

**Review of R. C. Sproul (1994) Not a Chance: The Myth of Chance in Modern Science and Cosmology Grand Rapids, Michigan: Baker Books, xiv+235**

This truly dreadful book contains ten chapters, with the following titles:

1. **The Soft Pillow.**
2. **The Mask of Ignorance.**
3. **A Quantum Leap.**
4. **The Voice of Reason.**
5. **Light and *the* Light.**
6. **Framing the Question.**
7. **The Policeman of Science.**
8. **Cosmos or Chaos?**
9. **A Being Without a Cause.**
10. **No Chance in the World.**

As the chapter headings—and title—reveal, the book is about the role of causation and chance in modern science, and, in particular, in modern cosmology. However, because the book is shot through with serious conceptual confusion, anyone who is interested in actually learning something about the role of causation and chance in modern science is advised to look elsewhere.

Indication of the confusion to follow begins in the preface. Sproul there writes: “[‘Chance’] has been used as a word to describe either the absence of cause or even a causal power itself. Mortimer Adler notes this new usage: ‘There is still a third sense of ‘chance’ in which it means that which happens totally without cause ..’. With this elevation of chance to the level of a real force, the myth serves to undergird a chaos view of reality.” (xiii) “This book is an effort to explore and critique the role chance has been given in recent cosmology. It may be viewed as a diatribe against chance. It is my purpose to show that it is logically impossible to ascribe any power to chance whatsoever.” (xiv) Sproul begins by mentioning two quite different ideas: (1) ‘chance’ can be used to describe **the absence of cause**; (2) ‘chance’ can be used to describe **an active causal power**. The quote from Adler is relevant only to (1); but the rest of what Sproul has to say is relevant only to (2). In Sproul’s mind, these two different ideas are constantly run together: how else are we to explain his claim that, in recent science and cosmology, chance is ascribed an active causal role? To my knowledge, there is not one serious article or book on scientific cosmology in which chance is ascribed an active causal role; though, of course, there are many current scientific theories which allow that there are events and processes which have no cause. Of course, Sproul is right to make fun of the idea that chance is an active causal power: but this view is essentially a straw man, since it is not one which is taken seriously by any respectable scientists or philosophers.

In Chapter 1—‘**The Soft Pillow**’—Sproul claims that God and chance are mutually exclusive (3), and that to have no cause ‘is in effect’ to be self-caused (13). Neither of these claims will survive much examination. On the one hand, it is plainly no harder to believe in a God who creates an indeterministic world than it is to believe in a God who creates a deterministic world. Moreover, it is part of the traditional theistic picture that there are all kinds of uncaused events in the world—e.g. the free choices of free human agents—so, in some sense, it may actually be easier to believe in a God who creates an indeterministic world. (Some

people might object to the implicit assumption, which I have made here, that causes necessitate their effects; however, it is clear that Sproul must subscribe to this assumption—for the alternative view is precisely that it is a matter of chance whether given events are caused by prior given events.) On the other hand, the conflation of ‘uncaused’ with ‘self-caused’ is both outrageous and gratuitous. To say that something is ‘self-caused’ is to say that that thing has a cause, namely itself; whereas, to say that something is ‘uncaused’ is to deny that it has any cause at all. There is no sense in which these claims are ‘tantamount to the same thing’: one might as well say that to be excelled by nothing is the same thing as to be self-surpassing, or that to be disliked by no-one is the same thing as to be self-hating ...

In Chapter 2—‘**The Mask of Ignorance**’—Sproul provides quotations from, and discussion of, a variety of thinkers who have contended that ‘chance’ can only be ‘ignorance of real causes’. Significantly, none of the figures quoted belongs to the twentieth century: for, of course, if one believes in a deterministic universe, then one will think that talk about ‘chance’ is only talk about ‘ignorance of real causes’. However, while it is undeniable that talk about ‘chance’ is sometimes talk about ‘ignorance of real causes’—e.g. in the roll of a dice or the toss of a coin—it does not follow from this, nor from appeal to eminent authorities, that all talk about ‘chance’ is talk about ‘ignorance of real causes’. If there are events which have no cause, then—as Sproul allows—it is perfectly permissible to label these ‘chance’ events, but without any presumption that we are here just talking about ‘ignorance of real causes’. (At (24), Sproul claims that Aquinas rejected chance as causal power because it would imply that matter could arise ‘spontaneously—that is, by chance, or without cause—from nothing’. But Aquinas is not subject to the same confusions as Sproul. Of course, if chance is a causal power, then things which happen by chance do have a cause, viz. chance! Aquinas is opposed to events which have no cause—i.e. to ‘chance’ events in this different sense—because he wants to rule out the possibility that the physical universe might have ‘arisen by chance’ in this latter sense.)

