Booknotes

Holmes Rolston III notes that while seeking 'theories of everything' is almost *de rigeur* within astrophysical cosmology, in metaphysics 'grand narratives' are strongly discouraged. In his *Three Big Bangs: Matter-Energy, Life, Mind* (Columbia University Press, 2010), Rolston shows no metaphysical inhibition. Nor does he waste time or words: his argument is presented in a mere 124 pages of text. Given that in these 124 pages he synthesises and explains a huge amount of scientific research in the relevant domains, this in itself is some achievement.

Broadly speaking, Rolston wants us to see that the development of life in general and of the human mind specifically are as much instances of cosmic singularity as is the original big bang in which our universe (*the* universe?) came into being some 13.7 billion years ago. The original big bang is deeply mysterious, the more we think about it, both in the extraordinarily precise and delicate way the initial conditions seem to conspire to produce life and mind, and also in the way that the workings of the cosmos are apparently susceptible to mathematical analysis. So far, so familiar, and much argued about in discussions of the 'anthropic' principle. How any of this is to be understood remains, naturally enough, controversial (and perhaps the interpretation one gives will depend on whether one is, in William James' terms, 'tender-minded' or 'tough-minded'), but anyone who fails to be impressed by the basic facts, as far as we can understand them, probably does not understand them.

But when we come to the Earth, life itself, with its hitherto unprecedented informational complexity leading to agency, takes us far beyond what matter and energy (the first big bang) will have prepared us for. In Rolston's words, 'something can be discovered, learned, conserved, reproduced on Earth, but not on the moon'. Reagents become agents. In this context, Rolston argues against Christian de Duve and Simon Conway Morris and along with what he calls the biological mainstream, to the effect that life was not inevitable in the universe, given what had happened up to that point in the inorganic world. With life, and within life, new possibility spaces open up, and these include possibilities for systems (living things) that are able to modify the universe for their own ends. All through nature, looking at the biological account, Rolston sees 'radical creativity', rather than 'fine tuned clockwork', and he also sees explosions of progress.

doi:10.1017/S0031819110000707
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https://doi.org/10.1017/S0031819110000707 Published online by Cambridge University Press

With minds – human minds – these possibilities take another quantum leap. Consciousness existed already in the organic world (though that too is something for which we have no shred of an explanation), but the human mind gives us unprecedented capacities for processing thoughts, ideas, and symbolic and mathematical abstractions, for language, and for understanding other minds. Here, as elsewhere, Rolston is very sharp in pointing out that those who would see similar capacities lower down the evolutionary scale can make their case only by underestimating human capacities and over-estimating those of various animals, remarkable as those may be. To our knowledge, we alone in the universe have an ability to understand and to value the universe and what is in it. We are also able to speculate on the force(s) which have brought about the three big bangs, and to which we seem so attuned. Are we, perhaps, aware of a Transcendent Presence within or beneath the whole process? And if so, how should we conceive of its operation?

Given Rolston's theme and his general orientation, even in a short book many readers might have expected some discussion of Intelligent Design. They will look in vain, and nor will they find anything about traditional theistic arguments. What they will find, though, in a number of places, is speculation as to whether the big bangs and their subsequent workings out are what one might refer to as 'front loaded'. What this means is to raise a question as to how far developments in the universe are pre-determined, as opposed to being unique and unpredictable singularities, great and small. Rolston's own sense is always to emphasise the unpredictability, the open-endedness of the possibility spaces he sees being opened up. 'Intelligent Design' and other traditional theistic approaches would clearly be too deterministic for Rolston's taste. The Presence he sees as suffusing the universe, and also our life and mind, respects the openness of the possibilities It has allowed. It works through their own freedom and indeterminacy, rather than anticipating or constraining their development.

Rolston's vision is certainly impressive, and he himself is particularly concerned to emphasise the complexity of the human brain. Consisting as it does of $10''$ neurons and of unimaginably many connexional possibilities – greater than the number of atoms in the known universe – it is by far the most complex thing we know anywhere or in any realm. In that sense we have no need to compare ourselves to our disadvantage with the sheer size and physical extent of the universe. However, and this is the point at which Rolston's positive vision seems in need of a religious underpinning, we might still baulk at the results of all this complexity. True,

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human beings as a species have done wonderful things, but the majority of individuals haven't and don't. Leaving aside the evil we do – to nature as to ourselves – one might be overwhelmed by the sheer mediocrity and lowness of so much human effort (or, often, of our laziness rather than our effort). Of course none of this would do anything to discount the remarkable nature of the story Rolston has to tell; but it would pose a question as to its possible meaning or point, a question which would take us rather beyond a *metaphysical* grand narrative.

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