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#### **FIVE NOBLE ORDERS OF ARCHITECTURE**

by

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The Ancient, Canadian and Emulation Masonic Rituals practiced in British Columbia all refer to the Ionic, Doric, Corinthian, Tuscan and Composite styles of architecture, which together are known as the classic or five noble orders. These forms are differentiated from one another by the presence or absence of columnar fluting and of decorations on the capital or top of the column. However an analysis of these five forms soon demonstrates that there are in reality only two basic orders, - the Ionic and the Doric, the remainder being modifications of one or the other of them. It should not be presumed that these orders encompass all column architecture but allude only to the styles most prevalent during the time of the Greek and Roman Empires.

While the purpose of this paper is to discuss the above orders it is believed of interest to give a brief history of pillar development up to the conception of them. As soon as primitive man began constructing dwellings for himself he used wooden posts for support purposes; and if our knowledge of current

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primitive peoples is at all indicative, these poles would have had some form of decoration on them. Archaeological research indicates that it was not until the early Bronze Age that other than wooden pillars were used for support purposes. Excavations at Erech (Uruk.) near the Euphrates delta have uncovered the basal portion of eight 8-foot diameter mud-brick columns faced with white, black and red terra-cotta tiles erected about 3200 B.C. Similar columns, dated about 2700 B.C., have been exposed in northeast Syria.

The Bronze Age, variously estimated as commencing between 3800 B.C. and 3000 B.C., appears to have originated somewhere in Turkey, Iran or Arabia. Bronze, an alloy of tin and copper, having a hardness much greater than either of its components made it possible to shape softer rock like marble. The earliest recorded date of erection of stone pillars I have been able to find was in 3100 B.C. at Dimini on the northeast Aegean coast. I cannot vouch that these were of limestone but that mineral formation is common in that area. At Dimini the remains of a megaron or meeting hall indicate it had two internal and two external pillars. Unfortunately I do not have a good source of predynastic history of Egypt, but well developed stone pillars flank the tomb of King Zosser. Again I am not able to state the material used to construct them but limestone bricks and carvings are common to that period dating about 2780 B.C.

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The first trace of an emerging Greek identity appears about 1800 B.C. when migrating tribes of Indo-European invaders arrived in the eastern Balkans. One branch of these advancing peoples, the Hellenes, swung south into what we now know as Greece. Locally known as Achaeans and Ionians they migrated into Attica and Euboea, most of the Aegean Islands and to the upper half of the west coast of Asia Minor. At the zenith of their development they are known to us as the Mycenaean or Heroic Age of Greece. Between 1250 and 1000 B.C. another Indo-European migration entered Greece by the same route as the Hellenes. These people, the Dorians settled in the southern half of the Peloponesus, the southern Aegean Islands, Crete, Rhodes, Cyprus, and the lower portion of Asia Minor. In Greece, during the succeeding 750 years these Ionic and Doric peoples

developed a civilization unexcelled by any preceding it and one which still exercises a tremendous influence on our own. It was during this period the Doric, Ionic and Corinthian pillars were developed.

While Greek architectural advances were outstanding, the scope of their abilities was limited to pillar and lintel structures as they did not use the arch or truss. Encyclopedia Britannica advises, "Arches were known in Egypt and Greece but were considered unsuitable for monumental architecture". The Babylonians were also aware of arch construction but used it infrequently, although a notable exception was the Ishtar Gate built during Nebuchadnezzar's reign (605 - 562 B.C.). The Romans appear to have been first to use truss construction, as evidenced in a scene on Hadrian's Column in Rome, depicting a bridge over the Danube River.

While no single individual has been credited with having created or developed the Doric, Ionic or Corinthian Orders, the zenith of their design culminated undoubtedly during that period of history following the defeat by the Greeks of Xerxes' Persian army and navy in battles in 480 and 479 B.C. At this time the political and intellectual independence of the Greeks (Athenians) was made secure, and the unfolding of the Greek civilization was made possible. After these battles and during following interval of 20 years of peace the Athenians became the foremost military and trading power in the Aegean area. Their economy thrived on the subsequent trading boom and the national treasury was augmented by silver from the mines at Laurium and from the contributions made to Athens by her allies in the Delian (defense) League. The influx of all this wealth enabled the government under Pericles' direction to carry out the construction of the buildings on the Acropolis. This wealth together with a fortunate abundance of very capable experts in the various Art disciplines were mainly responsible for the Golden Age of Greek Art.

