enough to accommodate, not only his family and retinue, but his ministers and the immediate officers of the crown. That the setting might be worthy of the jewel, he commissioned Le Notre to lay out extensive gardens, parks, and forests, and detailed thirty thousand soldiers to be employed in the work. To Levau was given the commission of chief architect of the buildings, but he only lived six years, and then J. Hardouin Mansard, the nephew of the celebrated François Mansard, was appointed his successor. Mansard desired to pull down the old lodge, but the king would not consent, and so he proceeded to erect the state apartments fronting the gardens, and then the northern and southern wings. The western façade, thus formed, consists of two stories; the lower one a solid base-ment unornamented, and the upper one of coupled Ionic columns surmounted by a heavy cornice and balustrade; the monotony of the straight line is broken by pavilions, more or less ornamented with sculpture.

This part of the edifice is more remarkable for its interior magnificence than for anything belonging to the exterior. Everywhere the utmost richness of gilding, stucco, and fresco are combined with beautiful marbles to inclose noble spaces, and

form apartments suited to the taste of an elegant and luxurious court. The largest of these apartments, the Grande Galerie des Glaces, was one of the finest apartments in the world. Measuring two hundred and forty-two feet in length and thirty-five in width, it was lighted by seventeen arched windows, while similar arched spaces on the opposite side were filled with mirrors. Corinthian pilasters of red marble with gilt bronze capitals and bases separated the windows and mirrors, and flanked the door-ways, while the ceiling was divided by designs in stucco into compartments richly frescoed by Le Brun.

Although the palace became a royal residence in 1681, it was not actually completed when Louis Philippe began his reign, so that it presents numerous variations in architecture ; while its courts, façades, apartments, and ornaments are so numerous that a volume would be required for their description. At a distance the effect is rich and imposing on account of the lofty roofs and their gilded railings, but when viewed near at hand, there is a want of unity in the plan and the whole edifice seems rather a crowding together of numerous detached and unimportant buildings, at the same time that the excess of ornament dazzles and bewilders too much to give pleasure.

*Renaissance in Germany and the Netherlands.* — In Germany and the Netherlands the Gothic style continued to have the preference until late in the

seventeenth century, nor even then was the Renaissance fully accepted, but the four orders were added to Gothic edifices — Gothic so far as their mechanical arrangement and structure was concerned. If in palatial architecture there was sometimes an attempt to free itself from the old forms, it became brilliant, gorgeous, and fantastic. This is seen in two different parts of Heidelberg Castle — that built by Otto Henry, dating 1556, and that added half a century later, by the Palatine Frederic. In the former we find two stories rising from a simple basement — one ornamented with Ionic, and the other with Corinthian pilasters. But the shafts of the former are chiseled across with parallel lines so as to appear as if composed of a series of stones placed one upon another, while the same member in the story above is covered with richly wrought arabesques. These stories are separated by a low entablature, the architrave of which is a simple fillet-like moulding, while the frieze is the Doric frieze.

The windows in both stories are divided by a mullion-like bar sculptured as a caryatid ; those above are surmounted by a heavy entablature with arabesques and statuary, while those below terminate in a lofty pediment. The latter are divided by a sort of transom, the upper part of the aperture being flanked by Ionic columns, and the lower part by a sort of rustic column. The principal entrance, with its caryatides, entablatures, and bas-reliefs, elegantly dispersed, is imposing, although not in ac-



cordance with the rules of any style or order. The part known as the Friederich's Bau is more in accordance with Renaissance, but it is overloaded and extravagant in its decorations.

The domestic street architecture in these two countries still continued to be Gothic, but Gothic in its most exaggerated forms. Everywhere this was visible in the residences of the wealthy burghers; and the courts and façades of these houses, with their lofty gables, projecting upper stories, deep bays, and ornamented chimney-stacks are among the picturesque objects that delight the traveller.

*Renaissance in England.* — The mingling of classic and Gothic forms in England gave rise to a new style, known as the Elizabethan Style. It was the attempt to unite principles not only severely opposed to each other, but resulting from different feelings, different aims, and different modes of thought; and therefore the result was, as it always is, a product neither useful, convenient, or agreeable — only so far as the fantastic is agreeable.

Many specimens of the Elizabethan are to be found in England, especially in country mansions; nor was it until the return of Inigo Jones from his second visit to Italy, in 1647, that the pure Renaissance was introduced into England. He then began the erection of Whitehall, but his designs were never fully carried out, and the present palace is only a small section of the one proposed. This section,

however, is remarkable for its solidity, harmony, and elegant proportions, and shows that Jones had mastered the principles involved in the best specimens of this style.

Half a century later occurred the great conflagration which laid waste two-thirds of London. In rebuilding, Sir Christopher Wren, then superintendent of public works, proposed that the city should be laid out in broad streets and noble piazzas. But a foolish economy prevailed against him, nor were his suggestions in regard to more elegant and commodious public buildings heeded. Yet he was allowed to build the Royal Exchange, the Custom House, and several churches, according to his own designs. He also erected Marlborough House, and made some additions to Hampton Court, but his palatial works added nothing to his reputation, neither did the façade of Westminster Abbey, completed according to his plans.

His most celebrated work is undoubtedly the metropolitan cathedral of St. Paul's, one of the most celebrated of the Renaissance ecclesiastical edifices. Though much smaller than St. Peter's at Rome, it has the advantage of it in displaying, from almost every point of view, the full height of its finely proportioned dome; but the effect of the Composite superimposed upon the Corinthian, and both in coupled columns, is to diminish its grandeur by overcrowding. This is especially felt in the portico above the principal entrance, and also in the

circular ones terminating the two transepts. The interior, when viewed from near the western entrance, gives a pleasing perspective, but on entering it seems cold and lifeless ; and one feels that it needs the enlivening influence of color and rich material.

An account of the later Renaissance would scarcely be complete without mention of the Arsenal at Berlin, erected at the very close of the seventeenth century. It is admitted by all critics to be almost faultless, whether considered with regard to the harmony of its proportions, its internal arrangement, or the beauty and fitness of its architectural plan or ornament. The façade is formed by a basement of rustic-work pierced with frequent arches, and supporting Corinthian columns, which alternate with windows corresponding to the arches below. The whole is crowned by a noble cornice, the piers of its balustrade being formed of clustered flags, spears, and shields. Similar ornaments are used at the corners of the pediments rising above the three middle windows, one marking the principal entrance, which is through the centre arch.





