

## FURTHER THOUGHTS ON ARISTOTLE'S AETHER

One objection to the thesis I have advanced in *Science and Aristotle's Aether*<sup>1</sup> was made in these terms:

"If *aether* is one of the media that transmits light as does air, water, etc., then we could just as well say that any one of them is the one cause or explanation. There is no reason to privilege *aether*. In any case *aether*, as Aristotle conceives it, is a body (no doubt very subtle - aetherial) not a pure quality. I fear that you are hypostasising the qualitative potential of the medium which Aristotle says is common to air, water, aether etc. We may not have a name for [this potency] but that does not mean we have to identify it with one of these corporeal bodies which function as media of light, heat etc. The heat in water and air, for instance, is not due to one so that I need to say that the heat in water is because there is air in it. The form of heat or light in the different corporeal media is not the same but similar only. The heat of the air is not the same heat as that of the water though they are necessarily from the same source, and a likeness of it."

Note that by "hypostasising" here, the critic means "treating as a substance what is in truth an accident".

I think the objection is to be answered in this way. Neither air nor water nor glass nor any other diaphanous medium can be the means of transmission of light from the sun. But *aether* is. Hence, *aether* is, to use the suggested term, "privileged". I accept that *aether* is a substance, though not in the sense in which we understand that term of common material being. It can only be called a body analogically, somewhat after the fashion in which we speak of the sea as "a body of water". The qualitative potential in *aether* cannot be the same as that in air, water, or glass, etc. because *aether* is not a material substance in the same way as those things are, but analogically so. Thus, in contrast with the manner in which these qualities appear in air, *aether* is not lit by the light it carries, nor is it heated by the heat. Aristotle sets forth the reason why this is so in *De Caelo* I, 3:

"Alteration is movement in respect of quality... {Q}ualitative states and dispositions do not come into being without changes of properties. But we see that all natural bodies which change their properties are subject without exception to increase and diminution."

But *aether* is ungenerable and incorruptible, that is, not subject to increase and diminution. Hence it is not able to be affected by the qualities it carries. St John of the Cross demonstrates the truth that light in *aether* is invisible in his theological treatise, *The Ascent of Mt Carmel*. When the light and heat borne in *aether* meet a body of common matter, as for instance, a space station in the residual atmosphere about the earth, they light up and heat that common material body.

There is a difference between light and heat. Once it has arrived after passage through the *aether* from the sun, the mode of heat's transmission changes. This occurs in three ways, radiation, convection and conduction, each of them modes

---

<sup>1</sup> <http://www.superflumina.org/ether&science.html>

proper to the bodies in which the heat finds itself.<sup>2</sup> Aristotle distinguishes heat from light precisely in this difference in mode of transmission. But light's facility *does not change* upon its arrival via the *aether* at a common material body. It remains as it was in 'space'. *Ergo*, I argue, the vehicle of its transmission remains *aether*. In my view the speed of development of light is altered by the diaphanous medium in which it finds itself because the atomic structure of that (common material) body suppresses this facility of *aether*. This suppression is notable in diaphanous bodies such as water and glass but hardly signifies for air. It is measured by refractive index. Science takes as a standard for refractive index the speed of light's development *in vacuo*. For practical purposes, however, it uses air at a standard temperature and pressure<sup>3</sup>. Inevitably, then, air has a refractive index relative to that of a 'vacuum'. Though I cannot locate a figure, it is probably of the order of 1.0005, marking a fractional slowing of light's development in earth's atmosphere.

We take *aether's* immensity for granted. The light from *proxima centauri* (part of *alpha centauri*, the closest star—there are in fact three stars so closely aligned that the human eye cannot discriminate between them) travels [186,000 × 31,536,000 × 4.22] miles to reach our eyes<sup>4</sup>, only the last twenty of which are constituted by earth's atmosphere. In the whole universe no element of common material being is more extensive than is *aether*.

Christopher A Decaen has this to say in his paper *Aristotle's Aether and Contemporary Science*:

"If *aether* is incorruptible two conclusions follow right away, one pertaining to its substantial principles and the other pertaining to its qualities. First, *aether's* prime matter and substantial form must be so perfectly united that the latter must actualize and thereby exhaust the potency of the former, insofar as an incorruptible body by definition must lack the potential to become anything else; *aether* must possess a 'certain total and universal perfection' that thoroughly fulfills its potency for existence. Indeed, if one were not to distinguish fulfilled and unfulfilled potencies, one might be tempted to say that the heavenly substance *has no* prime matter. More accurately, however, one should conclude that, unlike sublunary composites, *aether's* prime matter is always perfectly fulfilled, so it is inseparable from its form, and in this sense is not really distinct from it. Likewise, since its prime matter would not be a principle of *aether's* coming to be, but only of its being, it would not be the same sort of prime matter that is a principle of mundane substances (which is a principle both of coming to be and of being); it would be called prime matter only analogously."<sup>5</sup>

---

<sup>2</sup> The Principle of Reception applies—*Quidquid recipitur, per modum recipientis recipitur.* (Whatever is received, is received according to the manner of the recipient.)