In Chapter 3—‘**A Quantum Leap**’—Sproul focusses on a passage from Timothy Ferris’ rather nice book *Coming of Age in the Milky Way*: “When a photon strikes an atom, boosting an electron into a higher orbit, the electron moves from the lower to the upper orbit instantaneously, *without having traversed the intervening space*. The orbital radii themselves are quantised, and the electron simply *ceases to exist at one point, simultaneously appearing at another*.” (44, 288 in Ferris). Sproul complains that this passage is nonsense, and that the world could not behave in the way described. Now, it may be that there is something wrong with the quoted passage—perhaps quantum mechanics does not commit us to ‘quantum leaps’ of the kind therein described—but it is hard to see why one should be confident that it is *impossible* for the world to be as there described. Quantum mechanics is a well-supported empirical theory, and we need some account of its success. The most plausible explanation is that it is a true—or, at any rate, nearly true—picture of reality; and, if that’s right, then we need to figure out how to properly interpret the theory, in order to get an accurate picture of reality. Now, of course, there are hard questions here—it may be that quantum mechanics is not true, and there are many competing interpretations of quantum mechanics on the market, not all of which hold that there really are ‘quantum leaps’—but there is nothing in any of this which suggests the attribution of ‘real causal powers’ to chance. (At (48f.), Sproul has a lengthy discussion of the impossibility of ‘uncaused effects’. This discussion is pointless, since the proper target of his suspicion is the view that there are ‘uncaused events’—and it is not in the slightest bit plausible to suppose that there is a mistake about the meanings of words involved in the claim that there can be uncaused events.)

In Chapter 4—‘**The Voice of Reason**’—Sproul claims that Einstein’s response to QM was ‘reasonable’, and that Bohr’s claims about QM were ‘contradictory’. There is clearly some truth in this: Bohr does make apparently contradictory pronouncements about QM. Moreover, there are serious questions about the tenability of the ‘Copenhagen’ interpretation of QM. However, as I mentioned in the previous paragraph, it is one question whether QM is true; it is quite another question how it is best interpreted. More importantly, it is not at all clear that Einstein was right to object to the ‘objective indeterminacy’ which seems to many to be built into QM. Certainly, if there is ‘objective indeterminacy’ in the quantum world, then the quantum world is very different from the way that the macroscopic world appears to be. But these are hardly *a priori* grounds for ruling out ‘objective indeterminacy’. Moreover, it is worth noting—*pace* Sproul—that there is no reason at all to think that QM is contradictory because it allows that chance has ‘real causal powers’. QM may well be indeterministic—though this is disputed by Bohmians and others—but, if so, it says no more than that there are events or features of reality which have no cause.)

In Chapter 5—‘**Light and the Light**’—Sproul argues that there is a close—but imperfect—similarity between ‘the QM paradox’—the ‘wave–particle duality’ of matter and radiation—and the paradoxes of Trinity and Incarnation. In his view, ‘the QM paradox’ is resolved by inventing new vocabulary—‘wavicles’—whereas the theological paradoxes are resolved by noting that there is no genuine contradiction. According to Sproul: “If such a thing exists as a wavicle ... there is no harm to physics.”(89) But this seems to contradict the stance which Sproul took in Chapter 3 about the QM description of electron orbits: wavicles are just the kinds of things which are appropriately described by the passage to which Sproul there vehemently objected. (It is also worth noting that there are other important disanalogies between the theological case and the QM case: in particular, there is an empirically tested mathematical formalism which is being interpreted in the QM case, whereas, in the theological case, there are only dubiously intelligible distinctions concerning ‘essences’ and ‘personae’.)

In Chapter 6—‘**Framing the Question**’—Sproul takes on some philosophical questions about the connections between ‘phenomenal appearance’ and ‘reality’. As was the case in the previous chapter, the philosophical discussion in this chapter skates very quickly over vast tracts of difficult terrain. More importantly, the issues which he considers seem to have little, if any, connection to the main thesis for which he argues. One does not need to be a relativist, or a solipsist, or a subjectivist, or an anti–realist of some stripe, in order to allow that there are some events which have no cause. Indeed, it is only those who share Sproul’s realist tendencies who will be prepared to join battle with him on the issue of the universality of causation: others reject the metaphysical presuppositions which are required in order to frame the issue. (Of course, these people are also Sproul’s intellectual adversaries; but they are not meant to be the targets of the present assault.)

In Chapter 7—‘**The Policeman of Science**’—Sproul argues for a crucial role for logic—and, in particular, the law of non–contradiction—in science. Thus, for example, he claims that Ptolemaic theory lead astronomy into a blind alley because of ‘deductive error’, i.e. because ‘incorrect inferences were drawn from the data’. However, while it is true that Ptolemy made assumptions which later proved incorrect—e.g. that planetary motions had to be ‘circular’—it seems wrong to suggest that these assumptions were based on failure to draw correct deductive consequences from the available data. Indeed, this claim seems likely to be based on an unsupportably naive ‘deductivist’ conception of the nature of scientific theorising. Of course, Sproul is right to insist that scientists typically do, and should, take the appearance of

contradiction as an indication of theoretical error—but it is important not to overstate the importance of the role of the discovery of contradictions in the improvement of scientific theories. (Perhaps it is also worth noting that Sproul is just wrong in his claims about the apocalyptic consequences of denial of the law of non-contradiction. As more than twenty years of serious research into different kinds of paraconsistent logics has shown, it is perfectly possible to produce intelligible theories which allow there to be true contradictions. However, it should also be noted that most philosophers continue to prefer classical logics to their paraconsistent variants.)

