DORIC AND IONIC ORDERS IN GREEK ARCHITECTURE

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The beginnings of the Greek Doric and Ionic orders lies rooted in temple architecture. Early designs were simple and practical, where a shrine was constructed to house the image of a deity.

Under a low-pitched gable roof, the interior was a windowless rectangular room called the “cella,” which sheltered the cult statue of the deity. The “portal,” or doorway to the cella was on one of the short ends, which extended outward in a “portico,” or porch, faced with columns to form the “façade,” or front. Sometimes columns were erected around the building in a series known as a “colonnade.”

The construction was simple: a platform of three steps, the top one known as the “stylobate,” from which rose the rose the upright “posts” that supported the “lintels,” or horizontal beams.

When these columns and lintels were made of marble, the weight and size of the superstructure could be increased and the “intercolumniation,” or span between the supporting posts, widened.

The history of Greek temple architecture was largely the refining of this “post-and-lintel” method of construction, which permitted the architects a steadily increasing freedom of expression as time went on.

And it is in this method that we find the beginnings of the Doric and the Ionic orders, as well as their refinements. Let us now examine both these styles, and their evolution.

The Doric order is the oldest classical style of temple architecture, characterized by simple, sturdy columns that rise without a base to an unornamented, cushion like capital. The “capital” or crown of the Doric column is in three parts: the necking, the echinus, and the abacus.

The purpose of any capital is to smooth the passage between the vertical shaft of the column and the horizontal portion of the building above. The “necking” is the first break in the upward lines of the shafts, though the fluting continues up to the outward flare of the round, cushion like echinus.

This, in turn, leads to the abacus, a block of stone that squares the circle, so to speak, and makes the progression between the round lower and rectangular upper members.

Above the columns and below the roof is the “entablature.” Directly above the abacus is the architrave, a series of plain rectangular blocks. These stretch from the center of one column to that of its neighbor to constitute the lintels of the construction. They also support the upper parts of the entablature, namely, frieze, cornices, and pediment. At this point, sculpture is called into play for decorative purposes, beginning with a carved band known as a “frieze.”

In the Doric order, the frieze is made up of alternating triglyphs and metopes. The rectangular triglyphs are so named because of their grooves (“glyphs”), two in the center and a half groove on either side.

They are the weight-bearing sections, and as a rule, one is placed above each column and another in the space between. The sameness of the triglyphs contrasts with the differently carved relief panels of the metopes. This alternation creates a visual rhythm, which illustrates the classical principle of harmonizing the opposites of unity and variety.

The frieze is protected by the overhanging “cornice” (and enhanced by its shadow), and the “raking cornice” rises gable like from the side angles to the apex in the center. The triangular space enclosed by the cornices is called the “pediment,” which is recessed or set back to create a shelf on which freestanding sculpture can be placed to climax the decorative scheme.

As well, a “peristyle” or colonnade, of freestanding columns completely surrounded the temple (as in the Parthenon). The columns were placed far enough from the cella walls to permit an “ambulatory,” or passageway. The number of columns used on the porch of a Greek temple was determined by the size of the building rather than by any rigid rule. The usual number was six, although some temples had as few as two, others as many as ten or twelve.

The outer surface of the Doric column has twenty grooves, or “flutes,” that form concave vertical channels from the bottom to the top of the shaft. Fluting serves several purposes, the first being to correct an optical illusion.

When seen in bright sunlight, a series of ungrooved round columns appears flattened. In addition to maintaining the round appearance, the fluting makes a constant play of light and shadow and makes a number of graceful curves to please the eye.

Also, the increased number of vertical lines quickens the visual rhythm, and the eye is led upward toward the sculpture of the entablature.

The Doric order can be seen in the Parthenon, which was built entirely of Pentelic marble. When freshly quarried, this fine-grained stone was cream colored, but as it has weathered through the centuries, its minute veins of iron have oxidized, so that today the color varies from light beige to darker golden tones, depending on the light.

For sheer technical skill of its Doric construction, the Parthenon is astonishing. No mortar was used anywhere; the stones were cut so exactly that when fitted together; they form a single smooth surface.

The columns, which appear to be monoliths of marble, are in fact constructed of sections called “drums,” so tightly fitted by square plugs in the center that the joinings are scarcely visible. The harmonious proportions of the Parthenon have long been attributed to some subtle system of mathematical ratios.

But despite close study and analysis, no geometrical system has so far been found that fits all the evidence. However, there is a recurrence in several instances of the proportion 9:4.

This proportion has been noticed in the length of the building (228 feet) relative to its width (104 feet), when measured on the stylobate, or top step.

The next evolved stage of the Greek column, the Ionic, developed in Asia Minor and is distinguished by slender, fluted columns and capitals decorated with volutes or scrolls. Thus, the Ionic order is more slender and has its greatest diameter at the bottom, in marked contrast with the Doric style.

The Ionic shaft rests on a molded base instead of directly on the stylobate, and they have twenty instead of twenty-four flutings. Most striking, however, is the Ionic capital, with its "volutes," or scroll-like ornaments.

The fine columns rested on molded bases carved with a delicate design. The necking had a band decorated with a pattern, and above it was a smaller band with another decorative motif, followed by the volutes and then a thin abacus carved with various designs.

The columns supported an architrave divided horizontally into three bands, each receding slightly inward. The architrave thus consists of a continuous carved frieze rather than the alternating Doric triglyphs and metopes. Above rose a shallow pediment without sculpture. The Ionic order is perfectly demonstrated by the Erechtheum.

The plan of the Erechtheum is as complex as the Parthenon is simple. The rectangular interior (about 31½ feet wide and 61¼ feet long) had for rooms for the various shrines on two different levels.

One was 10¾ feet higher than the other. Projecting outward from three of the sides were porticoes, each of different size and design. The east porch has a row of six Ionic columns almost 22 feet high.

The north porch has a similar number but with four in front and two on the sides; while the smaller porch on the south is famous for its six "caryatids," the sculptured maidens who replace the usual columns.

Thus, at their Acropolis, the Athenians brought to the highest point of development two distinct Greek building traditions: the Doric (with the Parthenon) and the Ionic (with the Erechtheum as well as the Temple of Athena Nike).

By displaying the two architectural orders, the Athenians made a symbolic reference to their city as the place where the Dorian people (of the western Greek mainland), and the Ionian people (of the east coast of Asia Minor across the Aegean Sea) had for centuries lived together in peace and harmony.

The photo shows, "The Temple of Athena Nike. View from the North-East," by Werner Carl-Friedrich, painted in 1877.