A conversation with David Christian on 31 January 2014

Participants

- David Christian—Professor of History, Macquarie University and author of *Maps of Time*
- Nick Beckstead—Research Fellow, Future of Humanity Institute at Oxford University; Board of Trustees, Centre for Effective Altruism

Summary

Purpose of the conversation: I organized this call to learn about the extent to which the Industrial Revolution was contingent or inevitable, and how contingent/inevitable continued technological innovation is. I see this as an input to questions about how likely civilization is to recover from global catastrophic risks and how substantial the risk of long-term technological stagnation is.

Why this person: David Christian is the author of *Maps of Time*, a book covering the whole natural and social history of the world, with a few chapters on the Industrial Revolution and the Modern Revolution more generally. This book covered extremely long-term historical trends in a way that few other history books I've read have, so I thought he might be unusually likely to be interested in my questions. He commented on the inevitability of the Industrial Revolution in *Maps of Time* and he was visiting Oxford to give a lecture on his approach to history.

In Professor Christian's view, many aspects of the Industrial Revolution were not inevitable, but some extremely general aspects of industrialization (such as humans eventually gaining the ability to use fossil fuels) were essentially inevitable once there was a species capable of transferring substantial amounts of knowledge between people and across generations. He stressed that his view was not generally shared by historians. Historians tend not to discuss this question and are typically suspicious of the idea that important historical events were inevitable.

We didn't end up discussing other transitions (e.g. the origin of life, eukaryotes, language, agriculture, agrarian civilizations, industrialization, etc.) or other possible critical junctures in the future.

How inevitable was the industrial revolution, and how inevitable is continued technological progress?

In Professor Christian's view, many of the specifics of industrialization were historically contingent, but many general details were not. Professor Christian invokes an analogy between a "quantum level" of history, where individual choices are unpredictable, and a "classical level" where large scale trends are predictable in the aggregate.

Professor Christian believes that the species eventually acquiring planet-changing powers (e.g. learning to use fossil fuels, some form of the steam engine, electricity, etc.) became inevitable once the species developed its capacity for "collective learning," barring extreme catastrophic events (such as asteroid strikes). By "collective learning," Professor Christian refers to humanity's capacity to pass on substantial amounts of knowledge between people and generations. Likewise, he believes that continued technological development is inevitable, again barring catastrophic events. In his view, if humanity survived a global catastrophe such as a nuclear war, eventual recovery would be inevitable for similar reasons (again barring other catastrophes).

Other historians are very hesitant to claim that major historical events were inevitable, and few of them address the question "Was eventual industrialization inevitable?" At the same time, this suspicion is rarely articulated in the form of arguments, so it's hard to find critics who can offer a cogent critique of trying to treat extremely long-term trends in history on a "classical" (rather than "quantum") level.

Professor Christian disagrees with the idea that contingent cultural factors played a role in making humanity's eventual industrialization possible. Perhaps contingent cultural factors—such as culture placing value on innovation and science—played a role in Europe industrializing first, along the lines suggested by, e.g., Jack Goldstone. But when some groups or subgroups value science and innovation less, they tend to fall behind. In the long run, he would expect that some groups or subgroups which value science and innovation more would outcompete groups that value them less. Thus, in the long run, it seems unlikely to him that contingent cultural factors would permanently impede collective learning.

How robust is the *rate* of technological progress?

There were four "world zones" in history that didn't interact with each other very much: Afro-Eurasia, the Americas, Australasia, and the Pacific. In Professor Christian's view, these world zones developed at different rates along similar trajectories (though he emphasized that other historians might dispute this claim). Afro-Eurasia developed the fastest, and Professor Christian speculates that this was because the largest zone allowed the most individuals to learn and exchange information with each other. This hypothesis would predict, e.g., that if a species capable of collective learning had evolved 200M years ago in Pangaea, perhaps the rate of collective learning would have been higher.

People to read or talk to

In Professor Christian's experience, there is extremely little discussion of the question "Why was there an Industrial Revolution at all?" and much more discussion of the question, "Why did Europe industrialize before China, India, Japan, and the Ottoman Empire?" Right now, discussion of the latter question goes under the name "The Great Divergence," and is one of the main issues in world history. I told him I was considering talking with or reading economic historians, historians, and growth economists, but he was not optimistic about this process yielding answers to my questions.

If I did look into it further, he suggested talking to/reading the work of:

1. Karl Polanyi (economic historian/anthropologist)
2. V. Gordon Childe (archaeologist)
3. Colin Renfrew (archaeologist)
4. Paul Seabright (economist), author of *A Natural History of Economic Life*. Princeton University Press, 2004.
5. Jack Goldstone (sociologist), author of *Why Europe?* McGraw-Hill Higher Education, 2008.
6. Kenneth Pomeranz (historian), author of *The Great Divergence*. Princeton University Press, 2009.
7. People writing on "the anthropocene"
8. Cultural evolution theorists such as Peter Richerson and Arthur Boyd.

Appendix: Questions sent to David Christian

1. From the perspective of Big History, what were the most significant critical junctures in history--places where history could have taken a turn in a substantially different direction but didn't? What lessons can we draw for what critical junctures to expect in the future?
2. Related topic: how contingent/inevitable were the major transitions you discussed in your book (especially e.g. the origin of life, eukaryotes, language, agriculture, agrarian civilizations, industrialization, etc.)? How fragile/robust do you think continued technological development is?