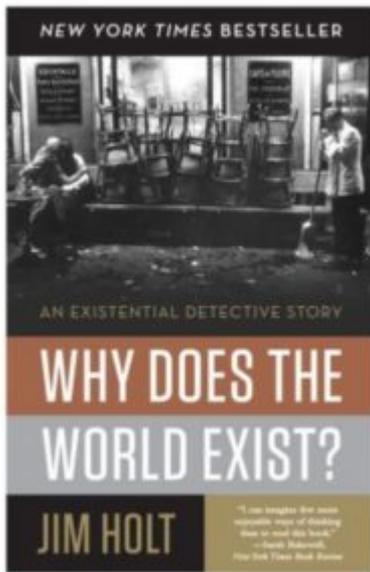


Why Does the Universe Exist and Other Things We Cannot Know

Philosophy used to be the king of science. Hard to imagine now, but it's true. Over the last few centuries, however, the divide between science and philosophy has grown larger and more irreconcilable, even while science overwhelmingly surpassed philosophy in importance. Philosophy has become a specialized field for unanswerable metaphysical and ethical questions, while science, the new king of human knowledge, searches for and finds answers. That is the conventional wisdom, anyway. Philosophy, more than a specific field of academia, is something more akin to a way of thinking, questioning the world, and exploring possibilities. In reality, all cutting edge scientific research depends on philosophy. Most theoretical scientists worth their microscopes would readily admit that posing questions, hypotheses, and thought experiments (otherwise known as philosophizing) are the foundation for conducting research. In philosophy, unlike in science or in daily life, questions *are* the answer, the journey, the *raison d'être*. As [Will Durant](#) wrote in *The Story of Philosophy*: "Science without philosophy, facts without perspective and valuation, cannot save us from havoc and despair. Science gives us knowledge, but only philosophy can give us wisdom."

Despite the opinions of some scientists, there are some questions that concern both philosophy and science, and there are certainly some questions that will likely never be solved even by futuristic science. These two issues are at the heart of two recent books I will review: *Why Does the World Exist: An Existential Detective Story* (2012) by Jim Holt, and *What We Cannot Know: Explorations at the Edge of Knowledge* (2016) by Marcus du Sautoy. I strongly recommend both books for

philosophically or scientifically inclined readers interested in life's biggest questions and mysteries.



A single question provides the impetus for the first book, whose title says it all: *Why does the World Exist?* Actually, the title does not say it all—the question should be framed: “why does the *universe* exist?” This is a question which most likely goes back to the dawn of mankind, to our most primitive myths and religions, and which certainly interested our earliest philosophers. As Holt goes on to show in great detail, it is also a question that has interested virtually every philosopher who ever lived (and not only philosophers but poets, preachers, politicians, and plumbers). There is something so basic, and fundamental, and unanswerable about the question, that anyone with a brain cannot help but give it some serious thought at some point in their life (and in many cases, over the course of their life). Holt points to the 17th century German philosopher and mathematician Gottfried Leibniz as the first one to really formulate and attempt to answer the question, “Why is there something rather than nothing?”

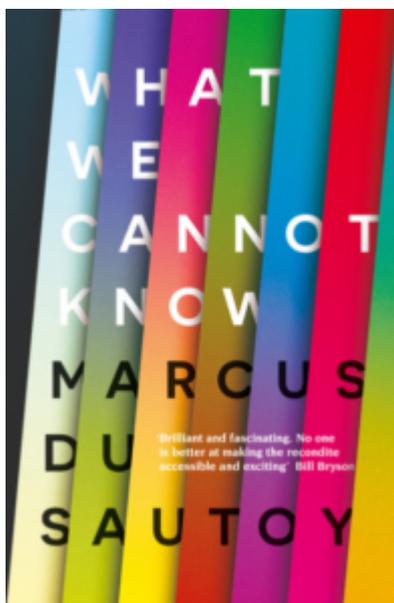
Spoiler alert: Holt does not conclusively answer the title question, but by the end of the book this lacuna is almost beside the point. It remains an unanswered and (most likely) an unanswerable question. Holt nevertheless travels around

