Roman Architecture

The city of Rome grew to power in the centre of Italy between two older cultures, the culture of the Etruscan cities in the centre and north, and the Greek settlements in Sicily and the south of Italy. It is not surprising, therefore, to find that Roman architecture was influenced in its development very strongly by Etruscan architecture and by Greek architecture.

Let us begin therefore by looking first at Etruscan temple architecture which provided the basic source for the Roman temple. No complete Etruscan temples have survived. Here* is a conjectural reconstruction based on evidence from surviving terra-cotta models.

Like the early Greek temples the early Etruscan temples were largely built of wood, and consisted, like the Greek temples, of a porch or poriccoed hall, the inner sanctuary or cella to house the image of the god or goddess, the portico, to protect the worshippers from the weather. Unlike Greek temples, however, which usually rested upon a low platform or stylobate of three or four steps, the Etruscan temple was raised on a high platform or podium. The porch as often quite deep, as deep, at times, as the cella itself. The cella was inside and often square, and at times was divided by walls into three different chapels or shrines. Of considerable significance however, is the fact that the Etruscans always roofed their buildings with wood, even when, like the Greeks, they substituted stone for the columns. The retention of wooden architraves meant that the Etruscans did not have to space their columns as closely as the Greeks did when they came to use stone architraves. This wider spacing of the columns and the use of a high podium were two features which Roman architecture owed to the Etruscan temples, also it is to be noted the eaves of the roof were very wide, much wider than those of Greek temples. Vitruvius, in describing an Etruscan temple said that the projection of the eaves were one quarter the total measurement from the wall line to roof top. In some ways, however, the Etruscan temples borrowed from the primitive Greek temples. For one thing they sheathed the pediment,* that is, the roof beams and architraves in casings of terracotta, and these terracotta casings were elaborately decorated with mouldings based on Greek models, eggs and dart ornaments, acanthus scrolls and so on. Here are the terra-cotta sheathings of a small shrine from Vulce.

There were, however, not far to the south of Rome flourishing Greek cities, notably Poestum on the gulf of Salerno (the Greek Poseidonia or city of Neptune, with its fine fifth century temple of Poseidon—the best preserved Greek temple which has come down to us). Like the Parthenon this is a peripteral temple. That is a colonnade runs round all four sides of the cella. The presence of such buildings influenced the Roman temple building.
Now the way in which the Romans sought to fuse architecture fused both Etruscan and Greek elements may be seen in the Maison Carée, 16 BC, the best preserved of all Roman temples at Nîmes in the south France.* The temple is placed upon a high podium which can be mounted only at the front in the Etruscan manner. However, the influence of the Greek peripteral temple may be seen in the continuation of the side columns of the porch by means of attached columns attached to the cella wall. Such a temple is known as pseudo-peripteral and is typical of Roman temples. There are also a number of other contrasts we may note. The Romans favoured the Corinthian rather than the Doric favoured by the Greeks. The proportions of the columns are taller, they are more widely spaced than Greek columns, and the height of the pediment is usually greater than in Greek work.

These features may be equally well seen in the Roman Ionic temple of Fortuna Virilis in Rome dating to about 40 BC. Again the high podium with steps only in front. The columns are tall and widely spaced, and attached columns run around the walls, in the pseudo-peripteral manner of the Masion Carée. The pediment is noticeably more lofty than in Greek examples.

It will be seen then that there is an important shift of emphasis between the Greek and the Roman rectangular temple. Whereas the Greek temple was usually planned to be approached and viewed on all sides, the Roman temple was planned to be approached and viewed from the front. Hence the emphasising these temples upon the architectural decoration of the facade which tends to be rich and heavy in front, but thin and slight on the sides and rear.

The Romans adopted and also adapted the Greek orders, Doric, Ionic and Corinthian, for their own buildings. And though a detailed knowledge of the orders in not required in this course, it is important to grasp the basic difference. If, in our next slide, we compare the Greek Doric with the Roman Doric it will be noted that the Roman shaft is mounted on base while the Greek springs directly from the stylobate, that the capital of the Roman Doric is more elaborate, and that the entablature is thinner and the cornice more projecting than in Greek Doric. Note too that whereas the Greeks usually introduced narrative or figured sculpture into their metopes, the Romans tended to content themselves with decorative motives such as ox-heads and floral garlands. It was however, in our next slide, the Corinthian order which the Romans favoured, with its richly carved capitals and cornices. The Romans combined the Ionic and Corinthian capital to produce the even more elaborate Composite capital used mainly upon triumphal arches, which were, as we shall see, the most highly sculptured and decorated of all their monuments.

