

## THE ETHER

Swami Vivekananda

*This article first appeared anonymously in the February 1895 issue of the New York Medical Times, a prestigious monthly medical journal founded and edited by Dr. Egbert Guernsey.*

Classification or grouping of phenomena by their similarities is the first step in scientific knowledge — perhaps it is all. An organized grouping, revealing to us a similarity running through the whole group, and a conviction that under similar circumstances the group will arrange itself in the same form — stretched over all time, past, present and future — is what we call law.

This finding of unity in variety is really what we call knowledge. These different groups of similars are stowed away in the pigeon-holes of the mind, and when a new fact comes before us we begin to search for a similar group already existing in one of the pigeon-holes of the mind. If we succeed in finding one ready-made, we take the newcomer in immediately. If not, we either reject the new fact, or wait till we find more of his kind, and form a new place for the group.

Facts which are extraordinary thus disturb us; but and when we find many like them, they cease to disturb, even when our knowledge about their cause remains the same as before.

The ordinary experiences of our lives are no less wonderful than any miracles recorded in any sacred book of the world; nor are we any more enlightened as to the cause of these ordinary experiences than of the so-called miracles. But the miraculous is "extraordinary", and the everyday experience is "ordinary". The "extraordinary" startles the mind, the "ordinary" satisfies.

The field of knowledge is so varied, and the more the difference is from the centre, the more widely the radii diverge.

At the start the different sciences were thought to have no connection whatever with each other; but as more and more knowledge comes in — that is, the more and more we come nearer the centre — the radii are converging more and more, and it seems that they are on the eve of finding a common centre. Will they ever find it?

The study of the mind was, above all, the science to which the sages of India and Greece had directed their attention. All religions are the outcome of the study of the inner man. Here we find the attempt at finding the unity, and in the science of religion, as taking its stand upon general and massive propositions, we find the boldest and the most vigorous manifestation of this tendency at finding the unity.

Some religions could not solve the problem beyond the finding of a duality of causes, one good, the other evil. Others went as far as finding an intelligent personal cause, a few went still further beyond intellect, beyond personality, and found an infinite being.

In those, and only those systems which dared to transcend beyond the personality of a limited human consciousness, we find also an attempt to resolve all physical phenomena into unity.

The result was the "Akâsha" of the Hindus and the "Ether" of the Greeks.

This "Akasha" was, after the mind, the first material manifestation, said the Hindu sages, and out of this "Akasha" all this has been evolved.

History repeats itself; and again during the latter part of the nineteenth century, the same theory is coming with more vigour and fuller light.

It is being proved more clearly than ever that as there is a co-relation of physical forces there is also a co-relation of different [branches of] knowledge, and that behind all these general groups there is a unity of knowledge.

It was shown by Newton (Isaac Newton, 1642 – 1727.) that if light consisted of material particles projected from luminous bodies, they must move faster in solids and liquids than in air, in order that the laws of refraction might be satisfied.

Huyghens, (Christian Huyghens, 1629 – 1695.) on the other hand, showed that to account for the same laws on the supposition that light consisted in the undulating motion of an elastic medium, it must move more slowly in solids and fluids than in gases. Fizeau (Armand Hippolyte Louis Fizeau, 1819 – 1896.) and Foucault (Jean Bernard Léon Foucault, 1819 – 1868.) found Huyghens's predictions correct.

Light, then, consists in the vibrating motion of a medium, which must, of course, fill all space. This is called the ether.

In the fact that the theory of a cosmic ether explains fully all the phenomena of radiation, refraction, diffraction and polarization of light is the strongest argument in favour of the theory.

Of late, gravitation, molecular action, magnetic, electric, and electro-dynamic attractions and repulsions have thus been explained.

Sensible and latent heat, electricity and magnetism themselves have been of late *almost* satisfactorily explained by the theory of the all-pervading ether.

Zöllner, (Johann K. F. Zöllner, 1834 – 1882.) however, basing his calculations upon the data supplied by the researches of Wilhelm Weber (Wilhelm Eduard Weber, 1804 – 1891.), thinks that the transmission of life force between the heavenly bodies is effected both ways, by the undulation of a medium and by the actual evidence of particles.

Weber found that the molecules, the smallest particles of bodies, were composed of yet smaller particles, which he called the electric particles, and which in the molecules are in a constant circular motion. These electric particles are partly positive, partly negative.

Those of the same electricity repulse those of different electricity; attracting each other, each molecule contains the same amount of electric particles, with a small surplus of either positive or negative quickly changing the balance.

Upon this Zöllner builds these propositions:

- (1) The molecules are composed of a very great number of particles — the so-called electric particles, which are in constant circular motion around each other within the molecule.
- (2) If the inner motion of a molecule increases over a certain limit, then electric particles are emitted. They then travel from one heavenly body through space until they reach another heavenly body, where they are either reflected or absorbed by other molecules.
- (3) The electric particles thus traversing space are the ether of the physicist.
- (4) These ether particles have a twofold motion: first, their proper motion; second, an undulatory motion, for which they receive the impulse from the ether particles rotating in the molecules.
- (5) The motion of the smallest particles corresponds to that of the heavenly bodies.

The corollary is:

The law of attraction which holds good for the heavenly bodies also holds good for the smallest particles.

Under these suppositions, that which we call space is really filled with electric particles, or ether.

Zöllner also found the following interesting calculation for the electric atoms:

Velocity: 50,143 geographical miles per second.

Amount of ether particles in a water molecule: 42,000 million.

Distance from each other: 0.0032 millimeter.

So far as it goes, then, the theory of a universal cosmic ether is the best at hand to explain the various phenomena of nature.

As far as it goes, the theory that this ether consists of particles, electric or otherwise, is also very valuable. But on all suppositions, there must be space between two particles of ether, however small; and what fills this inter-ethereal space? If particles still finer, we require still more fine ethereal particles to fill up the vacuum between every two of them, and so on.

Thus the theory of ether, or material particles in space, though accounting for the phenomena in space, cannot account for space itself.

And thus we are forced to find that the ether which comprehends the molecules explains the molecular phenomena, but itself cannot explain space because we cannot but think of ether as in space. And, therefore, if there is anything which will explain this space, it must be something that comprehends in its infinite being the infinite space itself. And what is there that can comprehend even the infinite space but the Infinite Mind?

---

Reprinted in *New Discoveries*, Vol. 3, pp. 55-59.