

Book Review

“SEVEN BRIEF LESSONS ON PHYSICS”

BY CARLO ROVELLI

“These lessons were written for those who know little or nothing about modern science”

Unfortunately I have never had much of a brain for mathematics. Words,- yes. Numbers,- alas, no. In fact it was rather amazing that I managed to pass the 11-plus, and at grammar school quadratic equations, how they were formed and what possible significance they might have had for me, remained an enduring puzzle. This ignorance is all the more regrettable since an understanding of mathematics is crucial for an understanding of physics, and all the truly astounding advances made during my lifetime concerning planet Earth and its place in the Cosmos have been made by physicists, building on the sturdy scaffolding erected by Newton and Einstein.

The stepping stone for these recent insights into the structure of the Universe came in the 1920s when the American astronomer, Edwin Hubble, discovered that our Milky Way galaxy was not the sum total of the whole universe, as many then believed. The fuzzy nebulae, glimpsed by his telescope on Mount Wilson, were, he realised, other galaxies like our own, but at an incredible distance. A new era in cosmology had begun. Today the space telescope which bears his name has for some 25 years been beaming back images of deep space which set the imagination reeling. Every speck of light in this image, sent from Hubble, is a galaxy containing billions of stars.



So for the person fascinated by physics and what it reveals, but lacking the mental capacity to engage with the subject on equal mathematical terms with the professional physicist, Carlo Rovelli's little book,(it only has some 80 pages) is manna from heaven.

The seven lessons cover Einstein's general theory of relativity, quantum mechanics, the cosmos or architecture of the universe, elementary particles, quantum gravity and black holes, whilst the final section discusses how man reacts to and thinks about the strange world described by physics. All the lessons are written in a clear, beguiling, almost poetic

language. It is perhaps almost unique for a book dealing with theoretical physics in that the non-specialist will feel compelled to read it to the end.

Even so I have to admit that I did not always find it an easy read. Certainly, I almost convinced myself that after reading the lesson on Einstein I now understood the general theory of relativity. But when it came to the lesson on the mysterious world of particles - all those atoms, neutrons, protons, quarks, neutrinos and now the Higgs boson, all invisible, whose very existence is conjectured, all apparently interacting with each other and with us, - I still find it a very difficult and very baffling kettle of fish, in spite of Mr. Rovelli's lucid prose. However, I draw some comfort from the fact that many physicists also question the validity of some of the Alice-in-Wonderland claims made on behalf of these particles.

The book has been translated from the original Italian into thirty other languages and has become a perhaps surprising runaway publishing success. It has sold even more copies than the porno saga "Fifty Shades of Grey", which I find very heartening, since it shows that I am not alone in the struggle to relate my life to the sometimes bizarre world described by physics, a topic which forms the final lesson of the seven. Here Carlo Rovelli comes to the probably accurate conclusion that humans are not long for this world. *"We are born and die as stars are born and die. We belong to a short-lived genus of species...All our cousins are already extinct...The environmental changes which we have triggered are unlikely to spare us....."*

David Cockman for HDAS November 2016