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Miracles reconsidered

Panu Raatikainen

Philosophy, Tampere University, Tampere, Finland
Email: panu.raatikainen@tuni.fi

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Abstract

The broadly Humean definitions of 'miracles' as violations of the laws of nature, and their usefulness, are critically scrutinised in the light of various advances in the philosophy of science in recent decades. It is suggested that we may never have the absolutely true laws of nature in our possession. Moreover, confirming that the laws of nature have actually been violated would require that the exactly correct initial conditions and various auxiliary hypotheses are also known. However, all this may require an astronomical amount of extremely precise knowledge. Therefore, it may be virtually impossible to establish cogently that a particular event qualifies as a miracle in this sense. Furthermore, it is pointed out that the garden-variety examples of purported miracles tend to concern macro-level phenomena that fall largely within the domain of, for example, the biological and medical sciences. However, there are hardly any genuine laws of nature in such special sciences. Consequently, Humean definitions of 'miracles' do not have much applicability within their extensive domain.

Keywords: miracles; David Hume; laws of nature; science; evidence

Introduction

Miracles have manifestly played a significant role in the scriptures, stories, and legends of many great world religions, innumerable smaller religions, and various mystery cults. They have also been a central topic in the philosophy of religion and continue to be so today.

One can raise several different kinds of philosophical questions concerning miracles. To wit, there are, at least:

1. *The conceptual question*: What is meant by a 'miracle'? What are the necessary and sufficient conditions for something to count as a true miracle?
2. *The metaphysical question*: Are miracles possible? (Different senses of 'possibility' result in a different issue.) Or are miracles a contradiction in terms?
3. *The epistemological question*: Is it possible to know conclusively, beyond reasonable doubt, or at least to have compelling evidence that a given event is indeed a miracle? If so, how? (And, consequently, to know more generally that miracles have actually occurred.)
4. *The factual question*: Do miracles in fact occur in reality? Do we actually know (do we have compelling evidence) that miracles have taken place?

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Clearly, the latter questions, and their answers, may in some cases partly depend on how the earlier questions are answered. Nevertheless, these are different questions and should not be conflated.

If it were the case that the first question could not be satisfactorily answered, and the concept of a miracle simply made no clear sense, there would be little point in addressing the other questions. Voltaire argued, based on a rather demanding answer to the first, conceptual question, for a negative answer to the second, namely, that miracles are simply impossible. Under a more accommodating definition, miracles may well be possible in principle – demonstrating their impossibility may then be very difficult. However, the mere coherence of the idea does not yet entail that miracles ever actually occur in our reality. Hume, for his part, did not rule out miracles as plainly impossible, but prominently contended that there are no possible circumstances in which it would be rational to believe that a miracle has occurred. However, even if Hume were wrong, it does not yet follow that miracles have ever actually occurred and reliable information about miracles has been in fact obtained. The latter are additional, partly independent questions.

Regardless, in what follows, my focus is principally on the first and the third, viz., the conceptual and epistemological questions. The philosophical literature on miracles is vast, and I must still be very selective. In the present paper, I shall concentrate only on certain specific, though quite popular and influential, definitions and interpretations of miracles, and on their role as (alleged) evidence, or (alleged) evidence for them. Even more so, there are innumerable varying ways to interpret religion in general and Christianity in particular. I should emphasise that I do not intend to propose any general conclusions about religions or Christianity. My focus here is solely on a certain cluster of philosophical views on miracles.

To be more precise, many recent standard surveys of the philosophy of miracles in authoritative handbooks, encyclopaedias, and such (see, e.g., Corner 2005; Mavrodes 2005; Luck 2011; Nagasawa 2017; McGrew and Larmer 2024; cf. Taylor 2007) still revolve largely around the broadly *Humean* interpretations of miracles – even if many of them disagree with Hume's negative conclusions (and so do, e.g., Swinburne 1968, 1970; Mackie 1982; Overall 1985; Pearl 1988; Murray and Rea 2008). Therefore, it seems justified to scrutinise such a notion of miracles specifically.

Hume influentially defined a 'miracle' as a violation of a natural law. According to a more detailed characterisation, which he gave in a footnote, a miracle is 'a transgression of a law of nature by a particular volition of the Deity, or by the interposition of some invisible agent' (Hume 1748). Hume famously argued that it is not possible to be rationally justified in believing that a miracle has occurred. Hume's negative conclusions have attracted a great deal of attention, and the critical literature is extensive. However, even many of those who oppose Hume have taken his law-centred definition of a 'miracle' more or less for granted.

