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Book Review: Galileo, Darwin, And Hawking: The Interplay Of Science, Reason, And Religion

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could affirm that Christians must show hospitality—body and soul—to the stranger precisely because God commanded it. So even if Palmer's criticism of Murphy is right (her view entails that we are "no more than our basic chemistry"), nothing follows about the moral value of assisting others, conveying dignity, etc. (p. 202). If God deems it good for us to assist and value others, then it is indeed good (whatever our metaphysical makeup). Or they may have a creation ethic: we must value the whole person body and/or soul because God created the whole person (in God's image no less). Or the authors may understand ethics in terms of human flourishing: humans flourish only when they have adequate food, shelter and clothing and only when they are properly related to their Source of light and life; hospitality and forgiveness are key means to human flourishing. In this case, morality is "built-in" to human nature in ways that any of the four competing views could accommodate. Corcoran compellingly argues that views on the metaphysics of persons are neutral with respect to a wide variety of moral matters and that the relevant issues can be decided only by introducing distinctly moral principles such as God's intentions (pp. 172–75).

Palmer's essay, however misguided, is instructive: most Christians are asking questions about the nature of persons from a more pastoral or theological point of view than are most philosophers. To me, all three points of view—philosophical, pastoral and theological—are valid but all three points of view may be asking fundamentally different questions about the nature of persons. The mistake is to privilege any of these views and so to discount the other. Should the authors wish to write a different book on the nature of persons, they might therefore see fit to accommodate those concerns. But this book is fine as it is and is highly recommended to anyone wishing to learn in a clear and concise manner four major views on the nature of persons written by respected philosophers with uncharacteristic modesty about just what they've thereby accomplished.

Galileo, Darwin, and Hawking: The Interplay of Science, Reason, and Religion, by Phil Dowe. Wm. B. Eerdmans Publishing Co., 2005. Pp. viii+205. \$21.00 (paper).

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The popular perception is that science and religion conflict. Phil Dowe, an Australian metaphysician and philosopher of science, known for his contribution to the topic of causation, argues that there's no such conflict, but rather a harmony, and indeed some interaction between them. The book's content overlaps philosophy of science (realism and anti-realism, inference to the best explanation, and determinism and indeterminism) and philosophy of religion (miracles, cosmological arguments for theism, and teleological arguments for theism). But the book best serves to introduce the relation between science and religion. Dowe's prose is pellucid and students, who want an introduction to the area, would do well to read the book, not only for its rich historical, scientific, and philosophical content, but for its calm and reasonable tone.

Dowe introduces four models of the relation between science and religion, based on Ian Barbour's typology: two conflict views (naturalism and religious science) and two harmony views (independence and interaction). Dowe considers a number of historical cases to decide the matter. He argues that an open-minded look at these cases reveals a significant degree of interaction, at least in the case of heliocentrism (Galileo), natural selection (Darwin), and big bang cosmology (Hawking). Dowe draws an important distinction here between philosophical and social conflict. Philosophical conflict is a conflict of claims, whereas social conflict is a conflict of interests. One can exist without the other. And though there's been a fair amount of social conflict, Dowe argues that there's been no real philosophical conflict here. One should be clear about the different models of the relation between science and religion. Dowe, as I said, follows Barbour's typology. But I think we can be more precise in some places. What is science? And what is religion? These are difficult and much debated questions. For our purposes each must at least involve some claims that are true or false. There is, no doubt, more to science and religion than that, but there is at least that much. For example, science says that there are quarks and electrons and the Christian religion says that there's a God. A conflict view says that some claim of science and some claim of religion hinder each other—either one is inconsistent with the other, or one makes the other improbable, or one lowers the probability of the other, or hindrance takes some other form. One version of the conflict view says that since there is such conflict and the claim of science is well-supported, it defeats the claim of religion. Another version of the conflict view says that since there is such conflict and the claim of religion is well-supported, it defeats the claim of science. A harmony view says that some claim of science and some claim of religion don't hinder each other. One version says that some claim of science and some claim of religion neither help nor hinder each other. Another version says that some claim of science helps some claim of religion or vice-versa—either one makes the other probable, or one raises the probability of the other, or help takes some other form. Put this way, one might hold all the models at once but for different areas of science and religion. We could call the view that each model holds for different areas, the sibling view: siblings are one moment worst enemies and the next moment best friends. But this seems little different from the relation between one religion and another or between one denomination and another within a religion (e.g. the *filioque* controversy in the Orthodox and Catholic churches) or between one science and another science or between one subdiscipline and another within a science (e.g. general theory of relativity and quantum theory). We should also make a distinction between a claim of science and meta-science and a claim of religion and meta-religion. If religion claims that we ought to do science, it is clear that in some sense religion promotes science. But it doesn't follow that religion informs us of any claim of science—rather it informs us of some claim of meta-science. And if science inspires religious feeling, it is clear that in some sense science promotes religion. But it doesn't follow that science informs us of any claim of religion—rather it informs us of some claim of meta-religion.