universities and cafes in Europe and America to interview ten of the most brilliant minds across various fields that all have a stake in the question. Over half of Holt's interlocutors are theoretical or cosmological physicists: Andrei Linde, David Deutsch, Alex Vilenkin, Steven Weinberg, Roger Penrose, and John Leslie; the remaining four are two philosophers, Adolph Grünbaum and Derek Parfit, the theologian Richard Swinburne, and the novelist John Updike. Each interview gives new insight from a completely different perspective and set of assumptions. Holt, a philosopher himself, finally does attempt to formulate his own theoretical flowchart that explains how the universe could have come to existence out of nothing. The result is somewhat technical, metaphysical, and probably not terribly convincing, as the author himself might admit, but still food for a good day's thought.

Why Does the World Exist? is far from a dry recitation of theories and ideas, but rather a lively personal and even emotional journey which invites the reader to think for himself. We travel from place to place with the author, who writes in witty and readable prose. Along the way he fluently provides the commentary on the relevant existential views of virtual every major philosopher in the western tradition, along with abundant references to literature, art, and music. The book is so jam-packed with captivating information that I almost wanted to reread it immediately after finishing—the best praise I can give to a book, especially the philosophical non-fiction variety.

What We Cannot Know is another book which doubles as both a big-picture explanation of science and philosophy and a personal quest for the limits of human knowledge. Marcus du Sautoy is a mathematician whose title at Oxford University is Simonyi Professor of the Public Understanding of Science, a chair he took over from Richard Dawkins. If du Sautoy's goal is to help the public at large to begin to understand the

arcane questions that underpin the latest scientific developments, his book is highly praiseworthy but not completely satisfying. In this book, he sets out the task of exploring the limits of human knowledge in seven specific areas he calls 'Edges.' He explains: "They represent the horizon beyond which we cannot see. My journey to the Edges of knowledge to articulate the known unknowns will pass through the known knowns that demonstrate how we have travelled beyond what we previously thought were the limits of knowledge." Thus, he is interested not just in what we still do not know at the present, but what kinds of questions might be fundamentally unknowable to human science.



The seven Edges of knowledge du Sautoy discusses are the following: Chaos Theory, the indivisibility of subatomic particles, quantum mechanics, the limits of the universe, the nature of time, black holes, and what came before the Big Bang, the problem of human consciousness, and the troubling mathematical paradoxes surrounding infinity. Typically du Sautoy devotes two chapters to each Edge, with one being a summary of the relevant scientific history leading up to the present, the the second being an exploration of the possibilities for expanding our current knowledge.

One on hand it's hard to find fault with such an ambitious and

erudite book that just about does everything it set out to do. If I have any qualms at all they are more than likely due to my own significant limitations rather than the author's. I found it hard to keep track of exactly the main point of each chapter, each of the 'edges' that were being discussed at a time. Du Sautoy never gives a concise introduction or conclusion of each area that reinforces what the particular question under discussion was. Because of this, as well as the overly long technical sections, it was hard to maintain narrative focus. Added to the fact that I am much less capable of engaging in scientific and mathematical concepts than in history and philosophy, there were chapters which I found myself struggling to get through—say, the minute consistency of leptons, muons, and quarks and how they are measured. Obviously there were parts that I was more interested in than others, especially the more philosophical parts discussing the limits and origins of the universe (naturally, following Holt's book), and the debate of human consciousness and free will. Du Sautoy presents a massive, almost overwhelming, amount of information, and looking back, I find that there are very few specific things I remember learning from the book, rather than several general viewpoints I absorbed. If I had the time and patience to reread it, I would doubtlessly glean more than the first reading.

For those who are analytical minded and interested in the cutting edge developments of science and math, *What We Cannot Know* is a great book to get you started or broaden your base of knowledge. For others who prefer a more speculative, and focused journey into the philosophical history of the investigation of existence, *Why Does the World Exist?* is probably the best overall summary you will find on the subject.