Metaphorical Ripples*

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Philosophers of science who think that the historical sciences typically provide us with reliable access to the deep past are dubbed 'optimists' about the historical sciences. Philosophers of science who think that the historical sciences typically fail to provide us with reliable access to the deep past are called 'pessimists' about the historical sciences. Although these two positions seem diametrically opposed to one another, they do share at least one thing in common: they are both positions of confidence about what the historical sciences are typically capable of. This commonality suggests another position within the conceptual space and potentially available for philosophers of science to adopt: one of a lack of confidence about what the historical sciences are typically capable of. Claims about typicality regularly rely on trends; claims about capability regularly rely on dispositions. If the trends and dispositions of the historical sciences are not established (argumentatively or factually), then agnosticism (lack of confidence) about what the historical sciences are typically capable of is a viable position.

Keywords

agnosticism • evidence • historical science • optimism • paleontology • pessimism

Part of an author-meets-critics book symposium on Rock, Bone, and Ruin: An Optimist's Guide to the Historical Sciences (*2018, MIT Press*) *by Adrian Currie, with Adrian Currie, Alison Wylie, Leonard Finkelman, and Derek Turner*.

The overarching argument of Currie's *Rock, Bone, and Ruin* (2018) is that we should be optimistic rather than pessimistic about what the historical sciences can tell us, even about the deep past. To adopt either of these two positions is to take a stance on how the historical sciences tend to perform—on whether they tend to do well, or poorly, when it comes to informing us about the past.

*This commentary adapts some of what Joyce C. Havstad posted to www.extinctblog.org on June 1, 2018, and engages with some of what Adrian Currie posted in response on July 1, 2018.

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Received 27 March 2019; Accepted 2 April 2019
doi:10.3998/ptpbio.16039257.0011.010

Neither of these two positions can be satisfactorily established or refuted with a single case, or even several cases. We could have some demonstrable, even spectacular, successes from the historical sciences, but still tend to miss out on much of what is worth knowing about the past. Alternatively, it could seem as though certain bits of historical information will elude us forever, but such information could be trivial, or we could one day learn how to access it after all. For either optimism or pessimism—whether we are inclined to think that the historical sciences are reliable in providing us with access to the past, or unreliable—we need more than just cases to establish our position. We need argument, and Currie's book is devoted to providing just that.

However, optimism and pessimism are not the only two available positions. We could instead take an agnostic stance: one of either defeasible agnosticism or in-principle agnosticism. This is because both positions of optimism and pessimism regarding the overall performance of the historical sciences are positions of *confidence* about how those disciplines are trending. To be agnostic about the success rate of the historical sciences, and what they are typically capable of, is to lack that confidence. Defeasible agnosticism says that we are not *yet* in the right position to judge how those sciences are trending. In-principle agnosticism says that we will *never* be in that position (and it should have proof of that). Although Currie argues convincingly against pessimism in *Rock, Bone, and Ruin*, he has not persuaded this reader, at least, to share his optimism. For reasons I will now explain, I am currently stuck in the agnostic position (although I think it may be defeasible).

Currie (2018, 8) lays out his fundamental, optimistic aim right at the start of the book. He introduces three "grounds for pessimism" there, and argues that all three "propositions underlying pessimism are false." Here are these three grounds, or propositions:

1. Our available evidence about the past is limited to traces.

2. Much information from the past has degraded or disappeared.

3. Historical scientists cannot manufacture evidence. (8)

Although Currie argues convincingly against propositions 1 (especially in chapter 8) and 3 (in chapter 9), I have not found a conclusive refutation, anywhere in the book, of proposition 2. This is an essential claim to consider, as it is one that has been made by ardent defenders of pessimism (e.g., Lewontin 1998). Crucially, this particular claim is one that I think provides grounds for adopting an agnostic stance—a defeasible one, at least—rather than an optimistic one, regarding historical scientists' general ability to obtain knowledge about the past.

Certainly, historical scientists frequently add to our knowledge of the past. *Rock, Bone, and Ruin* does an excellent and entertaining job documenting such cases (I especially enjoyed the discussions of *Obdurodon tharalkooschild* in chapter 3, use of LiDAR techniques in chapter 4, and the "material remains of spiritual life" in chapter 6). But as Turner (2017) points out and Currie (2018, 283) acknowledges, adding to our knowledge of the past often increases the number of things that we then know we do not know. So, how do we identify any sort of trend in this clouded context—are we generally able to recover past events, or are we generally unable to recover past events? This uncertainty is what supports the agnostic position: there is enough opacity when it comes to the past to obscure the nature of our access to it, yet we are successful enough in recovering it—sometimes, at least—for us to also be unsure about whether and how often we are missing anything of real significance (see Stanford 2006).

Currie tries to push us past the agnostic position and towards optimism by undermining pessimism even in the *unlucky* circumstances, which supposedly provide the best-case scenario for pessimism. His *ripple model of evidence* is supposed to help explain why, even in the unlucky cases, we have no grounds for pessimism. But the kind of case Currie uses to explicate his ripple

model of evidence (see especially chapter 5) is not a genuine instance of what we might want to call the *unluckiest* of circumstances.

