THE ORDERS OF ARCHITECTURE

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The roots of Western culture lie in the Middle East, and in Architecture that of Greece and Rome has profoundly influenced Western building and architectural education down through the ages. To quote the Oxford Classical dictionary, "The outstanding contribution of Greek architecture to posterity, was its perfecting of the orders . . . These are of paramount importance. Their survival value has been unique in the history of Architectural development."

Notwithstanding wide variation in the Ancient originals and the reactions against the standardization, first of Vitruvius in ancient Rome, and later In the Renaissance, of Vignola and Palladio in Italy, and Sir William Chambers in England, the orders have remained distinctive throughout.

It is generally accepted that there are five orders-viz., the Tuscan, Doric, Ionic, Corinthian and Composite. In reality, it may be said that there are only three, the Doric, Ionic and Corinthian, since the Tuscan is very similar to the Roman Doric; indeed, this was derived from the Tuscan, and the Composite, as its name implies, is an admixture of the Corinthian and the Ionic as regards the capital of the column and the proportions of the order. As could be expected, Virtuvius the Roman first regularized and standardized the orders of the Roman style, and it is this style which is usually portrayed in Masonic lodges. There were, however, three distinct orders in the Greek period which differ considerably in detail from the Roman, in several important particulars. It will be sufficient if we limit our research to the three orders of each style.

Before proceeding to a detailed study of each order, it is very desirable to survey briefly the origins and the influences that produced them, for the orders reflect mostly clearly the national character of the peoples that developed them. It will help also, if we examine in general terms what is meant by "an order of Architecture."

There were two main streams of development, the Dorian and the Ionian. The Dorians, influenced by the Minoan civilization centered at Mycenae and Tiryns; remained firmly planted in the West, until the second century B.C., with centers in Greece proper, South Italy and Sicily.

A parallel Ionian development prevailed from about 600 A.C. in West and South-west coast lands, in Ionia, Lycia, Caria, and adjoining islands.

Dorian Sparta and Ionian Athens were the principal centers of Greek national life. Both streams preserved separate Architectural character throughout, even when both were built on the same site, as at Athens during the fourth and fifth centuries B.C.

The Spartans, the best known Dorian tribe, were an austere and severe people-harsh, stoical, self-disciplined, efficient, strong. There is nothing in a Doric temple which did not have a simple, obvious purpose and we shall see those characteristics, particularly strength, depicted most clearly.

Ionic and Corinthian refinements reflected a time which had leisure to think and add to life, and in them we see grace and beauty. If you like, the Doric was typical of the pioneer and the Ionic, his cultured successor.

The contrasts can be seen most clearly on the Acropolis at Athens where the solidity of the Parthenon stands alongside the delicate grace and beauty of the Ionic Erectheion.

Corinth was the wealthiest city in Greece, and her column expresses that wealth, even to the point of extravagance.

It is worth recalling that the Ionians and the Dorians were different in outlook, and their contribution to music, poetry, and to history and philosophy generally, were the reflections of that same variety as marks their Architecture. Architecture is a reflection of the spirit of the people, and it is no accident that the Doric was the favorite of the austere Spartans and the vigorous, adventurous colonists who built in South Italy and Sicily; while the Corinthians, symbolizing strength, wisdom and beauty. Of the three main divisions just mentioned:

(i) The base or stylobate is divided into three steps-this is universal in the Greek orders, but is sometimes superseded in the Roman by the Podium, as being more in scale with the larger dimensions of the Roman buildings,

(ii) The column has three main parts.

(a) The base-which with the exception of the Greek, Doric, has three divisions-one Scotia mould between the two tori moulds, these being separated by plain fillets

(b) The shaft-with its three parts-the apophyge leading to the flutings which adorn the shaft, which in turning terminated by the trachelion or necking, immediately under the capital.

(c) The capital itself has as its lower member, the hypotrachelion or necking moulds, the body of the capital which varies with each order, the whole being surrounded by an abacus which again is designed for the individual order.

(iii) The entablature, which comprises all above the column capital, is divided into three main parts, which vary in the different orders, consisting of:

(a) the Architrave

(b) the Frieze

(c) the Cornice.

(a) The Architrave in the Greek Doric is a plain band - a single stone spanning the column to column, left plain purposely to express its load bearing function. In the Roman Doric, and in the other orders, it was often in three divisions, the upper planes slightly projected over the lower. This is thought by some authorities to indicate a timber origin.

