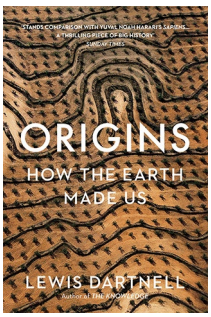
Terra ex machina



Origins: How the Earth Made Us

By Lewis Dartnell

Bodley Head: 2019. 346pp. £20.

If the bookstore shelves and best seller lists are any indication, 'big history' is thriving as authors attempt to either interpret a large and complex narrative through one event or thing (such as a mineral, a single year or a type of a food), or to harness vast swaths of natural history in the service of explaining how human life came to be the way it is — Jared Diamond's *Guns, Germs, and Steel* paradigm, if you will. It is in this thematically and profitably rich vein that Lewis Dartnell's *Origins* arrives to put human civilization(s) into a deep geological context devoid of almost any agency whatsoever.

Make no mistake, as far as the scientific evidence and narrative is concerned, Dartnell manages to deftly stitch together not only a wide array of scientific fields and threads (from astrophysics and plate tectonics to paleobotany and metallurgy, to name but a few), but also to balance the need for general knowledge level explanations alongside expert level depth to make the book both accessible and internally coherent. Worldbuilding is not just for science fiction writers, nor is it easy when you're writing about science realities, but Dartnell keeps his book moving along efficiently, even when a reader could fear getting bogged down in the crucial interdisciplinary connections surrounding how *Homo erectus* not only spread, but thrived.

The treatment of plants in this book follows a few straightforward and simple historical framings. When considering the development of agriculture, for example, Dartnell focuses on both the wide variety of angiosperms that evolved in response to pressures to spread, and the narrow number of species that we actually cultivate and eat. Dartnell relies heavily on Diamond's assertion that the lack of latitudinal constraints allowed cultivars to spread widely across the Eurasian continent compared to the latitudinal limits of the Americas that are not compensated for by greater longitudinal freedom, yet he fails to build on a burgeoning pool of archeobotanical research regarding how humans selected plants in situ in the Fertile Crescent and beyond.

In the section on the creation of coal deposits during the Carboniferous period, Dartnell does a much better job of connecting climate and geological science to explain why trees and other plants failed to decompose before they could be compressed and turned into 'fossilized sunshine' for later human use. This is an effective use of the book's structure to argue that the Industrial Revolution of the eighteenth and nineteenth centuries was set in motion by natural forces acting millions of years before. Both here and throughout the book, however, Dartnell appears unable to account for human agency and the choices that determined how plants' and nature's other resources were, and continue to be, utilized. For example, Andreas Malm's epic *Fossil Capital* provides an exhaustive account of the economic and political reasons why coal was ultimately, but not necessarily inevitably, chosen over waterpower in industrializing England during the 1800s.

Even while Dartnell is acknowledging the human impact on the natural world or describing trajectories of societal development, the reader is left with the impression that this has all been more or less pre-determined by the Earth's mechanics and could not have been otherwise, creating a cohesive but ultimately unfulfilling history. In two separate sections, Dartnell provides maps of a geological feature — coal in England and Cretaceous rock soil in the American South — along with maps of voting patterns for the Labour and Democratic parties, respectively, with the assertion that because the areas on those maps largely overlap, consequential political choices made today remain largely a function of geographic determinism. To the extent that this is a true statement, such an argument places peat and dirt over people as the guiding factor in a nation's political history and ultimately fails to provide any larger meaning or actionable knowledge to this accident of geology.

Big history's glaring weakness is its apparent unwillingness to muddy a mechanistic narrative with the inflection points faced by humans over thousands of years and why we chose, rationally or otherwise, the paths that led us to where we are today. After all, a book literally subtitled with how the earth 'makes' us doesn't leave much room for us to do anything that wasn't already carved in stone. ❐

Reviewed by Ryan Scarrow

Published online: 23 May 2019
https://doi.org/10.1038/s41477-019-0449-1