



The Five Orders of Architecture

"I have been a Freemason since 1999 and on many occasions have heard in the second degree that, "five hold a lodge, in allusion to the five noble orders of architecture, namely the Tuscan, Doric, Ionic, Corinthian, and Composite."

W. Bro. Ron Pemberton, DGSD
The Prince of Wales Lodge No. 1338 EC
www.englishmasons1338.org.nz



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It is interesting that the Tuscan order is mentioned first when it is a later addition to the five Orders; there is a reason, which I will explain later.

What do the Orders represent and what is their significance to speculative masonry?

The five orders mentioned pertain to the overall effect of each architectural style but are more easily recognised by the decorative capital.

II

The five orders, in correct chronological order are: Doric, Ionic, Corinthian, Tuscan, and Composite. Doric, Ionic, and Corinthian are all Greek styles. The Romans later added two further examples, the Tuscan and the Composite. Both are effectively Greek with Roman modifications. But the Romans also added other modified columns from the original

While we recognize that these orders are primarily Greek in design we should not forget the foundations on which they rest (No pun intended).

The foundations of Western monumental architecture were laid in the Middle East, mainly Sumaria, Babylon, and Egypt. By the time the first signs of civilization began to emerge in Greece, Egyptian architects had been building massive megalithic structures for fifteen hundred years.

My knowledge of the Orders was severely limited. I knew that each had a different style but which, was which was a mystery.

I couldn't tell the difference between a Doric or Ionic and only had a vague idea of what a Corinthian might be. Tuscan to me was someone from Tuscany and a Composite I understood well enough it meant something mixed together.

This frustrated me for years until I was asked to give a lecture to the United Masters Lodge. I could choose any subject, hopefully with a Masonic interest.

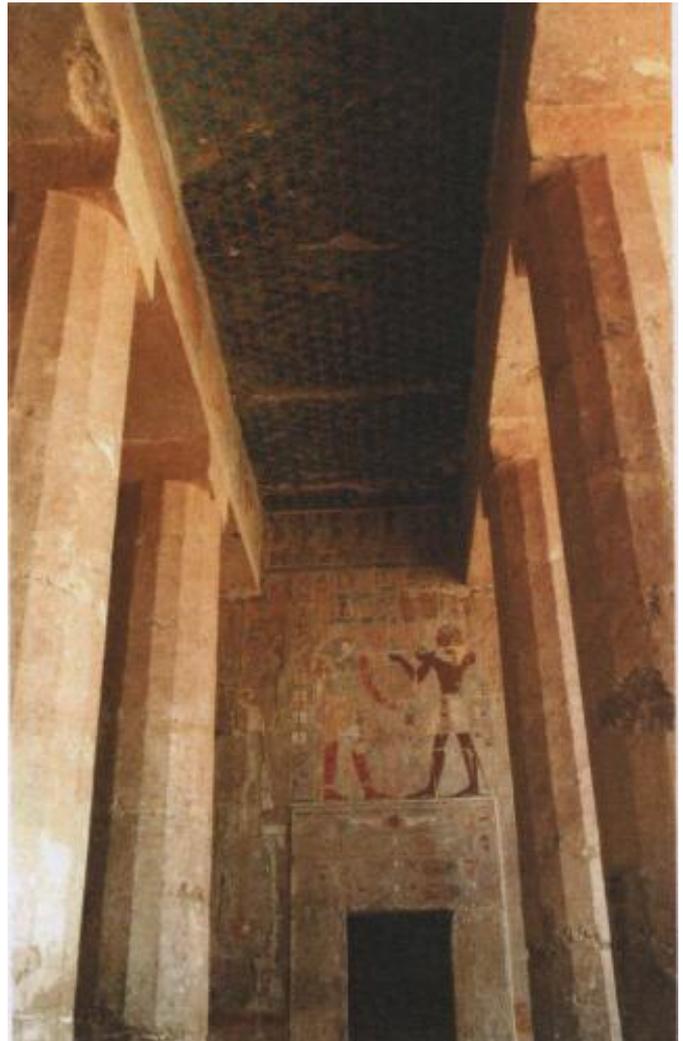
This invitation stimulated me to do some research on the Five Orders.