Here are a couple of examples:

> A miracle is ... a violation of a law of nature by a god, that is, a very powerful rational being who is not a material object (Swinburne 1968, 320).

> A miracle is a violation of the laws of nature that is caused by an intentional agent; and it has religious significance (Nagasawa 2017, 18).

A related, broader idea which is sometimes in the air is that miracles are something that natural sciences cannot explain. (There are other, alternative definitions of a 'miracle', but they are beyond the scope of the present paper; for a survey of the wider spectrum of definitions, see McGrew and Larmer 2024.)

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Hume's own critical arguments focused on the reliability of testimony concerning alleged miracles.[1] However, my orientation here is quite different: I shall concentrate on the question of how one could ever reliably know that an event 'before one's eyes' is in fact a miracle in this sense, and on the usefulness of broadly Humean definitions of 'miracle', which have also been adopted by many critics of Hume in their defences of a religious worldview.

Worldviews and evidence

For a start, let us distinguish the following two general metaphysical worldviews (cf. Corner 2005):

Naturalism: There are no entities and nothing causally effective 'outside' nature.

Supernaturalism: Entities and causally effective items 'outside' nature do exist.

This is admittedly very rough and vague as it stands, for it is not obvious how 'nature' in turn should be more precisely defined. But it will do for now.

If supernaturalism and a religious worldview (interpreted in a certain literal metaphysical way) are already assumed, miracles may be an integral part of this worldview. All kinds of events can then be easily seen as expressions of the will of a supernatural being, or effects of other supernatural causes. But in that case, miracles cannot, and there is no need for them to, serve as evidence for believing in the worldview. Moreover, within such a worldview, there is no need to draw a sharp boundary along the Humean lines between miracles and natural events which conform to the laws of nature. Miracles may then be taken to be simply events which result in more wonder and amazement than many others or have specific religious significance (cf. Holland 1965).

Miracle stories have had many roles in various religions. However, in the philosophy of religion, one important role seems to have been the so-called *apologetic* use of miracles. That is, (alleged) miracles are often used, as it were, as neutral (i.e., without presupposing supernaturalism) *decisive evidence* for the truth of supernaturalism and specifically of a religious worldview such as Christianity and the existence of the Christian God. In such contexts, the crucial question is: Is it really possible to have cogent rational evidence for and sound knowledge about the reality of miracles without already presupposing supernaturalism?

It is important to note that there are many forms of religious standpoints for which miracles are not at all central. And even if they are, they need not be viewed primarily as persuasive neutral evidence for the truth of the religion at issue. Nevertheless, in the present paper, I want to focus primarily on the apologetic uses of miracles.

Here, an important qualification is in order: It was a part of the original Humean definition (the more specific one) – and this recurs in various recent definitions – that the violation of the laws of nature was especially brought about by a god or some other supernatural intentional agent. But surely, if it is a part of knowing that an event is a true miracle that it was brought about by a divine being, the occurrence of a miracle cannot then really be evidence in favour of the supernaturalist worldview and the existence of that god. Swinburne (1970, 7), for example, grants this: 'there cannot be miracles which are evidence for his [God's] existence because accepting a description of an event as a miracle commits a man to accept the existence of God'. Swinburne (1970, 21) nevertheless announces he assumes that 'we have no evidence for or against the existence of a god other than historical and scientific evidence for or against the occurrence of miracles'.

Be that as it may, my principal focus below is on the Humean idea that it is at least a necessary condition for something to truly count as a miracle that it violates the laws of nature. (Many of my observations below are also relevant for the more general idea that

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miracles are something that natural sciences cannot explain even in principle.) If it is further required that the event must be caused by a god or some other supernatural being, we may rephrase the epistemological question about the apologetic use as whether we can have compelling evidence that we actually have a miracle before us. In other words, instead of viewing miracles as evidence for supernaturalism or the existence of a god, we may then ask what would count as persuasive evidence for something to be a genuine miracle. More precisely, we now face two epistemological questions: First, how can we know that the laws of nature have been, in fact, violated? And second, how can we know that the violation really is due to the intentional action of a divine being?

I shall now argue that various advances in the philosophy of science in recent decades are highly relevant for the whole theme of miracles (thus understood) and significantly change the big picture.

Can we possess the true laws of nature?

