

**Editorial**

**Pyramids: the magic word!**

Of all the geometric solids that we mention today, the pyramid is the most fascinating to many people. It evokes first Egypt and all its mysteries, with its gigantic and perfect structures. And immediately imaginations inflame. Just ask your favorite search engine some questions: How were they built? What are their proportions? Where are other pyramids to be found in the world? Are they linked to astronomy? This immediately leads to esoteric explanations that confer pyramids occult meanings or magical powers. Some people imagine that their builders could not succeed without the help of aliens (is this not an insult to human cleverness?), Others credit ancient Egyptian with staggering knowledges that have been lost since...

But those countless theories do not relate only to Egypt. In fact, they affect almost every monument or hill looking more or less pyramidal, discovered all over the world. However, this shape already exists in nature, and becomes almost obvious if you wish to build a structure of a certain height by piling up stones.

Perhaps the Egyptian pyramids would lose much of their charm if we discover some day a bas-relief depicting their building. Meanwhile, the assumptions flourish and architects do not hesitate to build new pyramids... to which other people immediately assign a hidden meaning or inexplicable powers!

René Kauffmann



**Did you notice on our website?**



For 2500 years, when architects had to build a structure marked with a certain solemnity, the solution has been obvious: the Greek temple model. Our quiz Nr. 5 (in french only...) gathers 22 examples. Where are they located? When were they built? What is their purpose?

Check your knowledge!



See you soon on our pages!

Any comment and suggestion are welcome !

Write us...

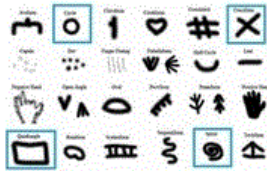
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**Geometric patterns in ancient cultures: ornaments or symbols?**

Since prehistoric times, the men drew what they saw around them, characters, animals, plants, but also abstract patterns to which we can't assign any meaning, apart that their simplicity and symmetry probably appeared beautiful, and that this beauty gave them in turn some meaning.



Typology of upper palaeolithic signs in France, G. von Petzinger

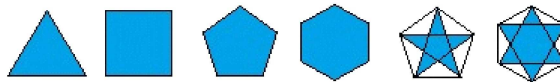
Among the simple figures are the cross, the circle and the rectangle, and above all, represented by all civilizations, the spiral, a shape that opens or closes depending on how you look at it. No wonder then that men draw the double spiral that opens AND closes, giving an image of the infinite...



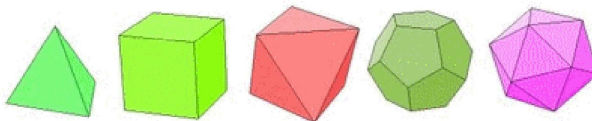
A Bronze Age fibula, Central Europe, 8th-7th century BC

Indeed, these patterns exist in nature in various forms (the Moon and the Sun for the circle, shell and plants for the spiral, the flat faces of crystals, etc.), and this is perhaps what makes them universal, giving them the magic of abstraction.

Ancient geometers noticed also the properties of regular polygons such as the equilateral triangle, the square, and later the pentagon and the hexagon with their variants, the 5 or 6-pointed star polygons.

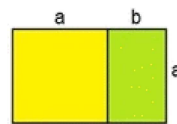


Solids like the sphere and polyhedra were not overlooked. Fascinated by the beauty of their geometric simplicity, the Greeks defined the "Platonic solids" polyhedra that looked perfect to them.



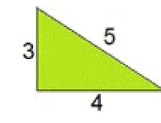
On a tetrahedron (4 faces), octahedron (8 faces) and the icosahedron (20 faces), each face is an equilateral triangle. The cube's faces are squares, those of the dodecahedron (12 faces) are pentagons.

They also studied the "golden rectangle", having the most harmonious proportion ("divine proportion"), which can be described this way: if a square is cut out of this rectangle, the small remaining rectangle keeps the same proportion as the original one, in mathematical terms  $b/a = a/(a+b)$ . Can you calculate this number ?



The Egyptians knew it probably also, but it is another polyhedron, the square-based pyramid, THE so famous pyramid, that made them famous.

They also noticed the properties of the right-angled triangle with side lengths of 3, 4 and 5 units sometimes called "sacred triangle". It checks of course Pythagoras's theorem, since  $3^2 + 4^2 = 5^2$ .



**Geometry and magic**

The curious thing is how these signs, without any geometric and aesthetic consideration, were charged, over the centuries, with symbolic, religious, magical and occult meanings.

In the five-pointed star, the pentagram, some see the symbol of the devil, of man... or a divine sign. Inscribed in a circle, it becomes the pentacle, a symbol of witchcraft or a protective amulet. The six-pointed star became the symbol of Judaism, the triangle and the pyramid are Masonic symbols, etc.

Even the Platonic solids are assumed by esoteric writers to have magic powers, and many authors have sought application of the golden ratio everywhere, on monuments, sculptures and drawings.

Today, their meaning has also become political. If only their magic could be able to unite humans – let's say for the glory of geometry...



Morocco, Israel, Denmark... so close!!!

**One more quiz on our website!**



What do you know about pyramids located all over the world, from the oldest to the most recent? Answer our 33 questions, you'll surely be surprised!

Play with us!



**When the eye of Providence lusts after the US bank...**

A powerful symbol in many cultures (starting with Egypt, with the wadjet eye, the "eye of Horus"), the eye appears as a talisman on amulets and on a ship's bow, a religious sign when surrounded by clouds or sunrays, humanist and Masonic when inscribed in a triangle,



The most unexpected place where you can find is... on that symbol of an extremely materialistic world: the one-dollar bill. And moreover, perched on a pyramid!



What conclusion can you draw about it?

**And what about the Celtic Triskele ?**



This triple spiral found in many civilisations (see below) is called Triskele by the friends of the Celtic culture. But how did this ancient symbol reach them, to the point of appearing on the flag of the Isle of Man, as well as everywhere in Sicily, a triangular island colonized very early by the Greeks ? The word Triskele itself is borrowed from greek, since τρισκελης (triscales) means "three legs", as isosceles (iso-sceles) describes a triangle having "two equal legs"...

**The Universal Spiral**

We mentioned above the universality of the single, double or triple spiral. Here are some examples.



Neolithic pottery from northern China



Many blocks with finely engraved spirals appear in the Neolithic sites of Malta.



The complex of Newgrange, Ireland, 3200-3100 BC. Is this the first Celtic triskele?



Bracelet, Cambodia, Dong Son period, 500 BC. Surprisingly close to the fibula reproduced above, isn't it?



Luristan (western Iran), 8th century BC © Robert Deutsch