## CHAPTER XXIV.

### ARCHITECTURE OF THE XVIII. AND XIX. CENTURIES.

**T**HE beginning of the eighteenth century found the Renaissance style prevalent throughout Europe, but everywhere inclined to that fantastic exaggeration which characterized the Bizarre. At this time Italy became the battle-field of the world; the Italian cities lost their liberties; their wealth and commerce declined; and the arts received but little attention. Nor was this to be regretted altogether, for so much had the public taste become corrupted by the works of the previous half-century that every new work was a new travesty of art. The northern countries, meanwhile, had increased in wealth in spite of wars and internal dissensions; and the wondrous magnificence of Versailles awoke in the breast of almost every monarch in Europe the desire to erect a splendid suburban palace. This was especially the case in the German States, and so Frederick built Sans Souci, while Augustus the Strong erected the Japanese Palace, and the Zwinger, contemplating, it is said, to connect the two by magnificent inclosed courts and a bridge across the

Elbe. Meanwhile, Maria Theresa converted the simple hunting-lodge of Schönbrunn into a vast palace of more than six hundred apartments. Of all these royal extravagances it may be said that they are too much like their model, Versailles, to be considered beautiful.

At this time the prosperity of France, England, and Germany, together with a more refined civilization, led to the erection of many elegant and commodious edifices to satisfy the needs of every-day life. The different departments of state and metropolitan governments, trading corporations, banking firms, — all demanded larger and more elegant accommodations ; while new institutions of learning were founded, and old ones much enlarged. Private houses, also, became more roomy and more convenient, while the mansions of noblemen and wealthy burghers, if not as large as the abodes of royalty, were often quite as elegant and as richly decorated. Yet all exhibited the same general style, and everywhere classic columns, classic entablatures, and classic details marked the edifice, though by no means classically combined. So much did this similarity prevail, that the church was scarcely distinguishable from any other building, save by the cross surmounting its loftier dome, or when some architect, more adventurous than the rest, dared to add so Gothic a feature as a spire.

*Attempted Revival of Greek Art.* — From the early part of this century, however, the minds of

thinking men were strongly agitated by the great problems of political freedom, human liberty, and the noblest destiny of man. Then began the great fermentation which, culminating in a general revolution in 1848, has produced the abolition of slavery in America, and is still going on, but we trust with such accumulation of force that it may be able to untie the remaining knots of social and political life rather than resort to Alexander's method of severing them. Meanwhile the arts reached a very low ebb ; but they were not altogether forgotten, for a few noble minds turned aside to plod narrow and almost unknown by-paths, hoping, by the study of ancient and mediæval remains, not only to resuscitate the fine arts, but to plant them upon the eternal basis of truth and fitness. In 1752 James Stuart begun to publish the result of his labors in "Athenian Antiquities," while in 1769 Winckelmann gave to the world his wonderful "History of Art." Meantime there were others who, while admitting the excellences of Greek art, especially architecture, as adapted to secular edifices, did not believe it capable of meeting all the requirements of the Christian temple. This was first recognized in England, where the Oxford Architectural Society, an association formed for the purpose of carefully studying Gothic architecture, was formed as early as 1839. From this time forwards, not only through the efforts of this association, but also that of individuals, and among the most dis-



tinguished we must reckon Scott and Barry, the merits of this style have been every year more clearly recognized. Here, also, we must not forget Ruskin, for however much we dislike his sweeping denunciations and wholesale judgments, we must remember that he has done good service in the cause of Gothic architecture.

*Revival in France.* — The study of Greek forms and the desire for their adoption readily found its way into France, and in 1777 Couture proceeded to erect the Church of the Madeleine in the form of a Grecian peristyle with true Greek proportions. The Pantheon, or Church of St. Geneviève, had been in course of erection a decade, and this was to have a Grecian portico, although surmounted by a Renaissance dome. The whole history of art does not furnish better proof of the paramount importance of fitness as an element of architectural beauty than is found in these two buildings. The costly material, the rich sculpture, the elaborately designed bronze doors, and the gay mural paintings seem rather to heighten than diminish the incongruity. The Madeleine is a Corinthian pagan temple, and neither altar, cross, nor incense can make it a Christian church. This did not escape the notice of Napoleon I., when he proposed to make of it a Temple of Glory, wherein to enshrine the busts and statues of his most illustrious countrymen.

*Revival in Germany.* — In Germany, fortunately, the taste for Grecian art found no one worthy of

note to give it form, until about 1825, when Louis Schinkel began at Berlin the erection of the Museum. To this succeeded the theatre, and in both edifices he has shown that he had imbibed the true spirit of Hellenic art. He has ornamented both with Corinthian porticoes, but so arranged as to make a part of the edifice, and they do not, as is too often the case, seem to be added for the sake of identifying the style. The Architectural School of this city is by the same architect, and in this, he has freed himself from all conventionalities and followed the leadings of his own genius. He has, also, shown what may be effected with brick as the material, when in the hand of a master. The walls are varied with pilasters rising to the roof from a low socle. The windows are ornamented with bas-reliefs in terra cotta, filling broad spaces as a base below, and also, enriching the circular pediments above. The doors and windows are of almost faultless proportion, while to its simplicity and harmony are to be added its remarkable adaptation to the purpose for which it was designed.

About this time Semper began the erection at Dresden of the magnificent circular theatre so recently destroyed by fire. It was of the Renaissance style, and surrounded by a double arcade whose arches were separated by detached columns, — the Tuscan order being employed below, and the Tuscan and Ionic alternating by twos above. The building itself is carried up another story and an

attic, both ornamented with pilasters. From two opposite points project columned porticos, terminating above in pediments. One only was filled with sculpture. This was by Rietschel and of colossal size. It represented "Orestes Pursued by the Furies." Within, the gallery was richly finished, and also the theatre itself, but not according to the best principles of art; for the Corinthian columns of the vestibule, though of fine proportions, have their shafts covered with arabesques in bas-relief.