Behind many discussions of miracles, especially those which are somehow related to Hume's definitions, is evidently a certain picture of science, the laws of nature, and scientific explanation. That general picture has indeed dominated discussions of science for a long time. Let us call it 'the Once Received View'.[2] At the heart of this picture is the idea that the natural sciences essentially aim to discover relevant *laws of nature*, and scientific theories are intended to describe such laws (cf. Swinburne 1970, 23). According to this picture, an *explanation* of an event or a phenomenon in science amounts to deriving it from such theories. The laws of nature also enable, at least in principle, the *prediction* of future events.

Furthermore, it was long assumed that Newton had discovered the true laws of nature, at least within physics. As for the other fields, it was commonly expected that their laws could either be derived from those of Newton or at least were likewise discoverable for good with the help of some further observations and experiments.

It seems that a picture along these lines inspired Hume and much of the subsequent discussion of miracles. It makes reasonably clear sense, in such a context, to talk about miracles as violations of the laws of nature. However, the Once Received View has fallen into disfavour within the philosophy of science in recent decades. A closer look at the variety of natural sciences, their actual practices and history, demonstrates that the picture described is seriously flawed. Our understanding of what the natural sciences are and do has changed quite dramatically.

To begin with, epistemological optimism encouraged by Newton's laws did not last forever. Even Newton's laws ran into trouble at the end of the 19th century and were eventually replaced by Einstein's theory of relativity. The latter may not be the final word either. Somewhat similar incidents have recurred in various special sciences: theories have been found to be problematic and consequently revised or rejected.

In general, it has been standard already for some time to think that even our best well-developed scientific theories may turn out to be, strictly speaking, false. In favourable circumstances, we may still get closer to the truth and achieve in due course at least approximately true theories, which may quite often suffice, e.g., for practical applications. Still, our theories may never attain, even in their own area, the whole truth and nothing but the truth. As Popper liked to put it, the scientific project amounts to an interminable process of repeated trial and error.

Overall, the idea that we could have the absolutely true and comprehensive laws of nature in our possession and know definitely that this is so has vanished. The ideal of epistemic certainty in science has been replaced by a more modest *fallibilist* attitude: all human

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systems of belief, including even the most advanced scientific theories, are in principle fallible and may require continuous revision. We can never be completely certain that a theory at stake is absolutely true.[3]

Accordingly, even if, for example, the observed behaviour of some particles in a particle accelerator does not fit the presently postulated 'laws of nature', scientists do not likely conclude that we now have a violation of the laws of nature, a supernatural miracle, before us. More probably, they simply go back to the drawing board and attempt to formulate more defensible hypothetical laws.

At this point, let us pause to note that, among the friends of miracles, at least Swinburne, for his part, shows a certain degree of awareness of the complications just discussed. (Whether he gives them and their consequences sufficient attention is less clear.) Apparently, at least partly for such reasons, and partly in order to avoid making miracles trivially impossible, Swinburne (1970, 26–27) adds to his definition of a 'miracle' the condition of being 'non-repeatable' (which he borrows from Smart 1964, 37).

Some seem to think that this effectively removes all such worries. However, one may doubt whether it is, in reality, a persuasive response. Namely, no finite amount of observations can verify that an event is genuinely non-repeatable. It is always possible that it is just exceedingly rare, but nevertheless repeatable. There is also the epistemic problem of taking into account all potentially relevant causal factors (see below). Thus, the condition might make it, for its part, practically impossible to know that something really is a miracle.

Moreover, some common alleged miracles do not seem to be non-repeatable; think of, e.g., faith healing or exorcism, which are presumably quite repeatable, not to mention the real presence of Christ in the Eucharist and even more miraculous Eucharistic miracles. Therefore, the requirement that miracles must be non-repeatable seems also to violate the established understanding of miracles and to artificially redefine them and narrow their scope.

How can we know that the laws are being violated?

As to the *laws of nature*, there is even today little agreement on what defines their essential features. There is more than one quite different, competing interpretation in the market. There are even distinguished philosophers of science who contend that there exist no such things as the laws of nature. (For overviews of the variety of positions, see, e.g., Lange 2014; Roberts 2016; Carroll 2025; in relation to the theme of miracles, see Luck 2011.) Be that as it may, traditionally, the laws of nature have been assumed to be *deterministic* as well as *general* and *universal*, that is, exceptionless 'strict laws'. Newton's second law ($F = ma$) has been a classic, paradigmatic example.