(b) The Frieze n the Doric is formed of triglyphys with three upright channels which alternate with metopes or square spaces, of ten ornamented with groups of fine sculpture as designed for the Parthenon n the Acropolis at Athens. A broad band called the Tenia, divides the Frieze from the Architrave, and under this, directly in line with each triglyph, occur blocks called "regula" into which penetrate 6 guttae, or pegs. In the Ionic and Corinthian orders, the Frieze, if not left as a plain band, was decorated with running ornaments or continuous sculpture n low relief.

(c) The Cornice, or upper or crowning part of the order in the Doric consists of the Cymatium with bird's beak molding, beneath which is the corona or vertical face. The soffit, or underside of the Cornice in the Doric, has an inclination approximating the slope of the roof, and has flat blocks or mutules, which suggest he ends of sloping rafters. These are ornamented with guttae, which some authorities consider were derived form the wooden pegs originally driven in to fasten the mutules

to the wooden roof members. In the case of Ionic and Corinthian, the Cornice was composed of an ingenious combination of moldings -the Greeks commonly incorporated in a row of dentils which are thought to represent the ends of ceiling joists, but they used no mutules in this order. The Romans, on the other hand, introduced a row of modillions or carved brackets, as well as the dentil course, to enable a greater projection of the cornice. (In the temple of Castor and Pollux, the Cornice projects 5 ft. 3in.). In all cases, the Cornice is surmounted by the corona and cyma recta moldings. Although the Romans used the orders in conjunction with the arch as seen in their amphitheatres, and the Renaissance architects taught "the column to carry an Arch", the styles that developed the orders, were essentially columnar and trabiated (trabs-a beam). This gave the Architecture a simple, straightforward character, in which the constructive system is self evident. Because stone is comparatively weak in bending, lintels were limited in length, this factor dictating the spacing of the columns. Since the early builders were cautious regarding the distance that could be safely spanned, we find the early buildings of the Greek Doric order with large diameter columns, close intercolumniation, wide echineus and abacus, and deep architrave. Indeed, to quote Spiers, "The intercolumniation of the Temple of Apollo at Syracuse, is less than one diameter, and owing to the wide abacus, the distance between adjoining ones is only a few inches." The proportion of column height t! o the entablature is 2-1 in this early example. This heavy proportions gave an appearance of great strength. As experience was gained, it was found possible to improve the appearance by altering the proportions between height and span, and by introducing refinements which have already been note in this Research Lodge, in regard to the Parthenon, viz., the rise in the Stylobate, the entasis to the columns, and the pitch inwards of the axis of all the columns (their projection would meet two miles up in the air). Notwithstanding these refinements, the Greek Doric still remains the sturdiest of the orders. The proportions of the orders of the Parthenon are: the stylobate, three steps, each 1 ft 1.8 in. high and 2 ft. 4 in. wide. The Column Base: 2ft, 4in. diameter. Height of column 34ft. 3in., or 1 to 5.7. The Entablature is 11ft., i.e. just under one third the column height. As you no doubt know, the façade of the portico of the Auckland Museum, up to the Cornice level, very nearly approximates to the full size and detail of the order of the Parthenon at Athens. You will recall that the flutings of the columns rest directly on the steps, with no attic base of soften the junction between the vertical and the horizontal; the echinus of the capital, named after the sea egg, is a turned cone shape, whose curvature in cross section approaches a straight line approximating a hyperbolic curve - the abacus is a plain square block - the whole design of the capital being such as to assist the architrave stone safely to bridge the span between the columns. The stone of our museum is Portland limestone. This sample (produced) is Pentelic marble form the Acropolis at Athens, and is the material of which the Parthenon is built. Thus, whether we believe as some do, that the Doric originated from wood prototypes or that it was an original stone treatment, we do see most clearly throughout its history, as depicted in existing examples, that gradual development and refinement of detail, culminating in the Parthenon, which must surely be an encouragement to all who are concerned by industry and perseverance to convert "the rough to the perfect ashlar." The Ionic order developed independently of the Doric, and it was thought until recently, that they were coeval one with the other. Recent discoveries however, have