In English Masonic ceremonies there is only mention of the two columns in passing when handing them to the respective wardens.

But in the alternative presentation of both columns there are references to their significance.

From this lecture I hope that you will gain at least three memories.

- A greater understanding of the five Orders of architecture
- A recognition of the different types of architectural columns and their capitals
- A greater understanding of speculative masonry and its relationship to architecture



A description of the Senior Wardens Pedestal is given thus:

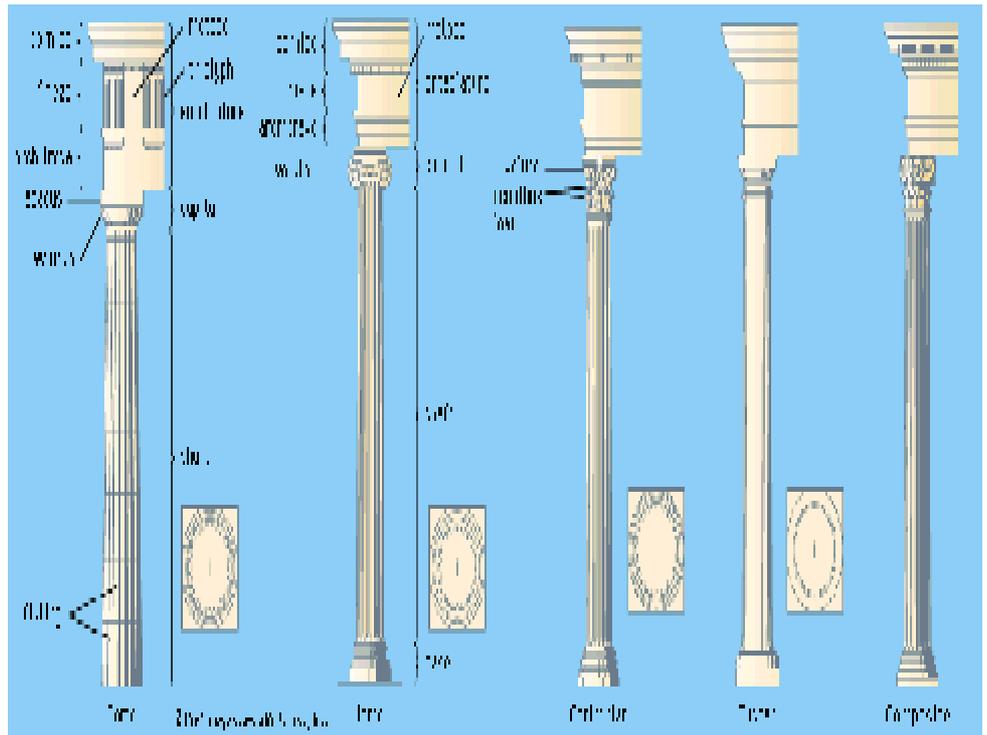
"I also entrust to your care this pillar of the Doric Order; it is an emblem of strength, and directs that you are to use all your strength of mind and powers of intellect to preserve peace, order and harmony among the brethren of the lodge, facilitate the designs of the master, and see that his commands are carried into full and permanent effect."

It can be seen that it is directing its idea of strength – to uphold all that is worthy, also the foundation of peace, order, and harmony

Strength: This is the whole purpose of the Doric order of architecture; it is the foundation on which many temples and other imposing buildings are constructed. The Parthenon in Athens is a prime example of the use of the Doric order. The Doric order is possibly one of the earliest orders that were used in the Classical period (500 – 400 BCE) of ancient Greece.

In the description just mentioned we speak of the original Greek Doric order and yet in all the lodges I been in none have a true Doric column on the senior wardens pedestal.

The column that is used is a modified version of the original Doric column. It is called a 'decorative Roman Doric column'. There are many changes both to the order of the overall architectural effect and the appearance of the column itself. The capital is different and is marked on some with a row of flowers between the cap of the capital and the lower ring.



On the decorative Roman Doric there is a moulding on the base, unlike the true Doric, which has no moulding.

