

# Waves

## Waves explained to the grandmother.

If you are a bit "taken for geometry", the Cabalist Leon offers you these simple observations that you can explain to your grandmother too.

A wave is an oscillation that, generated in one point, propagates in space, transporting energy but not matter.

Before the world was created (by whom?) the space was full of points (called *logons*) in contact with each other, so as not to leave empty spaces, because their whole represented the infinite Substance of God, which is all in all, and therefore could not have any empty spaces. (Since Substance is all in all and nothingness does not exist, we Pantheists know that the World has created itself, starting from the Substance, which is made of infinite *logons*, atoms of the divine Mind.) Those points were standing still before Creation. Time was not there, because there was no movement.

Paradoxically, since in the beginning between those points the distance was zero, they were all grouped in a single point of zero dimension, but that point was infinite and mathematically identified with the number **One**. Its symmetry was perfect.

Then someone (who?) said to the points: move and the points, which were motionless, began to move. It seems that someone was the Mind of the One, which some call God. They could also call it Allah, or YHWH, or Zeus, but in our parts of the World, in Italy, they called him God.

Now a movement that happens in the absence of Time (because time had not yet been created) happens at infinite speed, and the *logons* that began to move at infinite speed, created waves in the Substance of God. Those waves were traveling at infinite speed and therefore they were called Tachyons, i.e. fast waves.

## What are the waves?

The most immediate examples are offered by the waves that are produced on a body of water when a stone is thrown and spread in concentric circles, or by the

waves of the sea, caused by the action of the wind. In both cases the water, perturbed, oscillates vertically without its mass being moved horizontally (i.e. there is no transport of matter). If in the waves there was transport of water, this would accumulate progressively on the seashores, submerging them, but this does not happen. We can easily realize that the water oscillates only vertically if we place a floating body in the area disturbed by the wave: we will see that it is not transported by the waves.

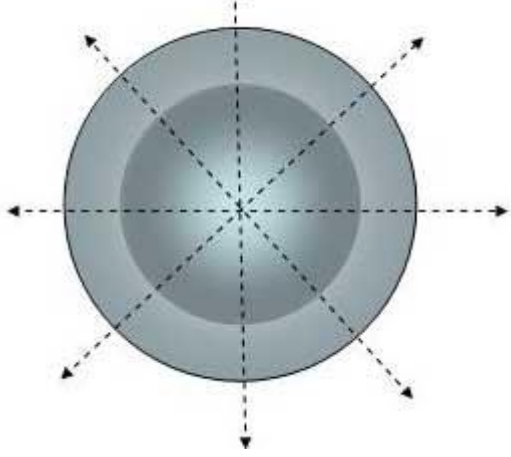
There are many types of waves, apparently very different from each other, but all are describable by common characteristics.

The surface that delimits a wave, or the surface defined by the points equidistant from the source of the vibration, is called the wave front. Depending on the shape of the wave front the waves can be divided into flat, circular and spherical. The moving *logons* obviously created spherical waves in three dimensions (or in four). Spherical waves are those that propagate uniformly in space in all directions and in which the shape of the wavefront is a sphere, such as sound waves and electromagnetic waves.

Also the motion of the particles of matter inside the atom and the nucleus can be described in the form of a wave: the atomic and subatomic particles have, in some ways, a typically wave-like behavior, that is characteristic of the waves. For this reason they are said to have dual behavior. This type of wave is described by quantum mechanics.

The distance between two successive wave fronts is the wavelength. The propagation rays are always perpendicular to the wave fronts.

The visual effect is that of concentric circles which, starting from the source, widen on the surface with the speed of propagation of the wave.



If propagation occurs in three-dimensional space, the propagation rays are all the semirettes that originate in the source and the wave fronts are concentric spherical surfaces. Moving away from the source the spherical wavefront gradually decreases its curvature; at

long distances we can speak of plane wave fronts or, briefly, of plane wave.

The sun is a source of light waves very far from the Earth: the light spreads throughout the space and the part of it that reaches the Earth can be considered a flat wave; for the same reason we consider the solar rays all parallel to each other.

A point source emits waves in three-dimensional space with a constant power. Consider two spherical wave fronts, one at distance  $d$  from the source and a second at triple distance. What can be said about the intensity of the wave? The intensity varies with distance and precisely decreases with the square of the distance, so the waves tend to disappear with distance from the origin. A good example in two dimensions is the wave created on the surface of a pond by a drop of falling water.



When the propagating wave front has passed, at the center of the disturbance the water remains calm. If we repeat the movement backwards, a raised and turbulent protuberance will be created at the center of the circle, which will continue to exist until the waves converge towards the center.

Thus, with respect to their origin, the waves can propagate to the outside of the origin or can converge towards the origin.

