

THE ETHER

Some things are so obvious we hardly need express them. For instance, the truth that water runs downhill. Another of the same sort is this truth—nothing (ie non-existence) does not exist.

A friend lent me recently a copy of Professor Stephen W. Hawking's *A Brief History Of Time*¹. As I worked my way through it I marvelled at the intricacy with which hypothesis was piled upon hypothesis to ground the speculative assertions we are so familiar with, curved space and black holes, and all the rest. While I was doubtful of the truth of many of the things I read, one thing in particular struck me as plainly in error, Hawking's acceptance of the view that space is a void, a place where nothing exists.

The current theory of quantum mechanics accepts that light may be comprised either of waves or particles without insisting on one theory or the other. If light is comprised of waves, and space is empty of any matter, in what do the waves travel? How could we see the sun or moon, let alone the stars, if there was not some medium through which light travels? How could scientists detect, through radio and micro wave receivers, the sounds emitted by stars and galaxies incomprehensible distances away if between us there was no medium in which those waves could travel?

The admission of some form of material medium throughout what we call 'space' is a necessary deduction from principle. To put it in syllogistic form using light as an example:

Every effect must have a cause;
But the transmission of light through space is an effect:
Therefore, the transmission of light through space must have a cause.

A cause cannot be nothing (and therefore is something);
But the transmission of light through space has a cause:
Therefore, the cause of the transmission of light through space cannot be nothing (and therefore is something).

What, then, is the nature of this cause, this 'something'?

If we continue with light as an example, the first thing to be noted about it is that it is not a cause *per se* of light's illumination. It does not cause the incandescence, but is the means whereby the light so produced reaches the subject. Such a cause operates

¹ Bantam Books, 1992.

per accidens and is called a condition, by definition, the removal of something prohibiting².

The great philosophers of the past gave this ‘something’ a name, *aether* and its use continued until relatively recently when it was still common to read or hear of scientists, especially those involved with the propagation of radio waves, referring with complacency to ‘the ether’.

In a remarkable paper published in *The Thomist* in 2004, American metaphysician Christopher A. Decaen of Thomas Aquinas College, Santa Paula, California, exposes the ancient teaching of Aristotle, endorsed and enlarged upon by St Thomas Aquinas in the 13th century, on this mysterious substance which permeates the heavens.³ Aristotle called the substance *aether*, from the Greek *aei thein*, ‘always running’, which Decaen thinks he may have derived from Plato’s *Cratylus*, where Socrates tells Hermogenes, ‘this element is always running in a flux around the air’. I summarise here their teachings on the subject as reported by Decaen and add one or two thoughts of my own, but I recommend the reader to study Decaen’s paper in full.

According to Aristotle and St Thomas, although it is material, *aether* does not share a common matter with other material things. Matter and form in *aether* are not applied univocally to (ie, do not signify exactly the same thing as) matter and form in other material substances. The terms can be used here only analogously⁴. Therefore *aether* does not share the physical attributes of any other material thing. Substantial form and prime matter in *aether* are, according to St Thomas, so perfectly united that the one exhausts completely the potency of the other such that *aether* possesses a certain total and universal perfection that fulfils its potency for existence. In practical terms this means that *aether* lacks the tendency, present in every other material substance, to become something else.

Among material substances, *aether* is that which is closest to the immaterial. Indeed, at first blush it seems to differ from the immaterial only in the fact that it has extension—parts outside parts—the characteristic of the first of the nine accidents,

² A condition is that which removes obstacles which would prohibit the cause *per se* of an effect from producing such effect. [A.M. Woodbury Ph.D, S.T.D, *Ostensive Metaphysics, Ontology*, Ch. 60, art. 7, p.1051]