Of all the columns the Doric has a myriad of connotations associated with it.

During its revival in the mid 18th century architects gave it newer connotations with high-minded primitive simplicity, seriousness of purpose, and noble sobriety. In building such as customs houses, Greek Doric suggested incorruptibility; in Protestant churches a Greek Doric porch promised a return to an untainted early church and many others that require a strength of character.

A fine example of the original Greek Doric porch can be found at St Andrews church on Symond St, Auckland.

While the whole structure relates to the Order it is the columns and capitals that stand out and express the significance of the buildings features.

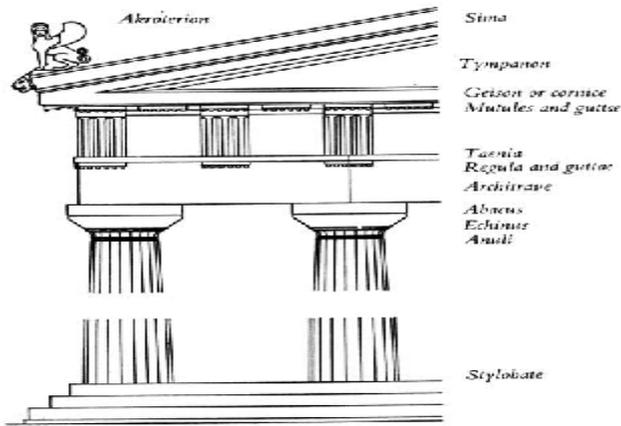
The Columns:

Columns with their pedestals that's 'the bit at the bottom' or the Stylobate which provides support for the column and the entablature is the 'bit at the top' or the superstructure, which lies horizontally upon the columns and consists of the three principal divisions: the architrave, the frieze, and the cornice.

THE ORDERS

Doric

The capital of the Doric Order is the simplest of the three, consisting of a ring where the fluted column ends, a tapering neck called the echinus, and a flat, square block called an abacus. The Doric sits directly on the stylobate, (a continuous pedestal) with no base. The proportions of the Doric column are based on the height being roughly 4 to 6.5 times the diameter of the column at the base. There are usually 20 flutes separated from each other by arrises. The flute is a long, rounded vertical ridge that runs up the column shaft. The arris is the line that separates one flute from another. Doric columns tend to be relatively short and squat; to the Greeks they were based on the proportions of a male figure.



Buildings such as the Parthenon in Athens built around 450 BCE use these to great effect. They have been used for public buildings in more modern times to convey an impression of simplicity and solidarity. Robert Adams used them in such august buildings as the Entrance to the University of Edinburgh



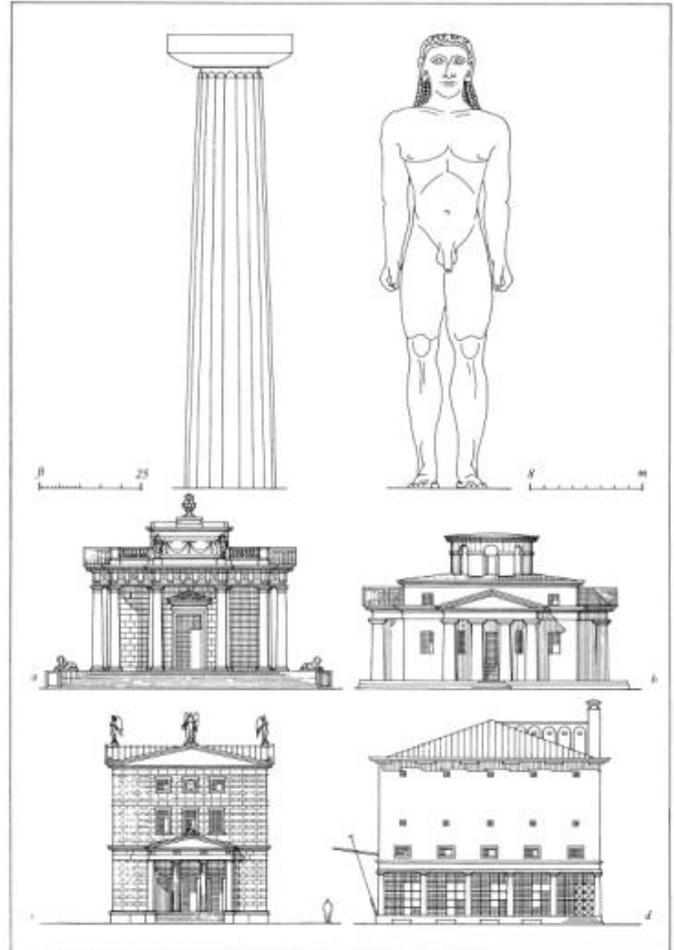
Where did it start?