Mathematically convergence / divergence is a concept that refers to the behavior of a function (and not only)  $y = f(x)$  to stretch  $x$  to a finite value or to an infinite value. In the case where  $x$  tends to a finite value, it is a matter of considering the limit

$$\lim_{x \rightarrow x_0} f(x)$$

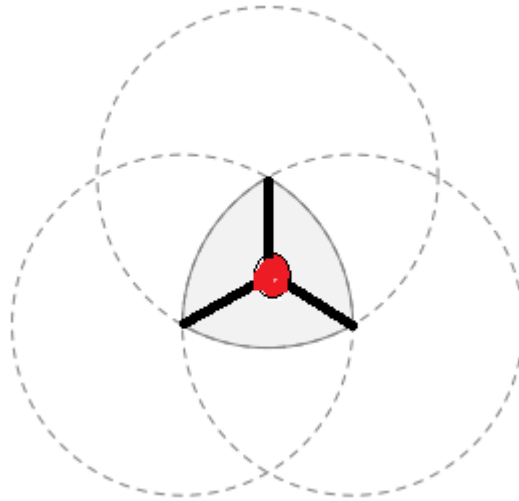
if this limit is finite, that is for example 0, it is said that the function converges to the value of limit 0 for  $x$  tending to 0, if instead the limit is infinite we say that the function diverges to infinity (or that does not converge).

$$\lim_{x \rightarrow +\infty} f(x)$$

### **Difference between the balance of concentric and divergent forces.**

If the waves generated by a *logon* diverge, they compress the space-time between the *logon* and the *logons* that surround it. On the contrary, if they converge on the *logon*, space-time between the surrounding *logons* will rarefy, creating an energetic vacuum, exactly the opposite of what happens with the convergence.

For simplicity we consider a triangle of Reuleaux, which is generated by three concentric waves vibrating on a plane, embedded one in the other so that their centers are on the circumference of the other waves. If the waves expand, in the middle of the triangle of Reuleaux there will be a zone of compression, where the forces of expansion converge in a point (red).

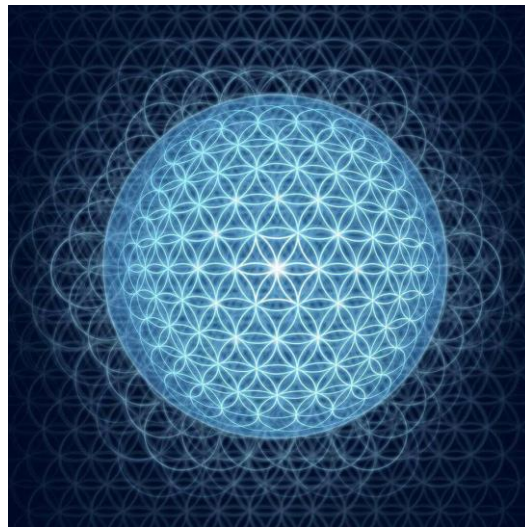


When the Universe was created, probably at the beginning the vibrations were divergent, creating the expansion and the tachyons. In addition to expanding at infinite speed, the *logons*, which became *tachyons*, created a hexagonal symmetry in space, formed by infinite tetrahedra of Reuleaux, in the center of which there were points of energetic convergence. Then, when the movement slowed down at the speed of light, because Time was created, and the light was formed, the vibrations became converging, creating the void at the center of the triangles of Reuleaux. Why ? Probably, when the light was created (by whom?) the impassable wall of light formed a barrier and the logons, clashing against that barrier, began to vibrate on the contrary, converging towards the center of their spheres. At the center of the tetrahedra of Reuleaux the vacuum thus occurred (but one must remember that it is different from nothing). Thus the Universe was formed, which, expanding at the speed of the *photon*, became a perturbation of space-time of limited size. Then the energetic *logons*, in which the waves converged, turned into *quarks* and the forces due to the vacuum inside the tetrahedra, formed the strong nuclear forces that hold the *quarks* together and form the neutrons and the protons and the electrons.

Matter has thus been able to aggregate into the Universe forming in four dimensions (which include the time) the tetrahedra of Reuleaux.



Here is how the space-time filled with tetrahedra of Reuleaux would appear to an artist. Notice those six-petal daisy-shaped structures that are formed when the curved sides of the tetrahedra are added together. Those structures are formed when energy waves are added together and are useful for forming the forces that hold together the atoms of space-time, forming inertia and gravity.



### **The space-time full of Tetrahedra di Reuleaux**

Since the surface of the sides of the tetrahedrons is curved, being  $1/6$  of the surface of the sphere, when the tetrahedra are in contact with each other, in the space-time the daisy-shaped structures are formed. Where the Universe expands, the void is formed on the daisy-shaped structures which surrounds the central area of convergence on all four sides. Where the Universe is subject to gravity and then contracts, the forces of inertia and therefore gravity are formed within the daisy-shaped structures .

See below the details in a segment of quantized and kinetic space-time.

