
Stephen Hawking, 1942-2018

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STEPHEN HAWKING, who has died at the age of 76, was diagnosed with a form of early-onset motor neurone disease (ALS) and given two years to live. When he asked the doctor if his brain would still function, the doctor replied: "Oh yes, except that no one will know what you're thinking". The illness has gradually paralysed him to the extent that he can only 'speak' by twitching a cheek muscle attached to a speech synthesizer. If Jesus suffered a whole weekend for our 'sins', Hawking has suffered for more than 50 years for knowledge of our universe.



In 2014 Eddie Redmayne won the best actor Oscar for portraying Hawking in *The Theory of Everything*, a film based on a memoir by Jane Wilde, his first wife of 25 years, called *Traveling to Infinity*. Redmayne is brilliant in the role, completely disappearing into the character. But the film itself rather sanitises that character who, like all of us, is not without his own black holes. In the Reith lectures, Hawking told us that the name 'black hole' suggests something dark and mysterious, and certainly *The Theory of Everything* doesn't shed much light on either his mind or the universe he has studied.

Movies often have difficulty with the complexities of science and, since they are essentially popular works of fiction, the facts tend to get deliberately distorted anyway. Thus there is a brief discussion in the film of 'black holes' in 1963, yet Hawking told us in his Reith Lectures that the term was introduced by John Wheeler in 1967.

That's a minor quibble with the film. More important are the black holes at the heart of Hawking's cosmology. The monotheistic religious explanation of the universe(s) posits a god who created it (them), but doesn't explain who created the god. Hawking explains the universe by reference to a big bang, but he fails to explain what existed before the big bang, what 'exploded' in the big bang, or why such an explosion happened in the first place. He says that events before the big bang can have no consequences and so should not be part of a scientific model of the universe. It's simply not a question that science addresses. But this is no different from the god evasion: just as we shouldn't ask the question who created god, nor should we ask what created the big bang.

The importance of this cop-out is emphasised by the fact that Hawking has spent most of his scientific career looking for 'the theory of everything'. Indeed, he has written that if we discover it, we can then ask "why is it that we and the universe exist". That in itself doesn't make much sense because if we had a complete theory, then we wouldn't need to ask that question. But, in any case, as we have said, he doesn't think we should actually ask what came before the big bang. There's a great deal of confusion here. It seems that, like many scientists, he wants us to ask questions except when he doesn't.

Then there is the question of the universe's apparent rationality. Hawking has spent much of his adult life studying

the laws of nature. But *why* does the universe appear to obey these laws? Why does the speed of light remain constant at 186,000 miles per second? Why does the earth rotate in 24 hours? In *The Grand Design* he writes that "this book is rooted in the concept of scientific determinism"; and later he says: "the universe is comprehensible because it is governed by scientific laws". But again he evades addressing the 'why' question. Why does this universe, or this part of a

multiverse, appear to be so 'rational'?

In the same work he bluntly declares that "Philosophy is dead". He offers as a reason that it has not kept up with modern developments in science, particularly physics, and that scientists have become the bearers of the torch of discovery in our quest for knowledge. Yet Hawking is mistaken, because philosophy governs our thinking about everything – our ideas about truth, meaning, justice, beauty, freedom... and science. Without philosophy, Hawking would not be able to distinguish between scientific and non-scientific views of the world and he would lack the tools to discover scientific truths or to convince anyone else that they were worth the effort. Why should we seek the truth about the world anyway? As science advances, it throws up ever more philosophical questions. Indeed, virtually every scientific area of inquiry began with a question or an insight from a philosopher.

Philosophy also governs our ethical values, and without them Hawking would lack the sketch map to guide the ways in which he decides right and wrong and how he lives his life. Moral dilemmas surround us everywhere, both in our own little lives and in the bigger world. Working out how to live a good, meaningful life is very different from understanding the meaning of quantum physics or evolution. Whether it is science, ethics or politics, without philosophy we are flailing about helplessly without logic, consistency or direction.

Science can help us explain the farthest reaches of the universe, but it cannot shed much light on love and the deepest recesses of the human psyche, as *The Theory of Everything* illustrates in the breakdown of Stephen's first marriage. And of course he has experienced his own physical black hole. Being told as a young man that you will become paralysed and be dead in two years is enough to drive anyone to the ultimate depths of depression. But his story is one of astounding triumph over adversity. Francis Bacon wrote: "Prosperity doth best discover vice, but adversity doth best discover virtue". In Hawking's case it shook him out of his student apathy and transported his mind to the stars. As he says in a *Radio Times* interview, what kept him going was his work and a sense of humour. He learned to laugh at himself and at life in general. He is truly an inspiration to us all. q