Consider the metaphor with which Currie has named his model—the pattern of ripples that a thrown pebble generates in an undisturbed pond. Metaphor is important (e.g., Lakoff and Johnson 1980; Brown 2003), as the author of *Rock, Bone, and Ruin* undoubtedly knows (see Currie and Sterelny 2017). He writes:

> Imagine I throw a pebble into an otherwise undisturbed pond and take snapshots of the resulting disturbance at set time intervals. Earlier times will have a smaller area of effect than later, and the disturbance may become more pronounced as time passes; however, in later snapshots the clear patterns generated by the pebble will distort and fade. (Currie 2018, 111–112)

But normal pebble-into-lake throwing activities are not like giant meteor impact craters—they do not leave much of a record of their ripples. It is the snapshots that we can imagine lasting here, and degrading over time, yet still giving us something of a picture of what originally happened. When we imagine the ripples themselves lingering, to be variously degraded and preserved over a long time scale, we have started imagining something substantially different than what happens when a pebble is thrown into a pond—especially if no one snaps a picture.

Think about all of the rocks residing at the bottom of any given lake. They all got there somehow, though at different times and in different ways. Which ones splashed through the surface of the lake, and what did each of the particular patterns of ripples that those rocks generated look like? Without anyone around taking snapshots of such an ephemeral process, I do not see us successfully recreating that sort of history with any kind of regularity, completeness, or confidence. I am sure that the angles at which various rocks lie in the lakebed, and the nature of the divots in the sediment nestled around them, could tell me a delightful, unexpected amount—but what about the rocks that lie buried farther underneath the surface, with their angles and landing positions disturbed? What about the entry patterns of rocks lying in lakebeds that have undergone serious disturbance, either due to plant growth, or geologic activity, or whatever else? Where did each of the rocks at the bottom of a lake come from, anyway? How did they even get to that region? What time of day did they arrive? Again, I am sure that historical scientists could provide a surprising amount of information in answer to these questions; but I am also sure that I could use each answer given to generate further questions. It just seems like there is a whole bunch of historical information that we will simply never get.

I have now arrived back at the middle ground for pessimism—proposition 2 from the initial list, the idea that "much information from the past has degraded or disappeared" (Currie 2018, 8). And I am worried that pond-surface-ripple history is precisely the sort of information about the past that we could not generally recover without someone around snapping photographs. By talking about just such a process (the ripples), but adding an extra evidence-generating component (the snapshots), Currie has appeared to transform a worst-case scenario into a surprisingly accessible one. But actual worst-case scenarios are more like the pebble and the pond without the picture-taker and the pictures. Or perhaps not a rock at all, but something such as an unseen bubble, landing on the surface of a lake, and dissipating without any sort of ever-recoverable trace. Or maybe a fleeting, ancient pathogen—one that wreaks havoc on a population of soft-bodied organisms whose fossils, if any remain, show no accessible evidence of the biological attack.

Perhaps these example events are just not plausible or significant enough to matter. But I wonder: How do we know enough about them to know how plausible they are, or how significant? There are countless potential processes, and there have probably been many untraceable

ones. At least some of these might have happened, and mattered somehow. It is hard to say anything especially confident or well-informed here—hence my agnosticism.

Note that an appeal to the distinction between information-preserving and information-destroying processes (à la Sober 1988) will not help us here. Presuming that we can say whether history is generally information-preserving, or information-destroying, is just another brand of confidence—optimistic in the first case, pessimistic in the second. Again, the agnostic position stems from a lack of confidence: it is the inability to say whether historical processes are disposed to preserve or to destroy, and what sort of evidential position historical scientists are thereby in. Because Currie has not satisfactorily dealt with the worst-case scenarios, the traditional pessimistic proposition that much information about the past has degraded or disappeared lingers on as a plausible one. I am caught between apprehension about impoverished evidence, and appreciation for scientific ingenuity—for just how much historical scientists are capable of, and the difficult conditions they are under. There is some reason for pessimism, and some reason for optimism as well.

In sum, Currie has convinced me that two of his three initial grounds for pessimism about how the historical sciences generally perform are dismissible. But the middle proposition still stands, and as a result I want to know more about what I have dubbed the unluckiest of circumstances. I want to know how we can be sure that such circumstances are trivial enough not to worry about historical scientists being potentially unable to access them. This lingering concern is not itself enough to make me a pessimist, but it is enough to keep me defeasibly agnostic, for now. Although Currie has done a lot to push back against most of the grounds for pessimism that he discusses, there remains enough fertile opacity about the past left for me to stay agnostic, rather than to go quite as optimistic as *Rock, Bone, and Ruin* otherwise encourages.

Acknowledgments

The author would like to thank Adrian Currie, Leonard Finkelman, and Derek Turner for cajoling her into joining their venture founding the philosophy of paleontology blog *Extinct*. Her professional and personal life are greatly enhanced by their friendship.

Literature cited

Brown, T. L. 2003. *Making Truth: Metaphor in Science*. Urbana: University of Illinois Press.

Currie, A. 2018. *Rock, Bone, and Ruin: An Optimist's Guide to the Historical Sciences*. Cambridge, MA: MIT Press.

Currie, A., and K. Sterelny. 2017. "In Defense of Story-Telling." *Studies in History and Philosophy of Science* 62: 14–21.

Lakoff, G., and M. Johnson. 1980. *Metaphors We Live By*. Chicago: University of Chicago Press.

Lewontin, R. C. 1998. "The Evolution of Cognition: Questions We Will Never Answer." In *An Invitation to Cognitive Science, Vol. 4: Methods, Models, and Conceptual Issues*, edited by D. Scarborough and S. Sternberg, 106–132. Cambridge, MA: MIT Press.

Sober, E. 1988. *Reconstructing the Past: Parsimony, Evolution, and Inference*. Cambridge, MA: MIT Press.

Stanford, P. K. 2006. *Exceeding Our Grasp: Science, History, and the Problem of Unconceived Alternatives*. Oxford: Oxford University Press.

Turner, D. 2016. "A Second Look at the Color of the Dinosaurs." *Studies in History and Philosophy of Science* 55: 60–68.

ISSN 2475-3025