³ <http://www.thomist.org/journal/2004/July/2004%20July%20A%20Decaen.htm>

⁴ A term may be either univocal, equivocal or analogous. A univocal term applied to two different objects signifies a character in each which is simply the same, as ‘animal’ when said of a dog, and of a cat. An equivocal term applied to two different objects signifies something in each which is simply unsame, as ‘cricket’, when said of an insect of the order orthoptera and when said of the game played with a ball and a bat. An analogous term applied to two different objects signifies something in each which is the same and something which is unsame, but more unsame than same. For example the predicate ‘good’ when said of a meat pie, and ‘good’ when said of a man signify two fundamentally different realities, yet with a degree of similarity.

quantity.⁵ Immaterial substances, in contrast, have no parts and no material attributes whatsoever.⁶

With the recession from metaphysics to materialism precipitated by Descartes, the Aristotelian notion of *aether* became debased. Scientists such as Newton who insisted on the need for physical contact between all bodies denied the existence of a void, yet conceived *aether* as something material understood univocally with all other material things, albeit in a rarefied form like a gas. So did his successors. The celebrated Michelson-Morley experiment in 1887 which purported to debunk the existence of *aether* by failing to find evidence of its influence on the speed of light measured simultaneously in two directions at right angles was premised on this erroneous understanding of the nature of the thing⁷. Since *aether* has almost no observable characteristics its existence is anomalous to a discipline formed under positivist and empiricist philosophies whose imperative is that what cannot be observed by the senses simply does not exist. Little wonder, then, that modern science should have been content to shoulder it aside.

Aether's Characteristics

Aether's properties are almost entirely negative.

- It is immutable, that is incorruptible, because *aether* possesses a certain total and universal perfection that fulfils perfectly its potency for existence.
- It is intangible, taking that word rigorously. It cannot be touched, though it can, and does, touch everything. Because it cannot be touched, it cannot be moved. Nor is it subject to the effects of temperature or pressure.
- It is transparent. This is its definitive characteristic. It is transparent by essence.⁸
- It transcends place and cannot be excluded from any space by extracting therefrom every other known substance. It is not *in* things or *between* them. The cosmos is the *aether*, from the sublunary regions to the periphery. *Aether* has no container of its own; rather, is it the first container of everything else.
- It transcends time since nothing in time can affect it.
- It is a medium, indeed pure medium, and the apt vehicle for the passage of light and radio waves of every amplitude and frequency.
- Yet it is material and there remains in *aether* an indicator of this materiality in the fact that the speed of light is not unlimited but determined at 186,000 miles (300,000 kilometres) per second.

⁵ Metaphysics considers every material substance as comprised of substance and the accidents which inhere in it. There are nine accidents: quantity; quality; relation; when; where; action; passion; habitus and situs.

⁶ An immaterial substance is only in the place where it operates. The soul of man, an immaterial substance, is in his body, and an immaterial being such as an angel is only where, and there only so long as, it operates.

⁷ Cf. *A Brief History Of Time*, Stephen W. Hawking, Bantam Books, 1992, p. 20; also the article at <http://en.wikipedia.org/wiki/Michelson-Morley>

⁸ In this characteristic it exemplifies its proximity to the immaterial for, as the ancient philosophers used to say, it is matter that impedes knowledge.

- It offers no apparent resistance to the passage through it of any physical body but would do so, conceivably, to a body whose speed approached the speed of light.

Conclusion

Aether's existence is deduced by intellect, rather than arrived at through induction from observation of effects for its properties are almost entirely negative. Two effects alone, in the view of this writer, are positive. Both effects are taken for granted; both demand a cause; both are universal, as universal as is the presence of *aether*. The first of these effects is *aether's* transparency. The second is that it is *aether* which determines the speed of light. *Aether* is the matrix in which exist all material things. Adopting, with due deference to the Creator, the words of St Paul, one could say that in *aether* we live, and move, and have our being.⁹

Christopher Decaen has performed a singular service for the philosophical and scientific communities in gathering the metaphysical teachings on the subject and contrasting with them current scientific thinking.

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⁹ Cf. *Acts* 17: 28