One should then recognise that laws of nature, as traditionally interpreted, are entirely general and do not in themselves entail and predict any individual event or such. Only when combined with more detailed *initial conditions* can they have any more specific implications (Larmer 1985 acknowledges this). Moreover, even then, that may often require various *auxiliary assumptions* (e.g., assumptions about sophisticated instruments, which may sometimes be significantly theory-dependent and fallible).[4]

But knowing even the sufficient initial conditions, except for untypically simple cases, may well be far beyond human capabilities. For example, a causal influence can travel at the speed of light and hence appear very quickly from an astronomical distance. Therefore, taking into account all potential factors may require knowing precisely, roughly, the entire state of the whole universe (more exactly, the entire cross section of the relevant light cone) at a given previous time (cf. Field 2003).

Consequently, establishing that one genuinely has a violation of the laws of nature in front of one may sometimes require a prior knowledge of – not only the precisely true and

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comprehensive general laws of nature but also – the exactly correct, detailed, and comprehensive initial conditions. And that, as I have just underlined, can in fact be far more difficult than some have naïvely supposed. It may require a virtually infinite amount of exact knowledge of every elementary particle. Add the many auxiliary hypotheses that the concrete setting might require, and that increases further the risk of error, and it is likely to be humanly impossible to provide compelling evidence for an actual violation of the laws of nature. Instead, the source of trouble may well be an imprecise assumption about the initial conditions or an inaccurate auxiliary hypothesis.

It is for such reasons that Popper's falsificationism has been generally discarded (for overviews, see, e.g., Godfrey-Smith 2003, ch. 4; Ladyman 2002, ch. 3). Largely the same reasons make, for their part, the idea that we could know indubitably that we have a genuine violation of the laws of nature before us highly dubious.

As was noted, traditionally the laws of nature have been assumed to be deterministic and universal. Obviously, one could expand the notion of a 'law' and allow *probabilistic laws* and/or so-called *ceteris paribus* laws (laws which include a *ceteris paribus* clause, such as 'under normal conditions', and can thus have exceptions). Indeed, some philosophers of science have done exactly that. However, in our present context, those would be problematic moves. For it seems that it would be even more difficult to establish that we have a violation of the laws before us. If a law states that a certain outcome is merely very probable, and/or occurs only under normal circumstances, given the condition, the possibility of a sporadic exception is built into the law, and the occurrence of such would in no way violate the law.[5] (This is not to say that a putative *ceteris paribus* law could never be rationally rejected in science. But in such a case, it was presumably false to begin with. However, it seems extremely difficult to know conclusively both that we possess an absolutely true *ceteris paribus* law and that a singular event from everyday life violates it.) All things considered, it seems that within the broadly Humean definitions of miracles, it would be better to stick to the understanding of the laws of nature as universal and deterministic.

From laws to mechanisms and models

Whatever one may have assumed in, say, the 18th century, it seems quite clear today that genuine laws of nature, as far as there are any, concern primarily elementary particles and not directly observable macro-level phenomena. The garden-variety examples of (alleged) miracles, by contrast, do not engage with the phenomena of fundamental physics and elementary particles, or even atoms or molecules, but typically with higher macro-level issues, e.g., events of ordinary life, which are mainly the business of, e.g., biological and medical sciences.

In recent years, it has become common in the philosophy of science to distinguish more clearly *physics* (or, particularly, fundamental physics) from various so-called *special sciences* (e.g., biological and medical sciences). And once one looks more carefully, and without preconceptions, at the various special sciences outside physics, there seem to be hardly any genuine laws of nature within them. Special sciences describe and explain phenomena, but frequently this does not seem to involve 'laws of nature' in any traditional sense of the term.

So, what do these sciences do if they do not search for laws? It seems that at least quite often scientists discover different *mechanisms*; this appears to be the case especially in biological sciences and neuroscience, for example. That is, there is a phenomenon which is in need of an explanation. The aspiration is then to discover and reveal the mechanism that produces, underlies, or maintains the phenomenon, and the latter is thereby explained mechanistically. Schematically, a mechanism is something that has parts with specific functions in the mechanism, and the parts are organised in a certain way to form a complex entity capable of producing a phenomenon. Examples of such mechanisms in

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science include, e.g., protein synthesis, photosynthesis, action potential, working memory, the heart, body temperature homeostasis, and metabolism.

This new viewpoint in the philosophy of science is commonly called 'the New Mechanistic Philosophy'.[6] It should not be conflated with the traditional mechanistic philosophy of the 17th century (e.g., Descartes, Boyle). For unlike the latter tended to do, the explanations using mechanisms are now *not* assumed to necessarily be reductionistic, deterministic, or atomistic.

