How science saved the world

Has science driven history for the past 50,000 years?

Kim Stanley Robinson

Review:

Science in the Third Millennium

by J. S. Khaldun

Scientific Careers 2001–3000

by AI 80004 “Ferdnand”

The 12 preceding volumes of Professor Khaldun’s study articulate his belief that science has been the driving force in human history for the past 50 millennia at least, an idea sometimes criticized as containing too broad a definition of science to be useful. His latest book, however, brings him into an era when the idea can be tested for its explanatory power.

It’s also a period that illustrates Khaldun’s contention that science was always a politics by other means, a utopian and unselfaware revolution attempting to shift power from residual aristocracies to the general populace. What early scientists took to be neutral and necessary aspects of the scientific method, such as reproducibility, falsifiability, Occam’s razor, peer review, and so on (cf. Khaldun pp. 580–935), were actually political institutions all along, attempting to regulate human action with the ultimate goal of alleviating suffering. The invention of science as a method for understanding nature obscured for centuries the realization that it was also the optimum mode of social regulation. Only the population-overshoot crisis early in the millennium brought scientists to an awareness of this.

The overshoot, as Khaldun reminds us, was a dangerous time. Humanity found itself in a race to invent a sustainable way of life

before its reproductive success and primitive technology severely damaged the carrying capacity of the planet. Global warming and an anthropogenic major extinction event did occur, but it could have been worse: a full six billion of our ancestors existed simultaneously at the tip of an unsustainable technological prosthesis, and the social system facing this situation was the Late Feudal phase known as capitalism. Many technical advances of the era therefore did nothing to mitigate the ecological disaster or, worse, added to it. Even the great leaps in the biological sciences, reinforcing health and initiating the assault on senescence, only exacerbated matters, as humanity entered the age of longevity still enmeshed in a dysfunctional social system.

In describing this crux, Khaldun rehearses again his theory of history in which social systems consist of clashes between residual and emergent elements. He reads feudalism as a clash of traditional command economies with emergent capitalism; capitalism as a clash of feudalism with early permaculture; and our late permaculture as a clash between residual capitalism and some poorly modelled emergent harmony which for biological reasons may be approachable only asymptotically.

In the overshoot crisis, Khaldun sees this struggle expressed as a conflict between science, representing the emergent permaculture, and capitalism, representing residual elements of feudalism.

Capitalism attempted to maintain a hierarchy in which science would serve as pet monkey, cranking out new commodities and increasing lifespans. Science resisted this

impulse not only because of the practical danger of the overshoot to the progeny of scientists, but also because science itself would be threatened if the residual elements succeeded. So scientists of the era, despite the lack of a paradigm describing them as historical actors, set to work transforming capitalism into a system of practices they recognized as more rational, universal, lawful and pragmatic — that is to say, more scientific.

The resulting ecological reorganization of the economy and increasing advisory power of science in the political realm initiated the institutional mutation towards the system identified retroactively as permaculture, which now seems to us so natural. Adequate food, water, shelter, clothing, health care, and education for all; increased longevity; the stabilization of the Earth’s ecologies; the inhabitation of the Solar System: these and other major achievements of the millennium all followed from science’s successful transformation of the social system of that time.

Whether macrohistories such as Khaldun’s can still convince is doubtful. His “metameme narrative” of residual and emergent smacks of Hegelian teleology, in which progress happens no matter what people choose to do. A useful corrective to this kind of metaphysics is the recent “hyperanalyst” work of the computer archaeologist AI 80004 “Ferdnand”. Excavations in the enormous mass of data remaining from the overshoot period enabled 80004 to list all scientists working at that time. Their careers are summarized, then analysed in a series of tables and graphs charting their profits and investments, their political actions, their child-rearing, the ecological utility of the scientific content of their careers, and so on (cf. pp. 7378–9417).

Close perusal of these tables will indeed reveal which scientists contributed to the survival of the overshoot and invention of permaculture, and which did not. But one sees in the tables no teleology, no residual or emergent elements, no grand battle of metamemes — only small individual actions, spread across the whole range of possibility. Khaldun might claim that these actions “summed over history” reveal the beliefs motivating scientists, and thus the powerful existence of the metamemes. But this would be a subject for yet another volume, called perhaps *History Judges You*. ■

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