Hubsch, employed at Carlsruhe, erected several buildings which, though Romanesque in their general features, are agreeably modified in accordance with his own taste, while Erslohrer following the same style has shown even more natural genius.

Louis Von Klenze, long in the employ of the art-loving Louis, the late king of Bavaria, applied himself especially to the study of Greek art, and erected in Munich several edifices of great merit. Most celebrated of these is the Rhumeshalle, built in the form of an open rectangle, and surrounded by a Doric colonnade; this terminates on each side of the inclosed court in a tetrastyle portico. The pediments are filled with colossal statuary, and the metopes are wrought in bas-relief—a part of them illustrative of educational progress, while the others represent Victories. In the middle of the space left vacant on the fourth side of the rectangle, stands Schwanthaler's magnificent bronze statue of Bavaria.

In the Walhalla, or Hall of Heroes, erected for the same monarch at Ratisbon, Von Klenze attempted the reproduction of the Parthenon, and he has been most successful. Upon the summit of a lofty hill and upon a foundation of three terraces rising one above another — the upper one consisting of three lofty marble steps — rests the Grecian stylobate ; and from this the building rises in nearly the same proportions as the ancient temple, so far as the exterior walls are concerned. But the interior arrangement and roofing are widely different. The latter was for some time a matter of perplexity. The hypæthral was scarcely suitable ; the domical belonged to another style of architecture. But at last Von Klenze's genius solved the difficulty. The progress of ideas had added a new material to those known to the ancients, and why should he not make use of it? This he resolved to do, and so the New Parthenon is roofed with iron, supported from within by three pediments spanning the width, and resting upon an entablature, which is supported by projecting piers, or rather by graceful colossal caryatides, for which the lofty piers form a pedestal. There are two above each pier, making four for each pediment. The space between the third pediment and the north wall is further separated from the larger hall by two Ionic columns arranged in a line with the piers, as in the portico termed *in antis*. These support an entablature, and again, above this, two caryatides fill the

space. All the piers are faced with pairs of Ionic pilasters, and a richly carved frieze surrounds the hall at the height of the pillars. The floor is of rich marble, as also the furniture, tables, chairs, and candelabra, and all of antique form. The busts of those who are to be here immortalized are arranged on consoles against the walls. The pediments are richly sculptured. Those without are filled with figures of colossal size. In the northern one Rauch has symbolized Germany and the German states. In the southern pediment, above the principal entrance, Schwanthaler has represented the victory of the Cherubisci over the Romans. The interior is lighted by immense plates of glass set into the iron sheets forming the roof, and the latter are richly bronzed and gilded.

*Later Gothic in Germany.* — The attempt to revive the Gothic in Germany has been far from successful. Schinkel failed entirely, and indeed all his efforts in ecclesiastical edifices fall far short of what he accomplished in secular architecture,—a fact to be attributed no doubt to his earnest affiliation with everything Greek. St. Peter's, built at Berlin by Strack, and the Votivkirche of Vienna are probably the best modern Gothic churches in Germany, while the Au Kirche at Munich is noticeable for its graceful spire, though otherwise stiff and conventional.

*Recent Architecture of France.* — In France the classic and the Romanesque both found strong par-

tisans, and the result has been that edifices built at the same time present most striking contrasts. During the time of Napoleon I., the taste for the classic prevailed, and continued some time after his fall. It is seen in the Arc de l'Etoile, the Palais Legislatif, the Caserne Napoleon, and numerous other edifices. Later, an attempt was made to unite to the simple Greek forms some features borrowed from the Romanesque, as in the church of St. Vincent de Paul. Here the façade is finished with a Greek Ionic portico, while from each end rises a square tower with Corinthian pilasters at the angles. The roof gable is concealed by a Grecian entablature and balustrade stretching between the two towers, and continued around them.

Other architects, and at their head must be placed Viollet-le-Duc, have essayed to revive the Gothic of the thirteenth century. One of the best results of this effort, is the Church of St. Clotilde at Paris, built by Gau, a German architect. It is of noble proportions, and combines the grandest features of the Gothic, though less richly ornamented than the earlier edifices. The façade is flanked by two lofty towers enriched with numerous traceried and gabled windows, and supported by corner buttresses. These terminate in delicate pinnacles, and the slender terminations of the towers themselves are richly and elegantly wrought. A wheel window of unusual beauty is placed above the main portal, whose crocketed gable and retreating arches, filled with statues, carry us back to the thirteenth century.



In the completion of the Louvre, a Renaissance even more ornamented than that of Lescot was employed, while the same style was exhibited in the magnificent Hotel de Ville, and in the restoration and enlargement of the Palais Royal.

*Recent Architecture of England.* — For palatial and other secular edifices in England, the Renaissance for the most part was in favor in the earlier part of this century. The attempt of Stuart and others in favor of Greek art had but little influence upon architecture, while the effort of Scott and others, especially Ruskin, to bias the public mind in the direction of the Gothic has succeeded far beyond all efforts of the same kind in other countries. In churches and educational institutions, it found especial favor, and in 1836, it was decided that the legislative halls of the Empire should be rebuilt in this style according to the plans of Sir Charles Barry. These contemplated a Gothic, rich but not ornate, with square supporting towers at certain points, flanked, like the walls, with massive buttresses. The New Palace of Westminster, as it is called, covers eight acres and contains upwards of five hundred apartments clustered around eleven open quadrangles or courts. The edifice is of gray limestone, and is not only one of the noblest structures of this century, but a most successful attempt to secularize this truly northern style of architecture.



## CHAPTER XXV.

### ARCHITECTURE IN AMERICA.

**W**HILE America remained a colony, there was neither time nor opportunity for the practice of the fine arts. A new country, far removed from all the comforts belonging to an advanced civilization, its early settlers found themselves fully occupied in supplying their immediate wants, and protecting themselves from the savage hostility which they had by their rapacity awakened. When the Revolution was over, however, and the independence of the country recognized, Congress, in spite of heavy debt, poor credit, and an army of croakers, proceeded to lay out a national capital and erect national buildings.

