

## ABOUT THE AETHER CONCEPT

Some points seem essential concerning the concept of aether and its evolution over time 1, 2.

### *1.- No action at a distance*

1 - No action at a distance is conceivable without the existence of an intermediary medium.

All known actions, gravitationnal, optical, electromagnetic, propagate through a *medium*, the aether.

2 - The attraction according to Newton's law of the inverse square of the distance or Ampère's formulas *are not actions at a distance. They result from local actions* which propagate progressively across space through the aether.

Thus the Newtonian action (apparently at a distance) boils down to two local equations :

$$(1) \quad M \frac{d \vec{v}}{d t} = M \text{ grad. } G$$

$$(2) \quad \Delta G - \frac{1}{c^2} \frac{\partial^2 G}{\partial t^2} + 4 \pi \mu d = 0$$

They lead to a solution (related apparently to an action at a distance)

$$(3) \quad G = \sum \mu \frac{M_i}{r_i}$$

Likewise Ampère's formulas (apparently at a distance) boil down to the local equations

$$(4) \quad \Delta \vec{P} - \frac{1}{c^2} \frac{\partial^2 \vec{P}}{\partial t^2} + 4\pi a \vec{i} = 0$$

$$(5) \quad \vec{H} = \text{rot } \vec{P}$$

$$(6) \quad m \frac{d\vec{v}}{dt} = \vec{H} \wedge \vec{i}$$

where  $\vec{P}$  represents the potential vector

Relations (2) and (4) refer to a spatial propagation through the aether.

## II.- Universal Gravitation : An Isotropic and Euclidian Space of Reference

3 - The laws

$$(7) \quad \vec{F} = M \vec{\gamma}$$

$$(8) \quad F = \mu \frac{M M'}{r^2}$$

of universal gravitation are supposedly true only in an euclidian and isotropic space relatively to a referential called *Copernic's referential*, whose origin is the gravity center of the solar system and whose axes join this gravity center to three stars supposed to be fixed.

On centuries' scale, these hypotheses permit to represent the planets movements with a surprising accuracy.

These very well confirmed hypotheses have led to consider the eather as an homogeneous and isotropic *medium*.

### III.- Interferometric Experiments of Michelson and Miller

4 - Assuming the aether as motion less, isotropic and euclidian, the interferometric experiment of Michelson should have revealed for the speed of the earth relative to the aether a value of about 30 km/s.

Since a speed of the order of 8 km/s. was recorded, it was deduced wrongfully that the outcome was due to errors of observation and that actually it was impossible to record the earth speed on its orbit, axiom put as the basis of the special theory of relativity.

In fact, I have shown in 1999 *quite extraordinary regularities* in Miller observations which are totally impossible to attribute to some perverse effects like temperature <sup>3</sup>.

As a result it follows *a radical and definitive collapse* of the theory of relativity.

5 - In fact, what Miller experiments show is a variation of the speed of light due to a local anisotropy of the aether, *which is quite different* from a direct relation between the earth movement and the speed of light.

There is no "*aether drift*" at all.

The Millers interpretation of his experiments is *totally erroneous*. Suffice for me to recall that this interpretation completely neglects the average deviations of the azimuths relatively to the meridian and doesn't explain the assumed reduction by Miller of the effects' amplitude <sup>4</sup>.

Actually the talk about the aether drift due to the earth movements comes from the old and obsolete concept of action at a distance. If drift there is, it is a local drift of the earth due to the aethers environment.

#### ***IV.- Aether movements and deformations***

6 - Contrary to what was assumed in XIX<sup>th</sup> century and early XX<sup>th</sup> century, the aether is subject to movements and local deformations, in other words, the aether is an anisotropic medium. This anisotropy varies over time and space.

The properties of the "vacuum" are nothing else than aether properties.

7 - The movements and deformations of the aether influence the different phenomena observed and all these phenomena are influenced in the same way.

8 - Atoms, particles, photons ... are but (local) singularities of the aether which remain to be explained by differential equations.

#### ***V.- Periodical structure of the anisotropy of the aether***

9 - Movements and distortions of the aether have a periodic structure which we find particularly in the observations on gravity and optics.

It follows that all observable physical phenomena have the same periodical structure.

This explains accordingly the phase agreement between the paraconic pendulum movements and the optical observations on fixed sights and collimators \*.

10 - All the anomalies found, whether those related to the paraconic pendulum movements or those of optical views on fixed sights and collimators or those of interferometric measurements have a periodic structure. All are related to the periodic anisotropy of the aether.

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(\*) in french : "*visées sur mires et sur collimateurs*".

Their cumulative effects cancel each other overtime. As a result they do not invalidate the fundamental structure of celestial mechanics.

What these anomalies show is the existence of complementary terms which remain to be formulated and which relate to the movements and distortions of the aether.

## ***VI.- Differential Equations of the Aether movements***

11 - The usual representation by differential equations of the gravitational, electrostatic and electromagnetic fields hide *the fundamental identity* underlying all these phenomena.

This fundamental identity is the only physical reality. The task today is to determine the whole set of differential equations representing this reality of which the actual equations of the treatises of physics are but special cases.

12 - What is missing today is a clear and comprehensive representation of physical reality i.e. of the fundamental properties of the aether, a representation that no mathematical abstraction in nowadays texts of physics can bring about.

13 - Nature doesn't leave any room to chance and all is determined by cause and effect relationships.

What's called hazard is nothing but a representation of our ignorance. But the permanent nature of the statistical laws shows the existence of a hidden order.

## VII.- The predominance of facts over theories

14 - The history of physics is extremely instructive but couldn't suffice. The thoughts of the greatest geniuses of the past couldn't apply but over the experimental facts known at the time. Their writings are irreplaceable but they cannot be considered as sufficient <sup>5</sup>.

## NOTES

- (1) Revised text of my Note, "*Sur la Conception de l'Ether*", november 6<sup>th</sup>, 1998.
- (2) See especially my work, *L'Anisotropie de l'Espace (The Anisotropy of Space)*, 1997, Chapter VI, pp. 493-549 (Editions Clément Juglar, 62 avenue de Suffren, 75015 Paris, tél. 01 45 67 18 38).
- (3) Allais 2003, "*Des régularités extraordinaires et irréfragables dans les observations interférométriques de Dayton C. Miller 1925-1926. L'effondrement radical et définitif de la théorie de la relativité*" (*Extraordinary and Irrefutable Regularities in the Interferometric Observations of Dayton C. Miller 1925-1926. The Radical and Definitive Collapse of the Relativity Theory*).  
Fusion, n° 96, mai-juin 2003, p. 38-47.
- (4) Allais, 1997, *L'Anisotropie de l'Espace (The Anisotropy of Space)*, p. 417-419.
- (5) All these points will be shortly developed in an overall Note, "*On the Aether*".