The Generated Ether

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Many words have been written about the Michelson-Morley measurements, as they have been thought to open the way for Einstein's special relativity theory. However, a wrong interpretation of Bradley's aberration of starlight is the real opener for Einstein's theory. A new interpretation demonstrating unification with Stoke's entrained ether is given here. It also explains why gravity has no aberration. Experience with the Global Positioning System demonstrates a Sagnac effect caused by the receiver's motion in relation to the center of the Earth. This implies an ether dependence on the Earth's translation, but not on its rotation. Therefore, we have an ether-wind about a hundred times smaller than Michelson's. This is in agreement with fiber-optic measurements made by R. Wang.

Aberration of Starlight

Bradley's discovery in 1725 of starlight aberration has been used as an argument against an ether entrained by the Earth. It has been stated that such an ether would not create any aberration. In 1845 Stokes had mathematically shown unification between his ether and the stellar aberration. However, in 1880 he was forced by Challis to change his derivation and demonstrate conflict[1]. But this opinion is based on a tacit assumption that light velocity is a vector sum of ether velocity and wave velocity, c. This is an idea based more on mathematical convenience than on physical insight. Very fundamental differences between these two kinds of fields make vector addition not at all self-evident when light propagates in a region of changing ether velocity. Wave velocity is a dynamic field, but ether velocity is a static field. When light moves from a Sun-dominated to an Earth dominated ether, the plane of oscillations most probably is conserved. There is no reason to assume this plane of oscillations to change according to ether changes inside this plane. Therefore, adaptation to new ether conditions takes place in the longitudinal direction only. This is also stated in [2]. The wave front normal (as well as the motion of a massless particle) are conserved independent of ether model. Consequently, the aberration of starlight is silent about ether model (and about light model too). Therefore: Stokes' entrained ether has been abolished on false grounds.

Light is a moving phenomenon, and observer's velocity transverse to the direction of its propagation is relevant for aberration angle. The observable part of starlight aberration takes place inside our planetary system, and is therefore proportional to a difference of velocities in the wavefront's plane. Planetary aberration is different. Here we must consider velocity difference between observer and source. Aberration is a pure geometrical effect of plotting a moving phenomenon in two different frames in relative translation.

'Aberration' of Gravity

Observations seem to indicate that gravity does not demonstrate the aberration angle seen in starlight. This fact has been stated as an argument for an enormously high propagation speed of gravity. However, an important distinction between light and gravity has been missed. Light is a dynamic field, but gravity is a static field defined by the distribution of matter. Propagation speed is relevant only when this mass distribution is changed. The static nature of gravity means that observer's velocity is irrelevant and no aberration of the kind seen in light occurs. See [3]. A missed distinction between moving and stationary phenomena has caused the idea of extreme speeds of gravity.

Michelson-Morley's Method

An ether entrained by the Earth as well as by the Sun is more difficult to detect than Michelson's (only Sun-entrained) ether. We have to use mobile platforms or we have to use the rotation of the Earth to produce an ether-wind. The Earth' rotation makes a point on the Equator move at the speed of 465 m/s towards east (creating an ether-wind blowing in the western direction). This is about one millionth of light speed. Experiments based on second order effects (such as Michelson-Morley's) are therefore useless when an entrained ether is assumed. Besides, Michelson's results are not actually zero results.

The Sagnac Effect

Sagnac detected the first-order effect of a man-made ether wind by using light following a closed path in a rotating apparatus. In relation to his equipment, light traveled at different speeds in two opposite directions. A phase shift, proportional to the speed of rotation, was therefore detected. The Sagnac effect is also utilized in fiber-optic gyroscopes. Detection of angular velocity results from a summing up of translational effects along a path where light is enclosed in a fiber. It is therefore logical to assume that pure translational velocity is detectable too. This is also demonstrated by the GPS system. Empirical results by R. Wang [4] demonstrate the same as the GPS experience. As a con .sequence, the Sagnac effect should be described in terms of integration along a path, instead of over a surface (Stokes' rule).

GPS

The GPS system is based on time of arrival technology. Satellite-based transmitters are controlled by atomic clocks. Spatial separations are calculated from temporal separations of signals from different satellites. GPS is based on one-way signal velocity. The system is disturbed by the GPS receiver's velocity inrelation to the center of the Earth but not by Sun-related velocity. This indicates an ether that is controlled by the translation but not by the rotation of the Earth. In other words: Earth-related signal speed is c + v and c - v in east to west direction (v is caused by the Earth' rotation).

GPS is the most important argument against special relativity, because it demonstrates, not only that the ether exists (as Sagnac and Wang does), but also that it is not rotating, which is in contrast to Stokes' ether. Therefore a change of name is apropriate. Perhaps 'entrained' should be changed to 'generated'.

Detecting the Ether-Wind

A second order effect of an ether-wind is to small to be detected when a generated ether is assumed. A first-order effect of ether wind was detected by Sagnac in 1913 (rotation), and by R. Wang in 2004 (translation). GPS implies the ether-wind's validity for rotation and (differential GPS) for translation. This means a conflict with Einstein's theory. Instead of special relativity the generated ether provides a kind of relativity by means of an ether velocity that adapts to distribution of matter. Instead of a preferred inertial frame we have a preferred velocity field that has a matter dependency in common with the gravitational field. This commonality indicates that the ether propagates gravity as well as light and perhaps an omni-directional flow of neutrino-like particles can explain both phenomena. The presence of mass can attenuate this flow in some directions and thereby disturb spherical symmetry in the flow by a 'shadowing' effect. This explains the small gravitational field, and indicates a possibility that the ether has a vertical velocity component (small and negative). Ideas of this kind are discussed in [5].

It is possible that a vertical ether-wind can help to explain the anomalous behavior of space stations Pioneer 10 and 11. It is also possible that a changed density of particles can cause a small change in wave velocity.

Discussion

It seems reasonable to assume that the rotation of a perfect sphere has no effect on its generated ether velocity and on its generated gravitation. In order to generate zero ether velocity around a body that body must generate a wave function following that body. To build up this wave energy is needed. This can explain the concept of inertia.

Tests aiming at detection of horizontal and vertical etherwind should have higher priority than trying to detect gravity waves. A method for this without GPS is described in [6]. Two counter-directed synchronous signals are used. The first order effect of an ether-wind is detected as a small difference in wavelength (or spatial pulse separation). Microwaves or light can be used. High precision is demanded.

Conclusions

- A generated (entrained but not rotating) ether can be united with the observed aberration of starlight.
- A reasonable speed of changes in gravity can be united with the absence of aberration in gravity.
-]The translational Sagnac effect (observed in the GPS system and by R. Wang) is in conflict with special relativity and can be united with the generated ether. A new test of special relativity is mentioned.

Referencies

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