I have described the rectangular type of Roman temple. But there was also a tradition of round temples and polygonal temples the plans of which appear to be based upon the primitive round huts of the early Etruscan and Italic people. These temples are
often called Temples of Vesta because Temples to Vesta, the Roman goddess of the hearth and the home were invariably round—their function being to house the symbolic city fire which was kept continuously alight. Here is a plan of the Round Temple in the Forum Romanum (AD 205) at Rome, 18 columns surrounding a circular cela. But the entrance is placed before the opening, again revealing the Roma tendency to assert the frontal aspect of their temples. Here in our next slide is the Temple of Vesta at Tivoli, 46 ft in diameter, stands on a high podium with the steps only in front of the door. The capitals are of the Composite Order.

The greatest of the Roman round temples was the Pantheon built by the Emperor Hadrian between AD 120-124. The great dome which roofs the buildings is a hemisphere 142 feet in height and width, and is lit by an oculus or eye open to the sky 27 feet in diameter. We may take the Pantheon as a splendid example of the most original of all the contributions which the Romans made to architecture: I mean the achievement of monumentality in the enclosure of space. There is nothing grand or monumental about the interiors of Greek temples. The post and lintel construction from which the Greeks never departed allowed little more than the creation of simple box-like enclosures. It was the Roman development of the arch, vault and dome which made it possible for them to develop an architecture which came to concern itself, in its most original forms with the construction of buildings for the sake of their interiors, and effects of grandeur, majesty and monumentality which could be achieved by the organization and disposition of space within these interiors.

In order to understand the nature of this distinctively Roman achievement it will be necessary to retrace our steps a little and examine the development of arch construction. Here the Romans inherited the constructive genius of the Etruscans. The arch had been used in a small way in Mesopotamia but the Etruscans developed it to monumental proportions. Here is an Etruscan arch of the 4th century at Volterra.* Some attempt has already been made to give it architectural definition by abutting the stone voussoirs—that is, the truncated wedge-shaped blocks forming the arch—from the wall surface—and placing an ipost block to define the position from which the arch springs from the piers on which it rests. From the arch, the vault was developed. The Etruscans also developed dome construction. Here is a corbelled or beehive dome construction of the 8th/7th cent. BC from Casal Maritimo, Volterra. Here the dome is formed by cantilevering each circle of masonry beyond the circle beneath, each circle when complete creating an interlocked system which prevented the collapse of the stones inwards. So, as soon as the principles of constructing the rings by means of wedge-shaped blocks, with three joints and faces radiating from the centre were understood, it was possible to construct the true dome. The intersection of two barrel vaults, in our next slide, resulted in the development of the groined vault, a development of immense importance, since it made it possible to transfer the weight of a vault and dome provided the Romans with an equipment far more elaborate than the Greeks in the enclosure of space. It made possible the development of a wide range
of novel building types. Such as aqueducts, circuses, thermae, and large amphitheatres. Here is the Circus Maximus. Built by Julius Caesar. 2000 x 620. Pliny the Younger tells us that it held 250,000 people. Above the Circus of Maxentius. And here in our next slide a reconstruction of the Vaths of Diocletian built towards the later years of the Empire in AD 302.

This development of new structural forms was accompanied by inventiveness in the use of materials. By mixing a volcanic earth known as Pozzolana (?) with lime and small stones, the Romans developed an extremely strong cement which was used in Roman buildings throughout their dominion. It was cast in wooden forms, poured into walls or curved surfaces held by brick or stone facings. Cement provided the Roman builders with a plastic material of the greatest versatility for the enclosure of space.

If we return now for a moment to our slide of the Pantheon we can see more clearly what has been achieved. Passing through the massive portico 110 feet wide and 60 feet deep one enters the great curved enclosure 142 feet in width. The circular wall itself contains eight large recesses: 4 semicircular and rectangular. These niches, or exedrae, were used to contain the niches of the gods of the Gens Julia* to whom the building was dedicated. The roof was hollowed out by deep coffers which served at once both to give visual emphasis to the roof structure and also lighten its weight. Taken as a whole, the Pantheon is a triumph in the organization of internal space: and there is a most exciting interplay of curved and rectilinear voids.