There are excellent chapters on cosmology and how to interpret scripture, realism and anti-realism in science and religion, the doctrine

of God's image and how this relates to Francis Bacon's vision of science and technology, David Hume's argument against miracles and George Schlesinger's reply to it, Charles Darwin's theory of natural selection and his interaction with the conservative Christian Asa Gray, big bang cosmology, and God and chance. I'll give a taste of this last topic and then make some comments on inference to the best explanation, which pervades the book.

One of the most interesting chapters is the one on God and chance, which is the topic of a forthcoming book by Dowe. Are providence and chance compatible? Determinism is true if and only if the truth about the state of the universe and the laws of nature at some time entail every truth about the state of the universe at every later time. Indeterminism is true if and only if determinism is false. Bell's Phenomenon in quantum theory supports the claim that there's indeterminism in the world. (Don't miss Dowe's humorous analogy of Bell's Phenomenon, which makes a cultural allusion to the relatively colder weather in Tasmania and New Zealand.) Providence concerns God's sustaining and directing of the world. Dowe presents a Leibnizian version of absolute providence according to which God directly or indirectly causes every event for some sufficient reason. So it looks like if there's chance, some events have no cause, but if there's absolute providence, every event has a cause. We can add, though Dowe doesn't, that if events can have a chancy cause, it looks like if there's chance, some events have no cause or a chancy cause, but if there's absolute providence, every event has a non-chancy cause. What to say? Well, either God causes chance events or he doesn't. If God causes chance events, then, though chance events have no physical cause, they have a non-physical cause. Dowe notes that Bell's Phenomenon assumes locality, which says that two spatially separate things can't signal each other faster than the speed of light. But locality doesn't apply to God, who isn't in one place but not another. (We get out of this an interesting argument for theism, which Dowe doesn't endorse but offers for consideration. As the Kalam Cosmological Argument says everything that begins to exist has a cause, the universe begins to exist, so the universe has a cause, so the Quantum Cosmological Argument says every event has a cause, some events have no physical cause, so some events have a non-physical cause.) If there are chance events but God doesn't cause them, then, though this limits providence, one can still have a theologically adequate view of providence. A coincidence occurs if two or more events occur together and that they occur together is both improbable and without reason. Some coincidences are of significance but others aren't. An adequate view of providence doesn't require that there be no meaningless coincidences. Likewise, if there are chance events of no meaningful consequence, such a view of providence doesn't require that there be no such events. So if chance leads to meaningful consequences, providence implies that God causes chance events or that there are no such events, but if chance doesn't lead to meaningful consequences, providence doesn't so imply.

Dowe, in a number of places throughout the book, explains and uses inference to the best explanation:

(i) For two theories H and H' and evidence E , if $P(H) > P(H')$ and $P(E/H) > P(E/H')$, then infer H as the best explanation. (p. 48) But one should qualify this as Dowe later does (p. 80): if H so compares to every rival theory H' , then infer H as the best explanation.

(ii) If H explains E , then H raises the probability of E (i.e. $P(E/H) > P(E)$). And if H raises the probability of E , then E raises the probability of H (i.e. $P(H/E) > P(H)$): (p. 80) Dowe says this last holds on the assumption that the prior probability of H is about the same as the prior probability of E . But Richard Swinburne, *Epistemic Justification* (Oxford: Clarendon Press, 2001), says the claim that $P(H/E) > P(H)$ if and only if $P(E/H) > P(E)$ follows from Bayes' theorem on the assumption that the probability of H and E are each non-zero, regardless of whether they are roughly the same (p. 104). And Dowe doesn't bring out how modest a claim it is that evidence confirms a theory. E confirms H if and only if E raises the probability of H (i.e. $P(H/E) > P(H)$). By contrast and much more strongly, E makes H probable if only if H given E is more probable than not- H given E (i.e. $P(H/E) > P(-H/E)$).

(iii) If E is more probable on H than on H' (i.e. $P(E/H) > P(E/H')$), then E confirms H more than H' . (p. 99) And if H and H' have the same predictive power (i.e. $P(E/H) = P(E/H')$), H confirms E more than H' if and only if H is simpler than H' . (p. 102) This seems right. Though scope is also relevant, the most important factor for the intrinsic probability of a theory is simplicity. Dowe notes the justification that George Schlesinger gives for this principle: it is the only one that provides a unique candidate when choosing among theories of equal predictive power. But this justification is merely pragmatic. And besides that it is false: the rule that one should select the second simplest theory also yields a unique candidate. Perhaps the principle of simplicity has no justification. But if so, it's none the worse for that. In this case, it's an inherently rational criterion to use in inference to the best explanation.

(iv) Only causes explain (p. 153). One might qualify this and say that, in the relevant sense of 'explain,' it's not a cause but a claim that cites a cause that explains. And one might add that a description of why in the circumstances the cause had its effect (e.g., a description of a law of nature) may also enter explanation.

The publishers should be aware that there are a significant number of errors that a proofreader should have spotted. I list some very minor corrections, which perhaps a future print can put right.

Psalm 58: p. 29n25

Kalām: pp. vi, 143 (x4), 144, 145, 146, 147, 148, 186 (x2)

Craig, W. L.: p. 204

McMullin, E.: p. 204