To the nations of Europe they looked for models in architecture as well as in law and government, and therefore the classic styles, as they are called, then in high favor, were at once adopted. The corner-stone of the Capitol was laid in 1793. It is of the Renaissance, and consists of two stories rising from a lofty rustic basement. The ground plan is a central pavilion with north and south wings. The principal façade is on the east side, where a

portico of Corinthian columns thirty feet in height fronts the pavilion, while pilasters of the same order are continued along the wings. The eight middle columns project so as to admit of another inner row, and these sixteen columns support a noble pediment adorned with a bas-relief. The subject is allegorical, Liberty attended by Hope and Justice, and is said to have been designed by John Quincy Adams. The approach to this imposing portico is by a flight of broad marble steps. Within its shadow take place the inaugural ceremonies, and here the President, in the presence of the crowd which throng the steps and square below, takes the oath of office. The central portion of the edifice is, for the most part, occupied by a circular apartment, measuring about one hundred feet in diameter and height, and known as the Rotunda. It is ornamented with paintings and bas-reliefs illustrative of our national history. The paintings are separated from one another by gilded pilasters, which rise to the dome forming the roof. The Congressional Library was originally placed in the pavilion, while the Representatives Hall occupied the southern wing, and the Senate Chamber, reception-rooms, etc., the northern one.

The rapid growth of the country for half a century rendered this simple but imposing edifice inadequate to the convenient accommodation of our national legislative body, and in 1850 Congress voted to make extensive additions to both wings,

connecting them with the same by ample corridors. The architecture of these additions corresponds with that of the Old Capitol, as the original building is called, but the material is much better, it being a handsome marble from Connecticut, while the first edifice was built of a poor yellowish sandstone which it was necessary to paint, as well to preserve it as to improve its appearance. Each of the new wings presents on the east side a portico similar to the central one, forming three magnificent entrances, while the side portals face the west. On the north and south, these wings terminate in lofty galleries or loggie, formed of monolithic columns supporting a handsome entablature, which is carried quite around the edifice. The pediment of the northern wing is especially noticeable for its sculptures — perhaps the noblest work of the lamented Crawford. It represents America surrounded by a group of figures, emblematic of her history and the sources of her wealth, as the Pioneer, the Miner, the Indian, Education, etc.

The original dome of the Rotunda, which sprung directly from the roofing, has been replaced by one of dimensions corresponding to the present size of the building. Upon a solid octagonal base rests the lofty drum, pierced by two rows of narrow, arched windows, separated by pilasters. From the top of this drum, or rather from the entablature, rises a second narrower base, its cornice supported by inverted consoles, and from this spring the ribs of the

dome. They are thirty-two in number, and support a lantern. The whole is crowned by a bronze statue of America. A colonnade of Corinthian columns surrounds the lower tier of windows, and another the lantern above. This dome, two hundred and forty-one feet in height, is imposing from its size, and forms the principal feature in every view of the city. It bears considerable resemblance to the dome of St. Paul's in London, and is considered by some to equal the latter in architectural beauty.

In these enlargements of the Capitol, vast sums of money have been expended, and the corridors as well as the numerous apartments are adorned with frescoes, sculptures, and bronzes by distinguished artists, while they are furnished with all the appliances which modern luxury has devised. Yet they fail to satisfy the taste of the more refined ; for there is too great a profusion, too much color and gilding and rich upholstery. Especially is this noticeable in the Senate Chamber, which is all glare and glitter, and where the eye wanders about in vain in search of something restful, something simple and delicate, suited to arouse both æsthetic and national feeling. Indeed the old Representative Chamber — now a sort of memorial sculpture gallery — both in its proportions and ornament, is the noblest apartment in the whole edifice.

The President's Mansion, or the White House as it is called, was built or rather begun in 1815, the first edifice having been burned the previous year.

It is a simple, unostentatious dwelling, one hundred and seventy feet long, having its principal entrance on the north side through a tetrastyle Ionic portico. It rises two stories above the basement, the windows of the principal or ground floor being surmounted by pediments, the circular and triangular alternating. On the south side, in the rear of the portico, is a semicircular colonnade, while the windows are separated from each other by pilasters. Consoles are placed under the window-sills—a mode of ornamentation attributed to Michael Angelo. A handsome Ionic entablature surmounted by a balustrade ornaments all four sides. The whole is of the same stone as the Capitol, and like that has been painted.

In the erection of the Treasury building and the Patent Office, an attempt was made to follow more closely after the Greek style, but with no better success than had attended similar efforts in the old world. As the Greek temple was in part a treasure-house, it would seem that this style might be adapted to the former edifice, but the National Treasury of to-day must be something more than a vault or coffer. It must accommodate all the offices connected with the collection and disbursement of the national finances, must contain numerous large and well-lighted apartments, and therefore demands a ground plan much more complicated than the simple peristyled parallelogram. But in the beginning of this century the classic orders still



continued in favor, and, therefore, when in 1833 — after its second destruction by fire — the Treasury was to be rebuilt, it was determined to use the Ionic order, following the best classic models in proportion, but omitting all the rich ornament, which renders the Erectheum so attractive. Moreover, instead of the graceful retreating stylobate, the columns rose from a plain basement wall, without mouldings or cornice, and consequently there was a baldness about the whole edifice, which made it appear as if still incomplete. Extensive additions have since been made, so that the portico of the old building forms the centre of the new façade. The additions are in better taste than was the old edifice, and terminate at the corners with pavilions whose pediments are supported by columns arranged *in antis* between pilastered walls. As a whole it inclines to the Renaissance rather than the Greek.

The interior decorations deserve especial attention. The architect, leaving the old conventional forms in the ornamentation of the capital, has had recourse to those furnished by the fruits and flowers indigenous to American soil. Had he allowed himself still more freedom, and laid aside the volutes, which, whatever signification they had to the ancients, mean nothing to us, he might, perhaps, have invented a capital that would have served as a model and as the first step toward a new and American order. The Patent Office, an edifice of

white marble, with Doric pilasters rising from the base to the entablature, and Doric porticoes on the eastern and northern façades, is more imposing than the Treasury building, but it needs the ornamentation of sculpture.