The origins of the Doric order are obscure though many of its features possibly derived from timbered structures. Archeological finds such as pottery art show a resemblance to similar designs and even in some Egyptian remains from the colonnades of the funerary temple of Queen Hatshepsut show a similarity towards the Doric style.

The use of the Doric Order

The Doric order is so called because it was the architectural style of the Dorian Greeks who occupied the Greek mainland and its colonies around 1200 BC. Their origins are uncertain coming from the margins of the Greek world somewhere in northern Greece.

In the early Greek republics the use of this order signified a building associated with the Dorians. The Roman architectural author Vitruvius (born circa 80 BCE died circa 15 BCE) claimed that the column, and hence the order, were traditionally thought to be derived from the proportions of a man.

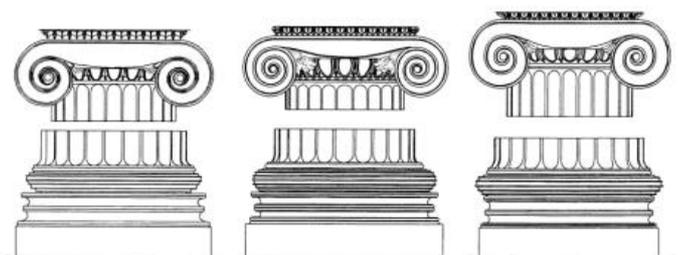


It is the least decorative of the orders and in more recent times is usually associated with utilitarian buildings. The masculinity of the style is particularly suitable for military architecture, prisons or other buildings that are seen as robust or aggressive. And yet it was used by the Greeks for their temple on the Acropolis to house the statue of Athena the goddess of the Athenians, possibly to convey the strength of Athena rather than her beauty.

Ionic

The capital on the Ionic Order is decorated (as opposed to the unadorned Doric) and is recognisable by distinctive scrolled spiral volutes on both sides.

The Ionic column is supported by a base, consisting of two convex mouldings, each called a torus, above and below a concave moulding called a Scotia. The column is approximately 9 times the height of the Order as a whole.



Labraynda

Mausoleum

Priene

Where did it start?

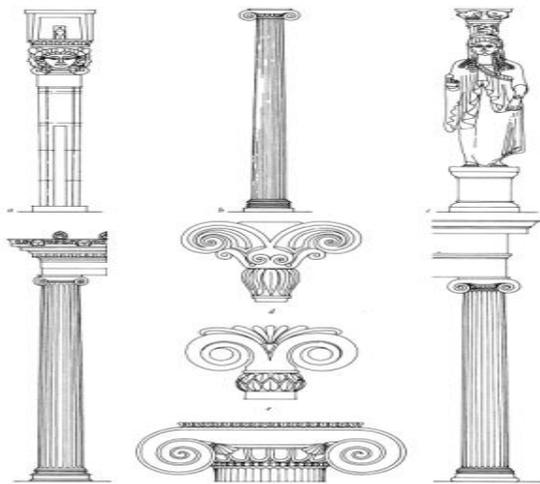
The Ionic order is a later development than the Doric. It was first seen in the Greek communities of Ionia, which are situated on the west coast of what is now Turkey. Again it appears that the order stems from similar designs taken from Phoenician and Syrian ivory and metalwork and buildings from the near East about the tenth century show a similar scroll design.



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The use of the Ionic Order

The column and its capital are the opposite of the Doric, whereas the Doric is seen as a masculine figure the Ionic order is definitely feminine. The ideas of the columns and capitals stem from the scrolls being the curls from the head of a women and the vertical fluting is said to represent her dress.