In Chapter 8—‘**Cosmos or Chaos?**’—Sproul takes up the question of the origin of the physical universe. He claims that there are only two viable options: (1) The cosmos is eternal and self-existent, i.e. ‘has the power of being within itself’; (2) The cosmos is created by something (God) which is self-existent. Since the notion of ‘self-existence’ seems only dubiously intelligible—at the very least it is in need of more explanation than Sproul provides—it seems that this list ought to be amended, perhaps as follows: (1) The universe is uncaused; (2) The universe is caused (by God). Moreover, different sub-cases of (1) should be distinguished: (1a) the universe is temporally finite, open in the past and uncaused; (1b) the universe is temporally finite, closed in the past, and uncaused; (1c) the universe is temporally infinite, and uncaused. Each of these cases requires different treatment—as perhaps do versions of (2) in which something other than God is postulated to be the cause of the universe, e.g. a committee of minor and relatively inefficient deities ... Given the full list of options, there is no short argument to the conclusion that there must be at least one ‘self-existent’ being. I leave it to the reader to pick the other holes in Sproul’s various arguments for the necessity of a self-existent being. (At (151), Sproul writes: “Galileo’s discoveries in the heavens were prompted by mathematical formulas which told him where to point his telescope.” This is silly. Galileo pointed his telescope at bodies which are visible to the naked eye—the Moon, Venus, Jupiter, Saturn—and discovered things about them—the mountains on the Moon, the phases of Venus, the four major satellites of Jupiter, the rings of Saturn. He did not use, and had no need to use, mathematical formulae in order to work out where to point his telescope. Moreover, there were no mathematical formulae available at the time which would have been any help; the science of optics was not rigorously established until long after Galileo’s important telescopic discoveries. At (152), Sproul claims that mathematics is just a form of symbolic logic. This logicist reduction of mathematics has been much discussed by philosophers of mathematics in the past century; the prevailing majority opinion is that it is just a mistake.)

In Chapter 9—‘**A Being Without a Cause**’—Sproul discusses the causal principle that every event has a cause, and Russell’s criticism of that particular causal principle. According to Sproul, ‘logic requires that if something exists contingently, it must have a cause’ (172), and ‘the world could not have come into being without a cause, for this would have required some kind of self-creation’ (179). But—as we have already noted—both of these claims are mistaken (and Sproul does no more than dogmatically insist upon their truth). While there may be logical impediments to self-creation—and even this might be denied by those who are prepared to accept some unusual time-travel set-ups—it is plain that there is no logical contradiction involved in the claim that there are contingently existing things which have no cause of their existence. Hence, Sproul’s main line of defence of cosmological arguments fails. (Here, I assume that no non-standard interpretation is given to ‘contingency’; of course, if by ‘contingent’ you mean ‘possessed of a cause of its existence’, then I shall withdraw my claim—but I will replace it with the claim that there are, or could have been, or could be, things which could have failed to exist, but which do not have a cause for their existence.)

While I agree with Sproul that there are stronger versions of the cosmological argument than the one which Russell attacks, I think that the observation, that there is no contradiction—no absurdity, no impossibility—involved in the claim that there are contingently existing things—e.g. the physical universe as a whole—which have no cause of their existence, suffices to demolish those stronger arguments as well.

In Chapter 10—‘**No Chance in the World**’—Sproul discusses Hume’s account of causation, and makes much of the point that Hume notes in the *Enquiry* that it is universally allowed that nothing exists without a cause of its existence. However, this appeal to authority—even such a sceptical authority as Hume—can hardly be supposed to be a proof of the premise upon which Sproul relies. Quantum theory may give us reason to suppose that there are current events or features of the world which were not caused (by earlier events and features of the world); and, even if it does not, there is no good *a priori* argument which rules out this possibility. Moreover, there is no threat to science, or reason, in the countenancing of this possibility: QM is a model of the scientific endeavour, even if it is committed to denial of the claim that nothing exists without a cause of its existence. In the limiting case, a non-theist may only need to deny the principle in a single instance, namely, that of the universe as a whole (or some extremely brief initial instant thereof). Such denial is irrelevant to more or less the entire body of science—not even the most ambitious of current cosmological theories claim to be able to describe the universe in the period prior to the Planck era, so the question whether there is an earlier uncaused origin has no consequences for those theories (or for particle physics, chemistry, biology, psychology, etc.). The claim that denial of the causal principle threatens science and reason is quite obviously without foundation. Moreover, it seems to me that the same is true for theology as well—though, in this case, it will not be claimed that the universe is without a cause of its existence. *Pace* the claims of some recent authors, the truth of QM does not entail that there is no God.

In this review, I have passed over many of the outrageous claims which Sproul makes, mainly because I can see little point in an attempted exhaustive analysis. The representative sample of claims discussed above should stand as sufficient evidence that this is a book which is not worth reading. Sproul’s prefatory hope (xiv) proves unrealised: this book is far closer to ‘the unbridled ravings of a fool’ than it is to ‘the serious protests of [a learned man]’.