Besides the buildings of the Greek style erected in Washington, others not only by the government but by banking corporations, commercial houses, etc., have been erected in various parts of the country. The two best of these are probably the Sub-Treasury building — originally the Custom House — at New York, and Girard College at Philadelphia. Both are of white marble, and the latter modeled, as to the exterior, after the Parthenon, — that is, so far as possible, while employing a different order of architecture. It is considered the Greek building par excellence of America, as the Madeleine is of France, and is a Corinthian peristyle resting upon a Grecian stylobate. Its monolithic colonnade is really quite imposing, but as a whole it fails to excite in the beholder any of that emotion which is awakened by the Grecian edifice. Cold and unimpressive, it seems rather like some rare exotic — a thing to be gazed and wondered at more than enjoyed. This is no doubt attributable in part to its position, for while the Greek temple always crowned some lofty height or some jutting spur, this edifice is built in the middle of a broad flat plain without any relief from the blue sky, or jagged mountain-side. Again, the substitution of

straight lines for those curves which brought the Greek edifice into such wondrous harmony must detract much from its beauty, while the lack of sculpture — to say nothing of polychromatic ornament — will ever render such a building a futile attempt at the reproduction of classic art.





## CHAPTER XXVI.

### ARCHITECTURE IN AMERICA, CONTINUED.

**T**HE growing wealth and prosperity of our country has enabled us with every decade to give more and more attention to the architectural beauty of our edifices, and though we sometimes make sad mistakes, yet there are, on the whole, some indications that we are moving in the right direction. One of these is the use of better materials. Brick, stone, and iron, are now principally employed in our cities in such buildings as are intended to be permanent, whether erected by the government, corporations, or private individuals. The use of iron as a building material is confined, for the most part, to the last fifteen years, except in the form of bands and rods to strengthen weak walls. Its pliancy, lightness, and cheapness, recommend it particularly in roofing. It is also moulded into pilasters, columns, etc., and used in forming façades, especially of commercial houses, but it is far inferior in beauty, by lack of inherent color as well as texture, to the stone which it replaces. Moreover, it warps when exposed to fire, and bends under great pressure, so that an iron building is by no means comparable with the noble stone edifice.

Another indication of progress is the almost universal adoption of the Gothic style for church edifices. In our villages and towns, those hideous square boxes with four columns in front — a travesty on the tetrastyle Greek temple — are fast disappearing, being replaced by tasteful edifices of pointed architecture ; although too often the ambitious architect spoils his plan by an attempt at tracery or other ornament suited only to a structure of imposing dimensions.

In our larger cities we find many church edifices both completed and in process of erection, which are worthy of attention for their architecture as well as the solidity and beauty of material employed. Most of these are of the Gothic style. Trinity Church in New York, completed in 1846, was the first Gothic edifice of stone in America. It is most nearly allied to the Early English, and the architect deserves the gratitude of all lovers of the beautiful, for giving his countrymen so elegant and chaste a model. The lofty nave is separated from the side-aisles by clustered columns of brown stone with narrow clere-story windows above. It terminates on the west in a polygonal apsis, which forms the chancel, and is lighted by a small wheel window. The eastern end is fronted by a buttressed quadrangular tower whose lower story makes the vestibule. Its crocketed spire rises to the height of two hundred feet and upwards. The whole edifice, except the

roof, is of freestone of a rich brown tint and apparently of great solidity.

Grace Church in the same city, built of granite, is of a more ornate style and presents nearly all the peculiar features of the Gothic, although in small dimensions. When completed, St. Patrick's Cathedral, fronting on Central Park, will afford us the best specimen of the Gothic as it prevailed in Europe from the beginning of the thirteenth century to the middle of the fourteenth. Its pinnaced and flying buttresses, its gabled and recessed portals, and noble wheel windows will serve to remind one of Rheims, Rouen, and other noted cathedrals of France, while its two towers, three hundred and twenty-eight feet in height, with their niches, statues, gabled and traceried windows, and fretted spires, will recall the most magnificent feature of the great cathedral of Cologne. The Roman Catholic Cathedral in Philadelphia is modeled after the Italian edifices of the time of Michael Angelo, while Trinity Church, now in process of erection, in Boston, will afford us an example of the Romanesque influenced by the Byzantine, as found in the south of France in edifices erected in the twelfth century. The form is that of the Latin cross with the narrow side aisles carried around the transepts and terminating on either side of the circular apse. The façade is ornamented with two narrow towers one hundred and fourteen feet in height, which support the nave walls. These are quadrangular,



and pierced in two stories by double arched windows, supported by classic columns. The entrance is by three arched portals, the flanks of which are ornamented with columns and the tympanums above by sculpture. Over the principal entrance will be an arcade supported by coupled columns, and it is also proposed to add an open gallery of semicircular arches, which will connect the two towers and completely hide the gable. The square of intersection is covered by a third massive tower, which being roofed at some distance above the semicircular arches from which it springs, will afford through its lower windows light for the body of the edifice, while the transepts are lighted by triple-arched windows, supported by coupled columns. The material is dark granite with brown stone facings roughly finished. The church will be connected with the chapel by a small cloistered court which promises to be of considerable merit.

Yet while there are some marks of progress in our architecture, there are some radical defects. The most reprehensible of these is the sacrifice of security to cheapness in building thin walls, — a fault not so often chargeable upon the architect or builder, as upon the corporation or private individual, for whom the work is undertaken. Again we are in too much haste — a fault characteristic of us as a nation — and therefore we resort to shams, and crown these eight inch walls with entablatures and

brackets of painted and sanded pine, where the white, like the asses' ears in the fable, will be cropping out all too soon.

Now some of the cathedrals of Europe have been in progress for six centuries, and why may we not be content to let as many decades pass, or at least half as many, before the church edifice stands complete? Would it not be better that we build broad foundations and solid walls so far as our means allow, finishing only enough to render the edifice comfortable, and leaving the ornamentation to the next generation? Would not this be a better inheritance than the complete but poorly-built church, with its wooden ornaments already beginning to decay; and are we not too often teaching a love of tinsel and false show even in the sanctuary?

Another objection to our architecture is the almost universal adoption of the Renaissance — the French Renaissance, too, with its over crowding of columns, pilasters, and entablatures, its gay and gilded Mansard roofs — for all kinds of secular edifices, whether for legislative, commercial, charitable, or scholastic purposes. A noble exception to this, however, is the Memorial Hall of Harvard University, not yet completed. The whole edifice will be three hundred and ten feet long by one hundred and fifteen in width. It will contain beside the spacious dining-hall, one hundred and sixty-four feet in length, and the memorial court or chapel now erected, a theatre or audience room.

