

COSMOS. My favourite place to visit is vast. Astronomers measure its vastness by how far light travels in one year. Light moves quickly - one thousand million kilometres per hour - it could orbit Earth seven times a second; it traverses Sun to Earth in eight minutes and in a year it travels ten trillion kilometres (six trillion miles). **T**he cosmos is ninety billion light years across: about 500,000,000,000,000,000,000,000 miles. There are two hundred billion stars in our galaxy - the Milky Way - which is a hundred thousand light years in width. It is one of a hundred billion galaxies. There are billions of trillions of stars in the cosmos - and billions of trillions of planets. **I**f that is not enough - this is truly astonishing: Most of the universe is empty. The nearest star is four light years away - the nearest galaxies as far as a million light years. Were we randomly inserted into the cosmos, the chance we would end up on a planet is one in a billion trillion trillion, a one with thirty three zeros.

The most compelling pictures from space are of nebulae - cosmic clouds of gas and dust - many of which measure several light years across. Dust particles at most are a tenth of a millimetre in size. Their density on Earth is a hundred particles per cubic centimetre - in space the density can be one particle per cubic centimetre or less.* **H**ow can we humans get a perspective on the cosmos as regards our selves, our spirituality? Lao Tsu wrote in the *Tao Te Ching* (600 BCE): "There is a thing confusedly formed - born before heaven and earth - silent and void - it is capable of being the mother of the world - I know not its name - so I style it The Way." **T**he Way is Tao** - the order of the universe. Everything in the world is an expression of Tao; furthermore, Tao is man's inner, divine power. In Taoism man is a microcosm for the universe. The *Upanishads**** (800 BCE) reflect this view: "A little space in us is as great as the universe, and so the whole universe dwells in our heart."

My reading list for cosmic armchair travellers: Cosmos - Carl Sagan; A Brief History of Time - Stephen Hawking (treat yourself to the illustrated edition); The Edge of Infinity, etc. - Paul Davies. This is my favourite cosmic picture book: The Invisible Universe - David Malin; and don't miss the tv series Wonders of the Universe with Brian Cox.

**I am most fascinated with those cosmic dust clouds - the nebulae - simply because they make for such spectacular visuals, but I have to say it was tricky to find data about their consistency. The issue became much more clear in an email exchange with David Malin, astronomical photographer extraordinaire (www.davidmalin.com):*

"A few dust particles are a tenth of a millimetre in size, most are a thousand times smaller, more like smoke than the dust of the desert ... its density can reach one particle per cubic centimetre - it does near the sun - but elsewhere it can be much lower (one particle per cubic kilometre) or one thousand times higher in a molecular cloud ..."

***see also TAO*

****see also VEDANTA*

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