

### **Cosmology – implications of the wrong ideas**

Cosmology isn't just a set of abstract thoughts whose implications are discussed in monastic common-rooms or academic papers. Let me give you an example. You are living around 2500 BC, near the banks of the Nile. You are King, or a Queen as the case may be. The Sun rises at dawn over your pride and joy in the East, the fresh, green, irrigated fields of alfalfa. It soon clears all features on the horizon landscape, lording it over your kingdom, bringing ever more heat and light to your people and your crops as it gets higher and higher. As you sleep through the heat of the afternoon, the Sun declines and as the evening closes in, the Sun sinks down to the Western horizon before disappearing to the underworld, to the world of Osiris. Osiris looks after it until it is re-born afresh the next morning.

Now, since childhood you have heard that Kings follow the cycle of the Sun. Kings are born, rise up in their powers for 20 to 30 years, they rule, and finally death will claim them and you (and your spouse) will enter the underworld of Osiris. This idea brings natural order to the world. The human cycle is but the daily cycle, spread over a longer time. But, says the custom of your people, to see you safely through your journey in the underworld to re-birth, you need a resting places where your spirit, your life force, your Ka, can be nourished. Such a resting place is your pyramid, which you must plan for as long as it takes, probably much of your royal life. You must furnish the pyramid with guiding inscriptions for your Ka, with stone pictures of your retinue, with a history of your achievements. If you are king, you have had the constant attention of your wife, who has brought you daily comfort; of your vizier, whose advice has enabled you to keep your friends and deal with your enemies; of your armourer, through whose knowledge and provisions you won your battles; of your treasurer, through whose prudence and generosity you lived the full life of a King, and of your many faithful servants, whose lives are owed to you. When you die, all these should accompany you on your journey through the underworld. They will be needed as soon as you die and you cannot wait for their natural deaths.

You can see, without me needing to spell out much more, that what started out as part of a cosmology, an idea with the best intentions to unify our experience of nature, has had monstrous consequences. Thousands are set the task of a decade of building a splendid pyramid on the edge of the desert; upon your death there will be a hemlock party, or worse, for many good people so their spirits as well as yours can accompany you on your new journey. Why? Because the cosmology of the day decreed it should be so. Cosmology which, to our eyes, is based upon a false analogy. The Sun rises and sets because the Earth spins around on its axis. Biological birth has nothing to do with dawn; death nothing to do with sunset. That Osiris looks after the Sun in the underworld during the night is a figment of a vivid imagination. Yet forced labour and forced deaths result from this cosmology. Don't underestimate the power of cosmology. The logic of wrong ideas is as powerful as the logic of the truth.

I've simplified the story of what actually happened 4500 years ago, but you get the idea. Closer to home in time and space another story played out. The stars go round in the night sky as if on a huge sphere surrounding us ('the celestial sphere'). The Earth may look pretty flat once you've taken account of hills and valleys but some thoughtful observations show it is actually a huge sphere. The stars and planets go around this sphere so it's 'common sense' that the Earth is at the centre of all we know ('the universe') and the stars are on a surrounding sphere. The planets move relative to the stars so, just as people moving some distance away slide across the even more distant background, the planets must be nearer than

the stars. Since the creator of all things has made the universe from spheres, then the planets move around the Earth on their own 'heavenly' spheres. It's all common sense if you think about it and what's common sense is surely true. Besides we, the guardians of authority, say it's true, so that's the end of the matter. It's true because we say it's true. There can be no argument with the referee's decision. Those who began to argue with the referee, such as Giordano Bruno and Galileo Galilei, paid a heavy price. We now know the story is almost all nonsense, though the Earth is pretty round and the planets are certainly nearer than the stars. For many centuries the people of many countries were absolutely certain that the story was true. It became embedded knowledge, as true as the fact that we have ten fingers or get hungry when we don't eat. If you thought otherwise, then you were probably crazy and the ethos of society was that crazy people upset the equilibrium of society and need to be put away. Had I written this 400 years ago I, too, would have been branded as crazy. 'Common-sense' may be common-nonsense.

People say that over the millennia cosmologies come and go so it's likely that the cosmology of today will be have been rubbished by 400 years' time. I have my doubts. Absence of knowledge is some excuse for past nonsense. Unlike all earlier versions, today's cosmology is based upon an enormous amount of observation of what is actually in the Universe and how it behaves. Another strong argument in its favour is that, based on this knowledge, it has been put together by many thousands of people from all over the world – the product of a democratic process rather than the diktat of an unquestionable authority. There is no *sanctum sanctorum* of modern cosmology. The picture in 400 years' time will have more detail painted in and parts unseen today will be visible but I'd wager my descendants' money that we would instantly recognise their view of things if we could see it now. Unfortunately that's a wager that neither you nor I will be able to call in.

*JSR*