It is of brick, banded in the Lombard style with buff tiles bearing geometric designs in blue. The central tower rises above the Memorial Hall, while smaller towers, all of the English Gothic, flank its walls. It is to be regretted that the same style was not used in the spacious northwest window, rather than a tracery partaking of the Flamboyant character. When different styles are mingled as the result of building at different epochs, we are pleased with it on account of its historic value, and because it has its origin in natural laws ; but when several styles are blended as the work of a single architect, we feel the lack of unity in the conception. Hence that mingling of the Gothic and classic known as the Elizabethan style, though pleasing in structures erected during the period of transition, are by no means so, when built in this nineteenth century. There are edifices in New York and Boston as well as other cities, which remind one of Da Vince's Rotello del Fico, for it seems as if the architecture of every nation and every age had been gathered together that the builder might choose a portal here and a window there, an entablature from Greece, a column from Assyria, and a turret from the mediæval age, and crowd them all together without any regard to their adaptation one to another.

The new Museum of Art in Boston, one wing of which is now being erected, inclines in its narrow pointed windows and foliated capitals, to the early Venetian Gothic, as found in the older palaces.

The outer walls are of brick, finished in diaper work and ornamented with bas-reliefs of terra cotta.

Among the most noticeable of the later Renaissance buildings are two now being erected for postal purposes, — one in Boston and the other in New York. Both are exclusively of granite, brick, and iron, the stone covering the outer walls, which are all richly ornamented as well as the façade. The edifice in Boston follows more closely the Roman models, inasmuch as it presents the three orders placed with their entablatures one above another. Yet one is hardly satisfied that the architect should have copied Delorme, and with less excuse than the latter could offer; for while Delorme made prominent the joints which were unavoidable, the former has hewed the noble monolithic columns into the semblance of sections. In New York the Postal edifice presents throughout the Roman Doric, each story having its own columns, pilasters, and entablatures.

Among the edifices which the progress of modern science has added to those already mentioned, perhaps the most important are the extensive railway-stations erected both in European cities and those of our own country, and under the supervision of the most celebrated architects. The grand Central Depot in New York has a façade seven hundred feet in length, composed of three pavilions connected by inclosed galleries and surmounted by the curved roofs known as the Louvre roof. The

whole building covers a space of three acres, and yet there is great regularity in its architecture. Moreover, the architect, in planning a building for which there was no conventional or traditional form, has shown his good taste in introducing no feature which might be considered as inharmonious or incongruous with the rest. The new Lowell and Providence depots in Boston are both excellent specimens of architecture, although the finely modeled Corinthian pilasters of the former are rather too ornate for such an edifice. The latter inclines to the Gothic.

In the erection of dwelling-houses it is doubtful if we have made much advance in the last half century, except in the matter of warming and ventilation. Of course we here except the rarely-found brick or stone mansions, which have been built regardless of expense, and which, though sometimes over-ornamented, seem almost perfect both in architecture and arrangement. But in dwellings of ordinary value, there seems but little real improvement. Fifty years ago the well-to-do farmer built a square house with large high rooms and plenty of windows to let in the sun and air. Now he too often, with an economy first of lumber, and second of fuel — both of which savings are added to the doctor's bill — erects a cottage with low, stifled sleeping-rooms tucked away under the roof, while the other apartments are smaller than those of the old house by three feet in every dimension.

The suburban does no better. To be sure he builds a square house, but he cuts it up into numerous apartments. Then he must have fine paper, marble mantels, and such other luxuries as belong to a well-built house. So he makes thin wooden walls and shivers all day, whenever the thermometer is less than fifteen above zero. Moreover instead of making the exterior beautiful by the use of noble materials, he covers copings, doors, and windows, with brackets, mouldings, lozenges, — wood sawed into every conceivable form, — and then foolishly dreams that his house is so much handsomer by every added block.

In our cities, where a lot twenty-five feet in width is a large allowance for each dwelling, there is so little opportunity for the display of taste or individuality, that it seems harsh to find fault with the long lines of houses reaching for miles, and showing no more variety than a row of bricks ; but can we not do better? Yes, and we shall, probably. A block of houses just completed on the lower part of Beacon Street in Boston, another on Fifth Avenue and Fifty-sixth Street, New York, are signs of better things. There, instead of each house being built just like its neighbor, the front of the whole line forms a complete façade ornamented with frieze, lisenés, etc., and imposing itself upon one's notice from its regular yet varied beauty, as compared with all around it. Had the dwellings on Fifth Avenue, New York, been erected in this manner, it would have been the noblest thoroughfare in the world.



But there is another class of dwellings still more to be censured, and that is the pestiferous chanel-houses that we call the "dwellings of the poor;" the narrow, close, stifled places — devoid of Heaven's three best and freest gifts, — light, air, and water — where at least half our city population find shelter. Let whoever is desirous for the improvement and well-being of his country, whoever wishes to help us to a higher degree of morality, or to increase true religion among us, make some effort to insure better homes for the poor, — the erection of tenement houses which shall give to each family, and all the adult members of it, the privacy they require, together with high walls, broad windows and stairways, and tight roofs.

In a country like our own, a land of freedom, intelligence, and growing wealth, it is the duty of every citizen — a duty not only to the generation in which he lives, but to those which shall come after him — to do what he can to adorn and beautify so goodly a heritage. In no better way can he do it than to interest himself in its architecture, and to use all his influence, that stability and truth shall be its leading characteristics, remembering that beauty of ornament is not the only beauty; neither is ornament beautiful, unless of noble material and added to that which in itself has merit. To awaken this interest, and impress these truths upon the minds of our youth, are the objects which it is hoped this little volume may help to accomplish.