To be sure, the operation of such mechanisms and their parts is somewhat regular, but not without exceptions: There may well be a malfunction, or the mechanism may break down, such as, e.g., with digestion and its disorders. As their regularities are not assumed to be anything like laws, exceptions are perfectly possible and sometimes even quite commonplace, and all that is a part of the very framework. They are emphatically not anything like violations of the laws of nature. Glennan (1996) suggests that, in fact, even many of the traditional so-called 'laws' of science are more like this: e.g., Mendel's laws, Kepler's laws, or Hooke's law.

The new mechanistic philosophy does not contend that scientific research is always just about uncovering mechanisms or that all explanation in science is explanation in terms of mechanisms, only that mechanisms are a common and important theme in science, which has been somewhat neglected in the earlier philosophy of science literature.

The more straightforward traditional picture of science also typically suggests that there are theories and there is reality (or its part or its aspect) which theories at least aspire to describe. Another important development in the recent philosophy of science has been the realisation that this is in many cases too simplistic a picture. Namely, in various developed sciences, different (mathematical, computer, and other) *models* habitually play an essential role. Indeed, scientists construct and manipulate models continually. Models in science, however, are deliberately idealised and simplifying. (For overviews of the role of models in science and their philosophy, see, e.g., Bailer-Jones 2002; Contessa 2011; Morrison 2016; Portides 2014; Frigg and Hartmann 2025).

At the very least, this further complicates the straightforward picture that scientific theories simply describe or represent (for better or worse) the external reality. It is often the case that models, so to speak, mediate between theories and reality. A key feature of all this is that models regularly misrepresent their subjects; they are significantly oversimplified and idealised – and scientists know this very well. Indeed, that is intentional for their part. Deviations from the models are thus assumed to be possible from the start. If an actual observation then conflicts with the prediction of such a model, that is definitely not considered as proof of a supernatural intervention.

Whatever the status of *determinism* is with respect to the hypothetical complete true theory of physics,[7] which is in any case still, and probably forever, beyond our capabilities, it is quite uncontroversial today that at the macro-level and in various special sciences, all we can very often do is identify weaker regularities and even at best more local, probabilistic laws with the built-in possibility of exceptions.

Such a more up-to-date and sophisticated picture of natural sciences poses serious critical questions for the whole theme of miracles: The broadly Humean definitions of miracles and the idea of knowing about miracles so understood become quite problematic. Moreover, it is not at all clear what a more sustainable and yet natural and non-arbitrary definition that would still harmonise with the traditional conception of a 'miracle' would look like. How exactly could we reliably recognise a miracle, have compelling evidence that we have indeed a miracle before us?

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More concrete examples

Let us briefly consider a few more concrete examples in order to put some flesh on the bones: To begin with, there are some recognised phenomena in nature, such as ball lightning and St. Elmo's fire, which are exceedingly rare and for the present not completely understood. They occur irregularly, and there are no laws of nature, at least any known ones, governing their occurrence. Nevertheless, scientists do not consider them as supernatural interventions but view them as perfectly natural phenomena in need of a scientific explanation. In the biological realm, there are hardly any proper laws: species evolve, sometimes even quite rapidly, mutations occur, and overall development may be highly unpredictable (though we know that natural selection is at work).

Stories involving faith healing are a quite common type of miracle narrative. One may wonder, though, what exactly are the laws of nature that are violated in such cases? It is nowadays an established fact in medical sciences that, e.g., one can seldom recover from some forms of cancer, even from an advanced stage; this is called 'spontaneous remission'. Analogously, a blind person may occasionally gain the ability to see. Such cases may be anomalous, but they do occur. Even the so-called 'Lazarus syndrome'[8] is well documented. It refers to the extraordinary cases where a patient has been declared dead, but after some time, the heart activity spontaneously returns. A few have even fully recovered. The phenomenon is extremely rare, and, at present, it lacks a satisfactory explanation. Although tremendously unusual and still incompletely or even poorly understood, these are standardly taken as entirely natural phenomena, and not as proof of the intentional intervention by some supernatural personal being.

In the pre-scientific era, when the supernaturalist worldview reigned, such erratic events were no doubt easily interpreted as expressions of the will of a supernatural personal agent. However, if supernaturalism is not presupposed in advance, such cases hardly count as compelling evidence for supernaturalism. Today, such incidents, even if agreeably exceptional, are established facts within the naturalistic worldview. To be sure, some events may be extraordinary and cause amazement. However, it may be all but impossible to establish convincingly that a violation of the laws of nature has occurred, and even more difficult to show that an abnormal event results from the intentions of a personal supernatural being.