Now, in such arched and vaulted buildings the Romans applied the orders of architecture, which derived, of course, from a wooden post and lintel construction, to their arched and vaulted constructions. In these new buildings they become architectural decoration. The Colosseum,* built by Vespasian between 69 and 79 BC is one of the best known examples of this blending of column and arch. This decorative use of the Greek orders has often been condemned as an inappropriate use of the orders. The simple fact of the matter is, however, that the coliseum is a more beautiful building with the orders than it ever would have been without them. The attached columns are not mere ornaments. They act as buttresses to carry the thrusts of the groined vaults of the lateral corridors which run around the circumference of the building on three levels, providing quick entrances and exits to the building. The further entablatures help to define the various floors and provide some protection from the weather for the wall surfaces. Moreover, by thus associating the columns with the arch [...] the Romans produced an architectural motif of enormous importance in the subsequent history of European architecture, especially after its revival during the Renaissance.

In the Colosseum we see the Romans applying their versions of the Greek orders to the external decoration of their buildings. More important, however, was their use of the classical orders internally. Greek architects used the orders almost exclusively for
the exterior of their buildings, though some Hellenistic tombs do make some use of the orders internally. The Romans, however, made a regular practice of applying the orders to the interior of their buildings. Take, for example, this restoration of the Temple of Bacchus at Baalbek. Here we are again confronted with the association of arch and column. It is perhaps the finest example of the interior of a Roman temple which has survived. Along the side of the walls ran a series of Corinthian pilasters, to which Corinthian half-columns were engaged, the flat and round capitals being joined in a somewhat odd fashion. Between the engaged columns were two tiers of decoration, arched niches below and narrow columned and pedimented niches (like so many little temples) above.

These helped to frame or house the statues of gods and goddesses and are sometimes known as aedicules—that is, little houses, from the Latin word *aedes*, meaning a house, originally a house of the gods. You will find a most interesting consideration of the architectural significance of the aedicule in an essay by John Summerson entitled an ‘Interpretation of Gothic’ in his book *Heavenly mansions*. It will be noted here that the central shrine is itself a little temple and the statues are contained in even smaller temples. This use of the aedicules to house saints and prophets is of course one of the most common features of medieval architecture as for example in our next slide of the south portal of Chartres. I want you to note too the way in which the entablature is advanced or broken over the pilasters and half columns providing an echo of great richness and elaboration. This was a device much used by baroque architects, and in this connection it is to e noted that the ruins at Baalbek were already known in the 16th century and appear to have had some influence on the work of Francesco Borromini, perhaps the greatest of the baroque architects. [Roman temple at Baalbek; Borromini. St Ives della Supienza ?? 1642-50]*

Now though it may fairly be said that the most original contribution the Romans made to architecture was the creation of monumental and richly elaborate interiors, it must not be supposed that this was their central concern. The Romans were equally interested in the external effects created by their buildings, and indeed created a ceremonial architecture which was intended to create nothing but elaborate external visual effects. In order to appreciate this we must remember that the Romans devoted a great deal of thought to the planning of cities I cannot deal here with Roman town planning, beyond saying that the geometric planning of cities, based on a rectangular grid in which streets cross at right angles, arose first in Asia Minor and the Near East. There too emerged the practice of reserving rectangular open spaces for market places and public gatherings, whence emerged the forum and forums so much a feature of all Roman cities. Here in our next slide is the Forum at Pompeii. The main buildings of the town are arranged around the square. But note that the temple of Jupiter is carefully placed on the long axial line of the Forum gaining the advantage of the long vista. Such axial planning naturally tended to stress the visual importance of the facade, an emphasis present already in Etruscan temples. This is planning for external
visual effect. Again the Romans sought to give their buildings scale by surrounding them with a colonnaded courtyard. At Baalbek, for example,* there is a magnificent temple group erected in the second century AD which was entered through a great porticoed entrance of Corinthian columns, possibly flanked by towers. One passed through an hexagonal courtyard into a larger courtyard into a larger courtyard 380 ft square and proceeded towards the great temple. This is axial planning on the grand style to be revived again by the baroque architects of the seventeenth century.