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The Doric Order is the oldest and simplest in design and is perhaps, the most massive and severe in appearance. Different information sources state the height as being  $5\frac{1}{2}$ , 7 and 8 times the widest diameter of the column. Undoubtedly this variation can be attributed to the particular design need. Basically the Doric column was designed to be slimmer than its Egyptian prototype which was four diameters in height. The base of the column usually rests directly on the floor or stylobate. Around the shaft there are 16 to 20 vertical shallow grooves or flutes which meet in sharp edges. These flutes are considered to be stylized representations of palm tree trunks or the papyrus reed bundles appearing on the Egyptian pillars. The capital has two parts of equal thickness, the upper square block or plinth is the abacus and rests on a circular tablet, the echinus. The echinus is only very closely separated from the astragal, the narrow semicircular molding at the top of the main column. From the source of information available it was not possible to establish proportional dimensions for Doric capitals, but by scaling photographs and sketches, the thickness of each member appears to be  $\frac{1}{4}$ -pillar diameter at their point of contact with it. The diameter of the echinus did not exceed the base diameter. The side length of the plinth never exceeded the diameter of the echinus but occasionally equaled the base diameter. The structure above the capital is the entablature, consisting of three parts;- the architrave, which abuts the abacus; the middle section or frieze; and finally the highest portion or cornice which overhangs the frieze. The end gables and roof are above the cornice. The frieze was often decorated with paneled sculptures and usually, both the capitals and paneled sculptures were painted, as also was the custom to paint statuary. The best known example of the Doric Order is the Parthenon in the Acropolis at Athens.

The Ionic column, developed by the Asiatic Greeks, was more slender and graceful than the Doric. It is said to have been developed from its prototypes in Persia, Syria and Asia Minor, although the capital style bears some resemblance to Syrian and Egyptian examples. The column height varies from six to ten diameter-lengths. It stands on an ornately molded circular base having a diameter about one third larger than that of the column. This circular base lies on top a square plinth having side dimensions only slightly larger than the base plate diameter. The base plate is slightly thicker than the plinth but together they approximate a half column diameter. The column has 24 shallow flutes, each of which is separated by a narrow strip. The flutes are described as stylized representations of the bundles of river reeds used prominently in the construction of the dwellings of the Reed peoples living in the marshes of the Tigris-Euphrates delta. The Marsh Arabs who dwell there still use the identical construction methods as were used over 10,000 years ago.

The capital height is reduced about 1/3 a column diameter but the echinus is less than half that amount and is typically, decorated with small sculptured buds or leaves. The abacus is extensively distorted by rolling one pair of opposite sides downward and inward in a scroll pattern to form a volute. Variations developed in the attitude of the volute from tangential to diametric orientation. The Erechtheum on the Acropolis at Athens is cited as being a typical example of the Ionic Order.

The Corinthian column being also a Greek creation is a variation of the Ionic Order. It has a more extensively molded and grooved base end with the capital extending down the column from the base of the abacus one maximum diameter distance. The volutes now become firmly oriented on diametric axes and, on the extended capital beneath them are two to three offset rows of vertically positioned acanthus leaves which curl outward and downward to complement the curling volutes. Legend has it that a sculptor was passing through a cemetery where a column had been placed over a child's grave, and on the column was a basket of toys. An acanthus vine had wound around the column and appeared to be supporting the basket with a leaf cluster. This sight inspired the sculptor to incorporate this concept in the carving of a capital. The fluted column extending up to the base of the abacus is about nine diameters high. Many beautiful examples of Corinthian Order columns were erected by the Greeks but more particularly by the Romans who succeeded them.

The period of Roman ascendancy was contemporaneous with the decline of the Grecian Age. In the early years of the Roman nation the leaders and artists considered anything Greek to be decadent and thus strove to develop distinctive architecture of their own by creating the Tuscan Order. Essentially, however this form differed from the Doric only in that the columns were not fluted, and molding on the

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base was kept to a minimum. The whole structure completely lacked ornamentation. This style proved unpopular as it did not appeal to the aesthetic taste of their society. In searching for typical examples of this order I was unable to find any that appeared truly representative but believe that some of the columns in the Nabataen buildings at Petra, 50 miles south of the Dead Sea, closely approximate the Tuscan Order.

As the Roman Empire matured the taste pendulum of artistic design swung away from the austere Tuscan to form the profuse Composite Order by greatly enriching and elaborating the Corinthian design. Columns erected to serve as memorials to famous people and events, constructed in the Composite design, were greatly favoured by the Romans, who, for this purpose, erected massive tower-like

columns fitted with interior staircases. Representations of the Composite Order are cited as Trajan's Column and the Column of Antonine. In this Order I was not able to find any photographs of any examples I could identify as Composite. In fact in a somewhat dim picture, Trajan's Column appeared to be Ionic in design. It is possible that erosion and damage since its erection makes identification difficult.