In general, just how law-governed, regular, and predictable our macroscopic reality actually is appears to be a contingent empirical question. And it now strongly seems that it is less so than the naïve mind may have earlier assumed: the world we live in is often quite messy, irregular, and unpredictable – sometimes even random and chaotic. Many incidents apparently are largely matters of chance. For example, a hurricane or an earthquake can occur utterly unpredictably – as do the above-mentioned ball lightning and St. Elmo's fire. That in no way forces the conclusion that there must be, after all, some supernatural causes responsible for such episodes.

Conclusions

I have critically evaluated the usefulness of the traditional broadly Humean definitions of a 'miracle' – still very popular among both friends and foes of miracles. I have suggested that confidence in their value rests on an outdated conception of the nature and aims of the natural sciences. The definitions in terms of violations of the laws of nature do not match well with many common paradigms of purported miracles, which are more in the territory of biological and medical sciences than of fundamental physics. And there are hardly any proper laws in the former vast area. Inasmuch as that is so, there simply cannot be Humean miracles either.

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Furthermore, even in areas where it may be plausible to expect laws of nature, it seems that in the case of anomalous observations there are (at least) three alternative possible explanations:

(i) there is at least a small imprecision or inaccuracy somewhere in our postulated laws, theories, initial conditions, or auxiliary hypotheses that accounts for the conflict with the troublesome observation;
(ii) there are in fact no strict deterministic laws governing this domain, but at best only probabilistic and/or *ceteris paribus* laws;
(iii) we possess the precisely true relevant laws of nature, theories, initial conditions, and auxiliary hypotheses, *and* an actual violation of those laws has occurred.

It is quite difficult for me to see what kind of evidence would make it rational to prioritise (iii) over (i) and (ii), given that the problematic observation itself appears to leave the issue open. Nevertheless, I would not dare to contend that compelling evidence for believing that something is a Humean miracle would be absolutely impossible even in principle – I do not have the faintest idea how such a conclusion could be demonstrated either.

My aim here is more modest: what I think can justly be concluded on the basis of the earlier discussion is that it must, in practice, be at least considerably more difficult than many seem to have assumed. I simply want to highlight the various complications, difficulties, and constraints that the more sophisticated, up-to-date picture of science raises for knowledge that something is a Humean miracle. Whether some room for it may nevertheless remain, and more precisely how, I leave for further philosophical discussion.

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Notes

1. For a detailed and multidimensional critical analysis of Hume's arguments, see Earman (2000).
2. I have borrowed this convenient label from Craver (2002), but I use it here in a much broader and looser sense than him.
3. The label 'Fallibilism' was introduced by C. S. Peirce, who was an important trailblazer of the view in the 19th century. In the more contemporary philosophy of science, Popper has been a famous advocate of fallibilism. However, the general idea depends in no way on Popper's more specific theses (e.g., his falsificationism). It is widely indeed accepted in today's philosophy of science. (The emergence of fallibilism has a longer history than many of the other developments mentioned below, having begun already in the early 19th century; see, e.g., Laudan 1981.)
4. Here I am gesturing towards the now widely recognised holistic nature of confirmation and disconfirmation in science, or the so-called Duhem–Quine thesis (its basic, plausible form); see, e.g., Godfrey-Smith (2003, 31–33); Ladyman (2002, 77–80).
5. Swinburne (1970, 30–31) briefly mentions 'statistical laws' and what would count as a counter-instance to such laws. However, I do not think his concise remarks are very satisfactory here. Nagasawa (2017, 14), in contrast, seems to agree that events which are merely extremely improbable (probabilistically impossible) just do not qualify as miracles.
6. Earlier important contributions to 'the New Mechanistic Philosophy' included Bechtel and Richardson (1993) and Glennan (1996). Machamer et al. (2000) was a particularly influential article in making the mechanistic viewpoint popular. For overviews and general discussion, see, e.g., Craver (2002); Glennan (2008, 2016); Glennan and Illari (2018); Craver et al. (2026).
7. For good surveys of the complications with determinism, see Butterfield (1998); Hoefer (2026).
8. Its name obviously refers to the Biblical stories of Lazarus of Bethany, who, according to the Gospels, was raised from the dead by Jesus. Nevertheless, in these medical contexts, there is, of course, no implication that the phenomenon would have a supernatural cause.

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