revealed Doric structures dating about 1200 B.C., whereas the earliest Ionic examples known occur in the sixth century B.C. The essentially characteristic feature of the Ionic order, is the Volute of the capital. Much has been written about the origins of this feature. The spiral is, of course, quite common and primitive art, without doubt derived from nature forms. We have for example in this country the young growth of our native tree ferns. The Greeks had the nautilus shell, rams' horns, the tendrils on vines, the honeysuckle, and the Egyptian lotus. The purpose of the Ionic capital in the early work at least, is to shorten the clear span of the lintel over. Thus is the first crude examples, we find a rectangular block on top of the column (as at Delos) with the spirals carved on the face, and the ends l! eft square. Later the ends were molded, and as time progressed, and experience proved the strength of the stone, the capital abacus became square in plan, and the load on the lintel came directly over the line of the column. Because the temple cells (the enclosed part which housed the statue of the god) was surrounded by a colonnade on all sides, a problem arose at the corners of the building, when it was desired that the volutes of the corner column would show on two adjacent sides of the building. This led to a special capital designed for the corner, and finally to a type of Ionic capital being evolved, symmetrical on plan, with the volutes on all four faces, as adapted in form in the Corinthian order. The proportions of the Ionic order are much more slender than those o the Doric, those of the culminating period being column height 81/2-91/2 times the lower diameter (as against 1-5.7) and the entablature approx. 1/5th of the whole order (as against 1.4th). This is! a very beautiful order, and it appears somewhat obscure why the symbol om to be restrained and quietly graceful, without ostentation, but there is probably a deeper significance here. The founders of speculative masonry were no doubt learned gentlemen versed in Egyptology, and therefore familiar with the symbolic significance of the solar disc with entwining cobra. What so eternal as the sun and what so wise as the serpent? Thus the circle in Egyptian lore over several millenniums became the symbol of eternal wisdom, and it is reasonable to deduce that the order in which the circular form in the volute is the dominating part should symbolize wisdom. There is little doubt that the development of the Corinthian order came directly from the Ionic. The first complete example of the order is found in the choragic monument of Lysicrates, 335 B.C., 100 years after the perfected Ionic order was used in the design of the Erectheion on the Acropolis at Athens. It is thought that the name Corinthian derives either from the inventor of the capital, one Callimachus, who was a worker in bronze in Corinth, or from the fact that the capitals were made in Corinthian bronze, it being generally acknowledged that early examples had a metallic origin. Vitrivius records that Callimachus obtained the idea for this capital by observing a basket over the grave of a Corinthian maiden, covered by a tile for protection and surrounded by Acanthus leaves, which formed volutes at the angles. The natural acanthus leaves (produced and displayed) may assist in appreciating the origin of the capital. The order was very little used by the Greeks. The proportions are slightly more slender than those of the Ionic, the columns being 10 times the diameter in height. The distinctive feature, as in the Ionic, is the capital which however is much deeper than the Ionic, being 1 & 1/6th diameter high. The abacus is a concave-sided square on plan, decorated with double volutes under each corner of the abacus, the lower part being surrounded by two tiers of acanthus leaves. The arrangement of

these in the Greek examples is much more open than that of the later Roman versions. The general effect is one of richness and great beauty, and hence was readily adopted by the Romans, and used most extensively by them in all their major building works. A large section of this paper has been used in describing the Greek orders of Architecture, for although the Roman Eagles conquered the Greek people, the Art of Greece through Roman channels overran the world. As Horace says: "Captive Greece led captive her fierce conqueror." The Romans made little use of the Doric order. They added an Attic base to the column, varied the capital by changing the echinus to a regular Ovolo mould, and the abacus to a molded form. The columns were les sturdy and sometimes unfluted and a dentil course was added to the entablature, thus reflecting national character. The Roman Ionic was less refined than that of the Greeks and late examples as found at Pompeii show angle volutes on all four faces. The Corinthian order, as already stated, was the favorite of the Romans, as the ornate capital and enriched moldings more adequate expressed the might and splendor of Rome. The most important additions to the order were:
(1) The Podium base to individual columns and to whole buildings, to gain height without altering the proportions of the Order, and
(2) The introduction of consoles or modillions into the cornice, as previously mentioned. The Romans used the Orders in many ways, and adapted them to suit their much ore complex building requirements. The chief value to us today, in studying the Orders, lies in the lessons we can learn in the perception of form and proportion, and from a delight in beautiful detail, to catch something of that selfless spirit which was content with nothing less than perfection; as is usual n these things, the greatest benefit accrues to him who has eyes to see, and knowledge to understand: there is considerable truth in the saying - "Beauty lies in the eye of the beholder." In conclusion-to me, the Orders as use dint eh Ancient peristyle temples, have peculiar significance:'

The Stylobate

The underlying basic principles of the craft-brotherly love, relief and truth.

The Column

The individual-a complete unit in himself with a specific task to do; one of many, it is true, but an essential unit in the Lodge. The importance of the individual is in no wise lessened by reason of his differing characteristics in form from his fellows.

The Entablature

The ties of the Lodge, that bind all its members together into one brotherhood, having unity of purpose in Faith, Hope and Charity.