Having detailed the historical background and pedantically defined the epitome of design of the Five Noble Orders, I would now like to make my own comments and observations generated solely from reference reading and the study of photographs. Initially I was concerned that many of the examples portrayed as belonging to a certain order did not in fact exhibit all its identifying characteristics.. It then occurred to me that at the time of construction the preference of the architect and those paying the bills would obviously override idealistic goals. This condition is quite evident when normal fluting is absent or when the sculptor has taken liberties in the design and positioning of the acanthus leaves on some capitals. None-the-less, despite these variations, I found the first four Orders reasonably distinguishable.

It was generally observed that in Greek construction one seldom noticed rectangular pillars in conjunction with circular forms, however in such instances the capital design is the same. Further, not once in any Greek building observed did there appear to be more than one Order present but it is not unusual to find a variety of capitals together in Egyptian column groupings. Fluting and tapering on Doric columns helped dispense the impression of their being gross and massive. As before mentioned I was not able to find good representations of the Roman Orders and therefore, may be unduly biased, but in the Greek Orders the display of symmetry in any single unit in conjunction with those about it induced a sense of aesthetic beauty conjuring discipline, strength and geometric excellence thus supportive of those divine attributes of Wisdom, Strength and Beauty assigned to them in our rituals. In support of this impression I quote and concur with W.H. Riley in his paper, "The Pillars in Freemasonry." published in Vol.8, British Masonic Miscellany, "The Three Grecian Orders are, in my opinion, far more typical of the symbolism of Wisdom, Strength and Beauty than those of the Romans, and I have failed to find a reason recorded as to why the Roman Orders were adopted."

Column construction in Crete antedated that in Greece by several hundred years but exhibited an interesting feature in that the top diameter of the column noticeably exceeded that at the bottom. It has been suggested that initially when tree trunks were used as columns it was not unusual for the tree to recommence growing, particularly when located in a damp place. To prevent this the trunks were inverted. Subsequently when stone pillars were installed it became the custom to place the larger diameter uppermost.

In Egyptian buildings it was not unusual to substitute support pillars with large statues. In only one instance did I note a similar installation in Greece, where the roof of the Erechtheum, north of the Parthenon on the Acropolis at Athens is supported by 8-foot tall maiden statues, known as the Caryatids. This practice was not unknown to Roman builders but does not appear to been used frequently. Statues of Atlantes, approximately life size, support the cornice in the tepidarium in the Forum Thermae in Pompeii.

Should one wish to find examples of each Order in close proximity with each other, a trip to Rome is recommended. The ground floor of the Coliseum exhibits Doric Order columns; the middle floor, those of

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the Ionic Order; and the upper floor, the Corinthian. Just a half mile distant and past the Forum is Trajan's Composite Order Column. Surely with some luck and being where it originated one should be able to find an example of the Tuscan Order.

Excluding Roman memorial columns and rectangular based Egyptian needles the only other reference I found relating to free standing columns was concerning those at the entrance of Phoenician design temples. King Solomon's Temple was of this type and I find it paradoxical he would employ an idolatrous people who practiced infanticide within their temples to build a copy for the Israelites. With respect to the two pillars at the entrance of the Temple we are advised they were made of brass. I believe this is a result of an error in translation and should be recorded as bronze. The Roman historian, Pliny informs us brass was first produced and that for coinage purposes, in the First Century A.D. None-the-less, the fact that the pillars were cast from molten metal, were four inches thick, about 6.7 feet in diameter and in excess of 40 feet in height, demonstrates unique metallurgical skills and also reflects the mineral wealth of Israel at that time. The only other reference I found concerning metal pillars is attributed to Herodotus and relates to the Phoenician temple to Melquart at Tyre which he reported as having one pillar of gold and the other of emerald. No dimensions were recorded concerning these pillars.

As a final comment and to indicate how symmetry as exemplified in the Five Noble Orders can find application in another art I direct your attention to the November-December 1984 issue of the magazine "Fine Woodworking" in which a master furniture maker, Mack S. Headley Jr. skillfully analyzes the construction of a classical table, deriving its form in design proportions from that of an Ionic Order column. In his article he cites that master craftsman of furniture, Thomas Chippendale, "Of all the arts which are either improved or ornamented by architecture, that of cabinet making is not only the most useful and ornamental, but as capable of receiving as great assistance from it as any whatever..... without an acquaintance with (the five orders), and some knowledge of perspective, the cabinet-maker cannot make the designs of his work intelligible, nor show, in a little compass, the whole conduct and effect of the piece. These, therefore, ought to be carefully studied by everyone who would excel in this branch, since they are the very soul and basis of his art."

"Thomas Chippendale, The Gentleman & Cabinet-Makers Director,

1762."

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