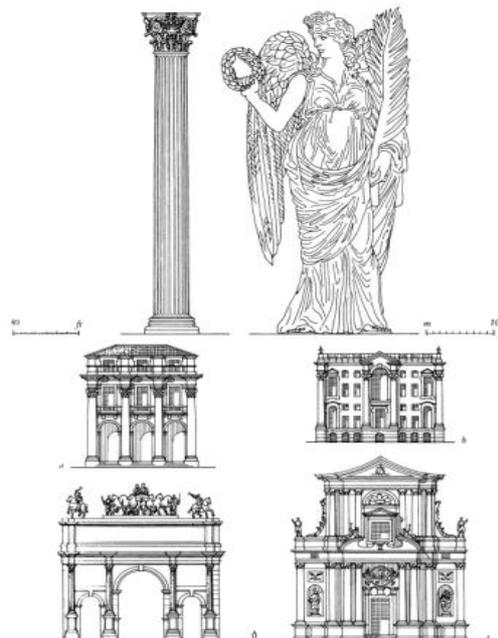


This particular design is used for buildings that are usually associated with learning or scholarly pursuits. As you can see it amply illustrated by its use for the entrance to the British Museum.



Corinthian

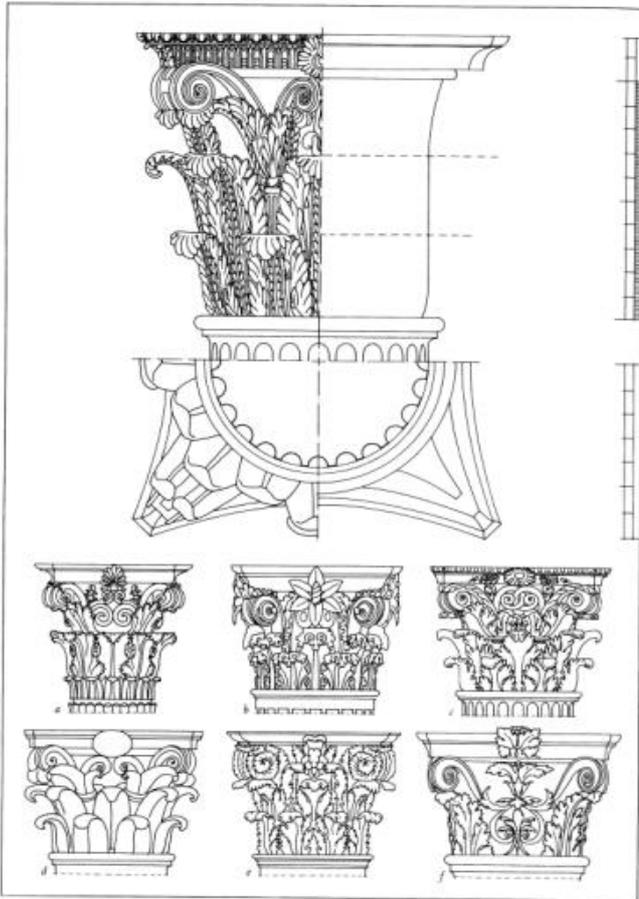
Among the Greek orders of architecture the Corinthian capital is an elaborate variation of the Ionic capital and is decorated with acanthus leaves (an herbal shrub) and sometimes volutes on both sides.



Where did it come from?

The Corinthian order was a relatively late design and named after the city of Corinth the first examples seen from archeological remains around the year 400 BCE.

According to the Roman author Vitruvius, possibly just repeating urban legends from Greece, an architect saw a basket that had been left unattended while an acanthus plant grew up around it. Pleased by the decorative effect, it was copied for the capital. Both the Ionic and the Corinthian columns tend to be long and slender supposedly more feminine in aspect than the masculine or even military, Doric.



Again in the English Masonic ceremony there is a description for the Junior Wardens Pedestal which is given thus:

"I likewise entrust to your care this pillar of the Corinthian Order, which is an emblem of beauty, and points out that you are to adorn the work with all of your powers of genius and active industry, and promote regularity amongst the brethren by your good example, the persuasive eloquence of precept, and the administrative encouragement of merit."