<sup>3</sup> [http://en.wikipedia.org/wiki/Refractive\\_index](http://en.wikipedia.org/wiki/Refractive_index)

<sup>4</sup> I find this manner of calculation more graphic than showing the calculation as  $2.475 \times 10$  to the power of 13. Incidentally, while we are busy gazing into the *aether* of the night sky, the earth is moving through it at about 15 miles per second.

<sup>5</sup> *Aristotle's Aether and Contemporary Science*, The Thomist, 2004, cf. <http://www.thomist.org/> The paper was originally freely available on the internet. One must now subscribe to the journal to obtain access. Decaen quotes a phrase from St Thomas's commentary on Aristotle's *De Caelo* (*I De Caelo* VI, 6): "*huic autem materiae vel subiecto non est nata inesse alia forma,*

I had early entertained doubts as to whether light was carried in *aether* and thought that it was simply a pure instrument of light's transmission. I accepted, however, in accordance with the mind of Aristotle and St Thomas, that light is a quality and *aether* is in potency to that quality. Modern science can show us that it is in potency to many other qualities too, including those it characterises as "electromagnetic energy". It is almost as if, *qua* these potencies, *aether* is not material at all. I think, then, that one may licitly speak of *aether* almost as if it was an hypostasised accident.

*Aether* is, in my view, the matrix of all physical reality, though by 'matrix' here I do not mean that it is the source of being of common matter after the fashion of a mother liquor towards the crystals that grow in it. A fish cannot exist except in water which is a *per se* cause neither of its coming into existence (becoming) nor its existence (being). Yet water is an essential condition, a cause *per accidens*, in respect of both. In the same way, I contend, no material thing comes into existence, or subsists, but in *aether*, which is just as essential to it as is water to the fish.

What follows if this be true? *Aether* must be ontologically prior (i.e., prior in the order of reality) to all common matter.<sup>6</sup> Perhaps it is to be comprehended in the expression "the heavens" in the very first words of the Book of Genesis, "*In the beginning God created the heavens and the earth*". In which event "the earth" may be taken as signifying all common material being throughout the universe, and the order in the passage as indicating the order of their creation, first "the heavens", then "the earth".

\*

\*

Almighty God, who could provide us with all our needs at once, deals with us *humano modo*—in a human fashion—handing them to us day by day. This is not only the case with our physical needs—the food we eat, light and warmth, the companionship of friends, the very air we breathe—but with our spiritual and intellectual ones too.

Any scholar, any artist, will remark how the grasp of knowledge or art in his chosen field grows month by month, year by year. He may, too, mark the sudden realisation of some element in his study, some understanding that bursts upon him like a revelation. In the course of my studies of the philosophy of Aristotle and St Thomas Aquinas, I had understood the principle that what science calls 'space', or

---

sed forma sua replet totam potentialitatem materiae, cum sit quaedam totalis et universalis perfectio."

<sup>6</sup> This distinction between the order of reality and the order of time (the *ontological* order and the *temporal* order) is critical in metaphysics. An illustration will assist: a man is ontologically prior to his shadow, even though the two be together in time as he walks across a sunlit beach; his foot is ontologically prior to the footprint it makes in the sand. The sea is ontologically prior to the fish that swim in it even if Almighty God created the two at the same instant.

'void', is impossible: *for nothing does not exist*. What filled the heavens, I was told, was extremely rarified matter. This explanation was hardly more satisfactory than that advanced by science. I assumed it represented the mind of the philosophers until I read the paper of Christopher A Decaen referred to above. Then I understood that *aether* has nothing in common with material being as we understand it: *it is utterly different*. Here was a profound revelation! For once this understanding was added to the facts modern science has discovered about the natural world, the consequences would be immense.

Then felt I like some watcher of the skies  
When a new planet swims into his ken;  
Or like stout Cortez, when with eagle eyes  
He stared at the Pacific—and all his men  
Look'd at each other with a wild surmise—  
Silent, upon a peak in Darien.<sup>7</sup>

Michael Baker  
29<sup>th</sup> June 2008—*Solemnity of Sts Peter & Paul*

---

<sup>7</sup> John Keats, *On First Looking into Chapman's Homer*. The reference to the new planet relates to the discovery in 1781 by Astronomer Royal, Sir William Herschel, of the planet *Uranus*, the first planet to be added to those known to the astronomers of antiquity. It hardly matters that his mention of Hernán Cortés was in error—it was another Spaniard, Balboa, who first "stared at the Pacific".