These large planning schemes were embellished with ceremonial architecture of several kinds, notably the city gateway, the triumphal arch and pillars of victory. The walling of cities gave rise naturally enough to city gateways. And both walls and gateways were defended by means of towers. Here is the Porta Nigra at Trier, a Roman gateway in the north dating to the 4th century AD. From being merely a piece of military architecture, the tower achieved, in association with the city gate a ceremonial significance. At the gate of the city the victorious general was received in triumph by the citizens. Hence arose those ceremonial gates, the triumphal arches erected to commemorate the specific achievements of individual emperors, such as the Arch of Titus (AD 81), the arch of Septimus Severus (AD 204), and the Arch of Constantine of AD 312 commemorating his victory over Maxenius. All such arches were richly elaborated with reliefs commemorating the victorious campaigns of the Emperor. The Arch of Titus, for example, commemorates the capture of Jerusalem and the carrying of the 7-branched candelabra from the temple to Rome. In a similar fashion, pillars of victory were raised to commemorate the triumphs of victorious generals, as in Trajan’s columns with its reliefs illustrative of his Dacian campaign.

Now, such edifices as pillars of victory, arches of triumph, ornamental gateways, axially planned temples and so forth created external effects of civic grandeur comparable to the ornamental internal effects created by such buildings as the Pantheon, the Baths of Caracalla and the basilicas, which I shall mention in a moment. We are thus left with the odd act that despite the fact that from a constructive and engineering point of view the Romans were undoubtedly the greatest of the ancients and have never been surpassed. For in the use of new materials, the development of new types of buildings, and the solution of difficult constructional problems they are unsurpassed. Nevertheless they did not hesitate to decorate their building with the orders and to create rich and elaborate effects. They were aware that by decorating and embellishing a building they could do much to alter its visual and psychological effects upon the beholder.

One further building type deserves special mention. This was the basilica. The basilica was a roofed hall, usually rectangular, with an apse at one end, and was often possessed of a row of inner columns. It tended to serve much the same purpose as a forum. To some extent it was an enclosed forum used for general purposes such as social and commercial intercourse and the hearing of law-suits. When used as a hall of justice a dais was erected at one end for the tribunal and the presiding magistrate. By
the first century AD basilicas appear to have been universal in Roman towns of any importance.

This is the plan of the Basilica at Pompeii*. It was built about 100BC and measured 180 by 79 feet. The main entrance was from the narrow end to the east, through five doors divided by colonnades and piers, bit there were also smaller doors in the centre of the longer sides. An internal colonnade divided a central portion from a surrounding corridor. It is not certain whether the central area was roofed or open to the sky. At the west end was a tribunal in two stories, the lower story being partly under ground.

The development of this plan may be seen in our next slide of the Basilica at Otricoli. Square on plan the building now features a large central area roofed by wooden trusses, with six columns dividing the central area or nave and two side aisles. The wings were flanked by two corridors with barrel vaulted roofs, on the east end was an apse in which a tribunal for the magistrate was erected. Our next slide illustrates an excavation of the basilica of Leptis Magna in Northern Africa which features a double line of Corinthian columns and a wide apse or exedra at the east end.

The Basilica finally took on the great monumentality of the *thermae*, the great basilica begun by Maxentus and completed by Constantine reveals the culmination of the type in classical times. If we examine our next slide it is notable that the method of construction has moved away from the column and beam construction of the early examples to arch and barrel vault constructions. The plan however is the same. Giant piers carry the huge vault of the nave, the lateral thrust of which is projected into the piers by aisle arches and solid walls at right angles to the nave These walls are pierced by a sequence of arches along either aisle. The barrel vault itself was pierced by a sequence of cross vaults which ended in lunettes (or arched windows). These clear story windows provided lighting to the central nave. The aisles were let by rows of arched openings, 6 to each bay.

The basilica, it is to be noted, was not associated with the pagan religion of Rome. It was a profane building. It was Constantine, the first Christian emperor of Rome who completed the Basilica of Maxentius, and it was the basilica which was accepted by the early Christian as the most appropriate form for the erection of churches. The basic structural engineering to the Romanesque Church is already implicit in the basilica of Maxentius.
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