

Excerpt from **The Subtle Ether**

Sometimes it seems like there's nowhere solid to put your feet any more. Has it all got a bit too much? When you feel seasick with it all, stare at a blank, white sheet of A4 paper and listen to Bach. When that sheet of paper is flat you can measure the distance between the two diagonal corners exactly, and even calculate the other dimensions. It's absolute. Clear as day. Everything is in its place. But if you crumple up that sheet of paper, maybe even stuff it in your mouth and have a good old chew, those two points might be right next to each other, but the dimensions of the paper haven't changed. That's the topology of networks. That's the way our world is now; no absolutes. It's not made up of elegant cubes and spheres, but nonlinear feedback loops, iterated functions, strange attractors, seahorse tails, ferns uncurling, ocean gyres, hurricanes and the whorls of a plume of cigarette smoke. Magic and chance everywhere you look.

Oh, but it must have been comforting when God was in his heaven and the universe all worked smoothly like a clockwork orrery and everything had its place and all the greatest minds of your generation were engage on breaking things down into smaller and smaller bits to see how it all worked, and where it was all going, and it was all marvellous, evidence of a divine and benevolent intelligence at work. You can hear it in Bach. You can hear it in the Goldberg Variations. Pure maths and harmony and just the right little grace note coming at just the right moment to give you a delicious little frisson, and you know exactly when the end has come because it's all resolved and the music comes to rest just as it should.

So when it all makes you feel a little queasy, breathe deeply, look at that blank white sheet of paper and listen to Bach. Indulge for a moment in nostalgia for a world where everything was about to add up, it was all going to be figured out for you, build solidly from the ground up.

There's that quote of bacon, going on about mastery over nature, it's them against us but it's alright chaps, we're winning. Mechanistic, deterministic, reductionist. Not Chance but Design.

Until those crazy Romantics started going on about transcendence and the infinite, Wordsworth dwelling in the light of setting suns, Blake cursing Newton, all those gentlemen tramping about in the Alps reciting poetry and having elevated thoughts about the Sublime. It could only end in tears. Or Chaos.

But Newton had his moments. He found it absurd that objects seemed to be able to communicate with each other without exchanging any physical substance. What was it filling the emptiness? Electricity? The ether?

In 1902 the French mathematician Poincaré was still searching. 'We know whence comes our belief in the ether. If it takes several years for light to arrive to us from a

removed star, it is no longer upon the star nor is it upon the earth; it must be sustained somewhere, and supported, so to speak, by some material.'

Sometimes the harder you look for something the harder it is to see. Like stargazing. A star whose light is just visible to the naked eye will vanish when you look directly at it, but gleams coyly in the corner of your eye when you look aside, always shy of your direct gaze.

The subtle ether was not directly observed by scientists. It was deduced to exist, invented really, because it was needed to explain other observable phenomena.

It's the stuff between things, explaining effects at a distance. It's what the light from distant stars travels through to get to us. It's what lies in the space between nucleus and buzzing electron. It was supposed that an ether wind passed unhindered through the structure of things, passing through the molecules of entire planets like a breeze through a forest. Even now, scientists tell us that most of the universe consists of 'dark matter', a substance which has never been seen, measured or recorded, remaining resolutely insubstantial and elusive in every respect. Dark Matter is wedged in the spaces between galaxies like packing material in a crate.

'It's a fairly embarrassing situation to admit that we can't find 90% of the universe.'
-Bruce Margon, chairman of Astronomy Department, University of Washington.

Everywhere we look we only see ourselves. Is an electron a wave or a particle?
Neither and both. It has become a commonplace to both scientists and artists that reality is a peculiar alchemy between observer and observed.

The subtle ether abolishes distance and emptiness. It fills the gaps. It lies in the spaces between notes of music played hesitantly. It is what we see when we look at the sky to be lifted out of ourselves for a moment. It sustains light across the cold vastnesses of space to bring us the specks of light that tell us that we might not be alone. It is longed-for substance. We need it.

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