This emblem is a beautiful decoration like the mind and to use your mind for the betterment of your brethren and of mankind.

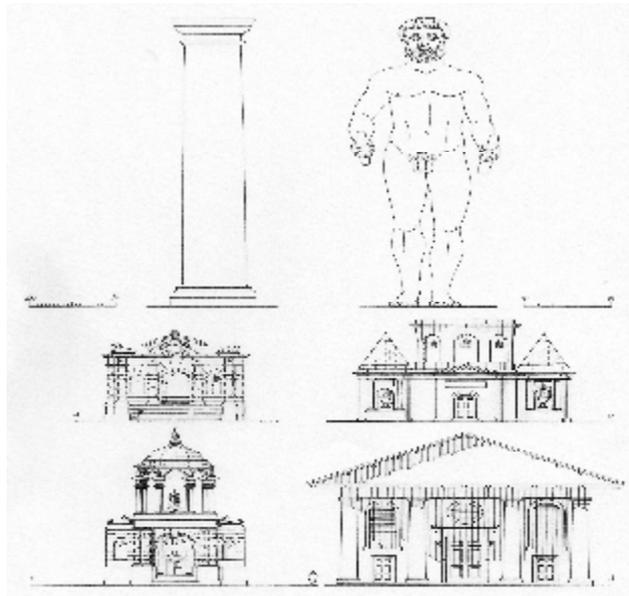
In the English Masonic ceremony these are the only two references to orders.

The use of the Corinthian Order:

The columns and capitals of the Corinthian orders are seen where a more feminine aspect to a building is required and not a more masculine approach.

While the first three orders are primarily Greek in origin apart from the obvious links to previous builders around the fertile crescent zone in the Middle East. The last two orders are Roman in origin but even with these two later additions to the panoply of classical architecture, they are still adaptations of the originals.

Tuscan



In the early part of this lecture we mentioned the list of orders as being Tuscan, Doric etc. So why Tuscan is mentioned first when the Doric column was first seen in archaeological terms at least a 500 years before the Tuscan?

In architectural terms the Tuscan is placed first because it has the widest column.

Vitruvius, the Roman author on architecture tells us that the height of the column is 7 times the diameter. The base is also of a consistent pattern resembling the Doric style, apart from a circular base.

The use of the Tuscan Order:

There is no ancient tradition associating the Tuscan order with a specific human form although many architects see it in a manly rustic image. And while it shares many of the features of the Doric it has been used more economically due to its simple design. The proportions of the order and its primitive associations made it suitable for building of a rustic nature. Gates, such as the York Water Gate in London and Mausoleum designs create a sombre and geometric solidarity.

Composite

It is claimed that the Composite order is a wholly Roman invention though it is clearly a combination of the two Greek orders, the Ionic and the Corinthian. The capital shares the two lower leaves of the acanthus leaves of the Corinthian order with the four diagonal placed decorated volutes of the Ionic order. The total column height is generally about 10 x the diameter.



Where did it originate?

Its origins are definitely Roman, first seen around 82 CE on the Arch of Titus, the Roman Governor who destroyed Jerusalem in 70 CE.

Although in Roman times there is no mention of it by either Vitruvius or even Pliny, it wasn't until the Renaissance that the order was given its name.

What are its uses?

Its main use seems to be in Triumphal arches and in conjunction with anything to do with the Imperial families. For many in the Roman world it is seen as a symbolism of victory and was later adopted by the Christian church and used in the Middle Ages to signify the victory of Christ.

When you look at these capitals and columns you will see many variations on a theme. Modern architects have modified the styles and utilised them for varying effect. It would only be in the ruins of many of the temples that you would see their original uses and styles.

The designs of many of the temples and the construction of the assembled parts required that a harmonious effect was needed to convey a oneness with their gods. To achieve this, certain aspects of the assemblage needed to be modified to please the eye.

The next part of this talk, while not specifically about the orders, does relate directly to the columns and their visual appearance. One of these effects was *entasis*.