## GLOSSARY.

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- Abutment.* The wall or pier built up to support one end of an arch.
- Alæ.* The name given to a suite of apartments in a Roman house set apart for the entertainment of strangers.
- Amphiprostylos.* A term applied to Greek temples having a portico both on the east and west side so as to form two façades
- Andronitis.* Sleeping apartments in a Roman dwelling occupied by the male portion of the family.
- Apodyterium.* An apartment of the Roman baths where the bathers laid aside their garments. Called also spoliatorum.
- Apse or Apsis.* The rounded or polygonal termination of the choir of a church.
- Apsidal.* Belonging to the apse or choir.
- Arcade.* A series of arches.
- Architrave.* The lower member of the entablature ; it rests directly upon the supporting columns.
- Archivolt.* The ornamented band of moulding placed around the voussoirs or arch-stones of an arch ; it terminates at the imposts.
- Astragal.* A small semicircular moulding sometimes ornamented with a carving of beads or leaf-forms.
- Atrium.* The principal public apartment of a Roman house ; it had a square opening in the roof, which was here supported by columns. The term was also applied to the cloistered fore-court of the early Christian Church.

- Baldachino.* A canopy of wood, metal, or stone, erected over an altar or other sacred place.
- Barbican.* A small outer castle or wall forming the first line of defense of the mediæval fortress.
- Bastion.* A mass of earth or masonry projecting from the angle of a fortified wall.
- Battlement.* A wall or parapet on the top of a building with openings for the discharge of missiles, or for looking outwards.
- Bead.* A small ovolo ornamented with a carving of beads.
- Bed-mouldings.* The mouldings of the cornice placed above the frieze and under the corona.
- Bevel.* The slope of the upper termination of a lisene, socle, or cornice when it is less than  $90^{\circ}$ , or that of a right angle.
- Bibliotheca.* A library; an apartment for books and manuscripts.
- Blind-story.* The line of mock-arches opening into the upper part of the nave; first introduced into Gothic architecture, taking the place of the gallery windows found in the Early Christian and Romanesque church edifice. Called also Triforium.
- Bracket.* A piece projecting from a wall to afford support.
- Breaking-joints.* Applied to the arrangement of bricks or stones in a wall when no two adjoining courses so meet as to form a continuous vertical line.
- Buckle.* A term applied to the bracket when it is carved into the form of a buckle or clasp.
- Buttress.* A mass of brick or masonry work built to resist a horizontal thrust. Especially applied in Gothic architecture to such masses as are built to resist the thrust of the nave.
- Calidarium.* The name given by the Romans to the warm bath.
- Canopy.* An ornamented covering placed above a seat of state or other place of honor.
- Cantharus.* A term applied to the fountain, which adorned the centre of the quadriporticus of the early church.

- Caryatid.* A statue used instead of a column.
- Cassette.* The ornamental squares or other geometrical figures into which a ceiling is divided.
- Cavedium.* In the Roman house a small court beyond the atrium.
- Cavetto.* A concave moulding whose section is a quarter of a circle.
- Cella.* That part of the temple within the walls, the body of the edifice. Restricted sometimes to the naos or first apartment beyond the vestibule.
- Centering.* The scaffolding which supports an arch while in process of erection.
- Chamfer.* The angle or slope of the sill of a window, or that of the side of an obelisk or tower.
- Cinque-foil.* An ornamental foliation having five points or cusps.
- Clere-story or Clear-story.* The upper part of the nave walls ; so named from the windows by which it is lighted.
- Console.* A bracket.
- Coping.* The top course of a wall, usually of stone, and wider than the wall itself in order to shed the rain.
- Cornice.* The upper division of the entablature.
- Corona.* The square plinth-like member of the cornice placed between the cyma above and the bed-mouldings below. It serves to shed the rain drop by drop.
- Crocket.* An ornament representing curved or bent foliage. Crockets are usually placed one after another along the sloping edge of a pinnacle or gable.
- Crown of the arch.* The middle or highest point.
- Cupola.* The interior of a dome ; or a dome of small dimensions.
- Cusp.* A projecting point in the foliation of Gothic tracery, as the points formed by a trefoil.
- Cyma.* A moulding composed of a concave and convex surface so as to have the form of a wave.
- Cyma Recta.* A cyma concave above and convex below.

- Cyma Reversa.* A cyma convex above and concave below ; sometimes called ogee.
- Dentils.* Small teeth-like blocks or projections placed in the bed mouldings of the Ionic, Corinthian, and Composite orders.
- Diastyle.* That arrangement of columns by which the intercolumniations measure three diameters.
- Dripstone.* A projecting moulding placed over doors and windows to carry off the rain ; it is also called hood-moulding and weather-moulding.
- Dome.* A semicircular or polygonal roofing.
- Echinus.* A quarter-circle moulding ornamented with the egg-and-anchor pattern.
- Elæothesium.* An apartment in the Roman baths where the bathers were anointed with oil and other unguents.
- Entablature.* That portion of a building which rests directly upon the columns.
- Entasis.* The swelling of the shaft of a column so that it cannot be said to be exactly the frustrum of a cone.
- Eustyle.* The arrangement of columns so that the intercolumniations measure two and a quarter diameters. Considered by the Greeks the most beautiful of all arrangements.
- Exedra.* The drawing-room in a Roman house.
- Extrados.* The upper line of an arch.
- Façade.* The front of an edifice.
- Fauces.* The narrow passages or corridors in a Roman dwelling.
- Fillet.* A small thread-like moulding.
- Finial.* In Gothic architecture the statue or foliage-ornament crowning a pinnacle.
- Flying-arch.* The arch extending from the nave-wall to the outer buttress ; called also flying buttress.
- Foliation.* Ornament based upon the forms of natural foliage.
- Frieze.* The second member of the entablature ; it rests upon the architrave.
- Frigidarium.* The cold bath in the Roman thermæ.