Entasis – 'To strain'

There is, however, more to the architecture than just the decoration, things that normally, are not perceived by the naked eye. Its form and structure are modified to fool the eye of the beholder. Looking at the columns, whether this be, the columns on the Parthenon or any other building using these orders they look straight and parallel with each other. The naked eye is deceived by a slight curvature of the column and ending just before the capital. This convex curve is called an 'entasis'.

In architecture *entasis* is an application of a convex curve to any surface for aesthetic purposes. The word derives from the Greek word *enteinein*, to stretch tightly. The Greeks did not invent it and although many books will tell you that its first use was in the construction of the Egyptian Pyramids, other cultures have also utilised this effect to fool the eye.

The builders of Stone Henge in England used this method to deceive the eye into believing the uprights were parallel. "*Whereas the uprights were carefully plumbed and shaped to an upward tapering convexity thereby anticipating the entasis of the Greek columns.*"

In more modern times Rolls-Royce cars all made use of it in their radiator grills to give an illusion of greater solidity. As you can 'see' the entasis effect is not reserved just for round columns but any surface that needs to be seen as being straight.

For those that do not know the timeline of events that took place and the development of this phenomenon of the convexity of the uprights and the parallel appearance of the Parthenon's Doric columns. Time as we know is fluid and not as might appear, fixed, things do not happen in a flash they develop with time.

Taking a point in time such as the Stone Age which follows on from the Neolithic Age that ended around 3000 BCE. Stone Henge was started around 3000 BCE in what was effect the Stone Age in most of Europe at that time and ended its present construction phase about 1500 BCE.

A timeline of events starting from 3000BCE to 480 BCE:

Stone Henge started circa 3000 BCE, the Great Pyramid of Khufu 2600 BCE. King Solomons Temple was circa 1000 BCE. The Istar Gate was 604, which was built by Nebuchadnezzar and the first stage of the Pathenon was begun in 480 BCE. These examples show the distance of time from the builders of Stone Henge to the builders of other megalithic structures and hence the idea of entasis is not a wholly Greek phenomena.

While much of the Middle East, which included parts of Greece, and China used bronze from around 3000 BCE there are archaeological sources that show it not being used in Western Europe or Britain until around 1900 BCE, so much of Stone Henge was built using Stone Age equipment. It also goes to show the technological capabilities of the masons in Britain at that time that they too knew of the effects of convexity.

Possibly the best way to demonstrate the effects of these features is to talk about the Parthenon in Athens.



The stylobate (the base) and the entablature (the part being supported) on the Parthenon are both curved to deceive the eye into believing they are flat and straight with the columns, in fact, there is hardly a straight line or square block anywhere on the Parthenon.

These deceptions are there for a purpose not to cheat but to bring into harmony the whole structure. If these deceptions weren't built into the structure then the whole would be seen as unharmonious.

Many of you will know where the Parthenon is but few know what it was built for. Its initial construction started shortly after the defeat of the Persians at the battle of Marathon in 490 BCE. Its purpose was to commemorate that victory. Unfortunately by 480 BCE, Xerxes, the son of Darius, who was defeated at Marathon, attacked the Greek mainland and sacked Athens.

As an aside he had previously been given a bloody nose at the battle of Thermopylae by the Greek league under King Leonidas, a Spartan.

From the destruction that was wrought on the Acropolis a new temple arose, which was begun around the years 450/449 BCE, this was to be the Parthenon as we now it today.

The new temple was to be wider and longer than the original, which was unusual for a Doric order temple. It had eight columns on the short side and seventeen on the long, counting the corner columns twice.

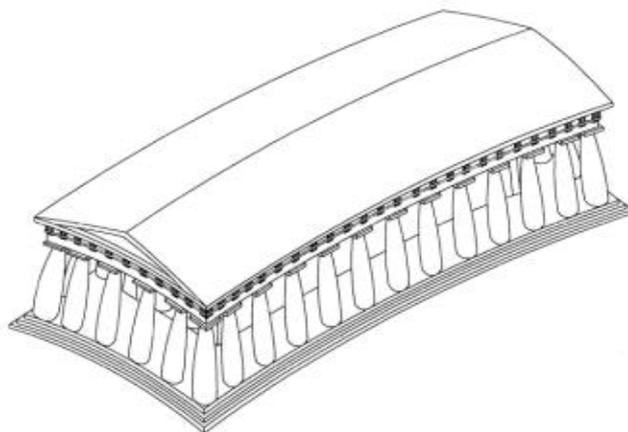
The platform of the temple (stylobate) measures some 69.51 by 30.86 metres. I attempted to get an ancient measurement to match these metric units the closest I got was that 69.51 metres is equal to 152.032 cubits and 30.86 metres was equal to 67.497 cubits. Both the Egyptian and Greek cubits as reasonably close.

No plans of the Parthenon have been found but from several eminent sources it is believed that the builders worked without a master plan, but constructed it according to an empirical tradition of building practice.

Among many remarkable features are its construction refinements, which occur in other temples but not to the same degree. These include deliberate avoidance of true horizontal and vertical lines, such as curving the stylobate upwards towards the centre, in both its length and its width. While this helped to shed rainwater from the floor, it also countered the tendency for long horizontal lines to appear to sag.

By tilting the columns and interior walls towards the interior helped stop the visual effects of them appearing to fall outwards.

The columns, as previously stated, taper in a curve with more above and less below. This bowing is called entasis. Corner columns are thickened so as not to appear thinner when seen against the sky. Because all the columns lean inwards it as been calculated that if they were extended they would meet at a height of 2 kilometres above the temple floor.



Such refinements were highly labour-intensive. They determined that virtually no two blocks were the same and that each element had to be cut on site. Being 'cut on site' is probably wrong in that they were probably finished on site and roughly hewn in the quarry.

Considering the refinement of the stone and the fineness of the finished temple it seems incredible that it only took nine years to build and a further seven to finish.

Maybe the tradesmen in those days really were paid without scruple or diffidence, well knowing that they were justly entitled to them and the great reliance they placed on their employers in those days. It's a good job they weren't building the Mangere Bridge although that did take nine years to build.

Buildings of more than one level

In later two story buildings, such as the Stoa of Attalos in Athens of 150 BCE the more slender Ionic order was used for the upper floor. The principle of placing more slender orders above stouter orders gave a natural reduction in weight, which corresponded to structural requirements. It was taken to its fullest extent in the construction of the Colosseum in Rome in 180 CE, where the Doric, Ionic, Corinthian and Composite are set in ascending sequence.

Although this arrangement was not universal in antiquity or the early Renaissance, the survival of the Colosseum and the categorization of the orders in the Renaissance led to a general adoption of this vertical sequence of the orders.



Although we have spoken about many of the temples of the ancient world we have some marvelous buildings in our own city of Auckland that utilise these orders. A classical building that uses all the ancient Greek orders is St Andrews First Presbyterian Church on the corner of Symond St and Alten Rd, in the city. The huge columns that hold up the portico are of the Doric order whilst those that support the bell tower are, starting at the bottom, the Doric, followed by the Ionic and topping it is the Corinthian. Stop and look the next time you pass.



There is a belief that the human body was created by and even in the image of a god, when combined with the ancient conviction that mathematical proof was divinely ordained this gave proportions a mystical or religious significance coupled with the ancient idea that beauty is not arbitrary but a vision of the divine. The classical orders have evolved over the centuries to constitute a sophisticated proportional system.

As Robert Adams says in his book, *Classical Architecture*: *"An understanding of the orders and their proportions is an entry into an ancestral code appreciated by everyone but never fully understood by anyone. The orders are only one architectural method of creating harmony in a confusing world."*

So in conclusion the next time you see a building that uses these orders hopefully their significance will spring to mind. Doric for strength, Ionic for Wisdom, and Corinthian for beauty and finally when confused think as the ancients did as they strived for harmony with their architecture.

It is this unity, this harmony that we strive for in Masonry, individually we are imperfect but can stand alone, whereas a group in unison with all our imperfections are able to withstand the pressures of change and the abrasions from the winds of time.

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