- Gable.* The triangular termination of a wall formed by the slope of the roof.
- Gargoyle.* A spout of fantastic form, that of a griffin or dragon, projecting from the roof gutter of Gothic or Romanesque edifices.
- Griffin or Griffon.* A fabulous animal usually represented with the body and legs of a lion united to the head and wings of an eagle.
- Haunches of an arch.* The parts between the spring and the crown.
- Hexastyle.* Having six columns in front.
- Hypæthral.* That internal arrangement of the Grecian temple by which there is an opening in the roof supported by a gallery.
- Impost.* The line from which an arch springs.
- Intrados.* The under side of an arch.
- King-post.* A small post uniting the middle of the tie-beam with the point of the gable so as to prevent the sagging of the tie-beam.
- Lararium.* An apartment in the Roman dwelling set apart for the Lares or household gods.
- Lady Chapel.* In old English churches the chapel occupying the circular termination of the choir or apsis. It was formerly dedicated to the Virgin Mary.
- Lintel.* The straight beam which forms the upper part of a door or window.
- Lisene.* A pilaster-like projection from a wall.
- Loggie.* The open galleries or corridors of a palatial building.
- Machicoulis.* A parapet in the mediæval castle projecting from the wall and supported by arches springing from massive consoles.
- Mask.* Name given to a corbel or bracket carved into the form of a mask, grotesque or otherwise.
- Metope.* In the frieze of the Doric order the slabs filling the spaces between the triglyphs.
- Minaret.* A slender turret surrounded with projecting balco-

nies and crowned with spires, forming part of a Mohammedan mosque.

*Modillion.* A bracket-like ornament, sometimes square and sometimes scroll-shaped, placed under the corona of the Corinthian and Composite orders.

*Mullion.* The vertical bar which divides the Gothic window into two parts.

*Mutules.* Small ornamented blocks placed under the corona of the Doric order and directly over the triglyphs.

*Naos.* The cella.

*Narthex.* In the Early Christian Church the lower part of the nave set aside for penitents.

*Natorium.* The swimming apartment in the Roman baths.

*Obelisk.* A quadrangular monolith diminishing in size from the base, and terminating in a flattened pyramid; peculiar to Egyptian architecture.

*Octostyle.* Applied to a Grecian temple having eight columns in front.

*Œci.* The sitting-rooms of a Roman house.

*Ogee.* A moulding; the cyma reversa.

*Opisthodom.* The inner apartment of a Grecian temple, used as a treasure-room.

*Oriel.* A recessed window.

*Ovolo.* A convex quarter moulding.

*Pedestal.* The substruction of a column, or a short column which supports a statue.

*Pediment.* The triangular portion inclosed between the entablature and the inclined cornices of the roof.

*Pendant.* In Gothic architecture a polygonal stone or timber depending from the roof.

*Pendentive.* The arch with its supporting piers from which rises a dome.

*Peripteral.* A term applied to such temples as, having eight columns on the front and sixteen on the side, have double rows on two sides.

*Peristyle.* A temple in which the colonnade is carried entirely around the edifice.

- Pier.* A solid wall built to afford a point of support.
- Pilaster.* A square column partially sunk in the wall so as to project only a fifth or a sixth of its width.
- Pinnacle.* The small tower or pillar crowning the buttresses and angles of a Gothic edifice.
- Plinth.* A square slab ; a tile.
- Portcullis.* A sort of gate formed of wooden bars terminating below in iron points. It was suspended above a gateway, and in case of surprise could be lowered in less time than the gates could be closed.
- Portico.* A covered way supported on one or both sides by columns.
- Posticum.* An apartment of the Grecian temple placed at the western extremity, beyond the naos.
- Prodicum.* In the Coliseum the seats immediately above the arena, occupied by the vestal virgins.
- Pronaos.* The vestibule of the Grecian temple.
- Pseudo-dipteral.* A Grecian temple having two rows of columns surrounding the cella but the inner incorporated within its walls.
- Pseudo-peripteral.* A peripteral temple in which the inner row of columns is omitted
- Pylon.* A term applied to Egyptian gateways, in which all the parts are of pyramidal form.
- Quadriporticus.* A name given to the cloistered court which formed the entrance to the Early Christian Church.
- Quatrefoil.* The arrangement of cusps so as to give a four-leaved foliation.
- Queen-post.* A post arising from the tie-beam midway between the king-post and the lower extremities of the gable ; they prevent the tie-beams from sagging.
- Quoin.* The external angle of a building. Applied also to the stones laid at the angles in long and short courses by way of ornament.
- Sally-port.* A small side entrance by which during a siege the besiegers made covert attacks upon the enemy.

- Sarcophagus.* A stone receptacle for the dead body.
- Scotia.* A quarter round concave moulding.
- Socle.* A plain square block or plinth from which rises a column, pilaster, or continuous wall.
- Soffit.* The under side of an arch or cornice ; a cassette.
- Spandrils.* The triangular spaces about the haunches of an arch.
- Spoliatorum.* See Apodyterium.
- Spring of an arch.* The point where the arch rises from the impost.
- Stylobate.* The uninterrupted base below a range of columns. In the best specimens of Grecian architecture it rises from the foundation by three steps.
- Sudatorium.* The name applied by the Romans to the vapor bath.
- Suggestum.* In the Coliseum the imperial seat.
- Tablinium.* An apartment of the Roman dwelling, in which were preserved the family archives and ancestral statues.
- Talon.* An ogee moulding.
- Tepidarium.* The warm bath of the Roman thermæ.
- Tetrastyle.* Having four columns in front.
- Torus.* A large semicircular moulding ; it helped to form the base of a column, or was placed below the level of the eye.
- Tower.* A lofty square, polygonal, or circular building ; it usually consists of several stories, and forms part of some larger edifice.
- Transept.* That part of a church or cathedral, which extends north and south from the square between the nave and choir, forming the short arms of the cross.
- Transom.* The horizontal cross bar of the Gothic window.
- Trefoil.* Consisting of three leaves.
- Triclinium.* The dining-room in a Roman dwelling, so called from the couches surrounding three sides.
- Triforium.* See Blind-story.
- Triglyphs.* A member of the frieze in the Doric order. It received its name from the two channels and two half channels or grooves which it exhibits.

*Tripod.* A stand supported by three feet.

*Turret.* A small tower generally attached to a large one.

*Tympanum.* See Pediment.

*Vault or Vaulting.* An arched roof so constructed that the stones composing it serve to keep one another in place.

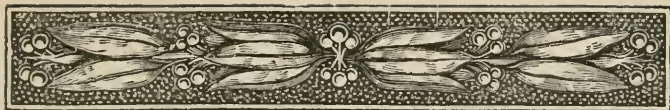
*Voussoirs.* The wedge-shaped stones which form an arch.

*Zoöphorous.* The frieze in classic architecture.









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