Seeing into the Future: A Short History of Prediction by Martin van Creveld (review)

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Technology and Culture, Volume 62, Number 1, January 2021, pp. 258-260 (Review)

Published by Johns Hopkins University Press
DOI: https://doi.org/10.1353/tech.2021.0013

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It is a dramatic reminder of how often the movement of technology is mediated by a variety of people and contexts, and the suspicions that should meet the ascriptions of a national identity to any technology.

A final section looks at global technical infrastructure, ranging from systems of patenting, to NGOs, to the United Nations and its affiliated organizations. In a piece of remarkable relevance, Ana Aranzazu details the development of the World Health's Organization (WHO) network of flu surveillance. She shows how, given China's position as an important entry point of previous flu outbreaks, China was brought into the WHO's flu surveillance network in 1978. However flu experts in both the WHO and the United States' Center for Disease Control and Prevention (CDC) were unsatisfied with the level of information received from China. The WHO, with the CDC often taking an informal leadership role, offered funding and technical assistance to the Chinese authorities, with some of the funding coming from pharmaceutical companies who stood to benefit from improved vaccines. While this arrangement improved vaccines available in the United States, China and other countries in the global South that lacked adequate public health systems and considered viral illness less important than other types, did not benefit from this surveillance.

As a non-native French speaker reading this collection, I was particularly attuned to the role of translation. Throughout the essays, competence in a foreign language (or lack thereof) plays a central role in the movement of a technology. It is a factor that should receive more attention. Furthermore, this collection contains contributions from scholars associated with institutions in France, Russia, Brazil, Italy, Cameroon, and the United States. Several of the pieces were themselves translated.

One thing is clear: the history of the process through which the world has become increasingly interconnected is so diverse and complex that it cannot be told through the perspective of one culture and one language. Compilations such as this are welcome efforts to add more colors to the palette.

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Citation: Bassett, Ross. "Review of *Les techniques et la globalization au XX^e siècle* edited by Liliane Hilaire-Pérez and Larissa Zakharova." *Technology and Culture* 62, no. 1 (2021): 257–58.

Seeing into the Future: A Short History of Prediction

By Martin van Creveld. London: Reaktion Books, 2020. Pp. 296.

"The best way to predict your future is to create it" is one of Abraham Lincoln's famous dictums. Futures are unpredictable, unless you make them

happen. Martin Creveld's new book, *Seeing into the Future*, examines the principal methods that have been used for looking into the future throughout history. The nature and philosophy of prediction have regularly been the object of historical scholarship, most famously Nicolas Rescher's *Predicting the Future* (SUNY Press, 1997) and Elke Seefried's *Zukunfte* (De Gruyter, 2015). The need for forward looking has always been triggered by innovative technological aids and inspired by new scientific insights. Recent technological advancements, in particular the emergence of big data and algorithmic modelling, indeed warrant a renewed interest in prediction as a profound social activity.

Creveld's original emphasis on the historical methods of prediction enriches previous scholarship. The book explores a number of predictive methods prevailing over time: speculation, deduction, extrapolation, polling, and modelling. Shamans, prophets, and oracles populated the age of speculative prediction; astrologists and fortune-tellers used newly found scientific insights, such as ornithoscopy (observing the flight of birds), and haruspicy (examining the internal organs of animals) as a source of prediction. Not surprisingly, the preferred modes of forecasting changed with the shift towards Enlightenment. Between 1650 and 1780, "prediction shed the sacred-magic-otherworldly quality that had characterized it for so long . . . to become subject to the ordinary rules of reason" (p. 226).

Upon entering the age of modernity, new methods of prediction characterized the culture of rationality: extrapolation, polling, surveying, and modelling. Knowing the future from knowing the past inspired modern fortunetellers to deploy novel instruments that enabled them to gather economic information in order to detect patterns and apply cyclical logic. Empirical methods, including statistics and surveys, came of age in the early twentieth century as institutions were established to systematically collect social, demographic, and financial data facilitated by new technologies. After 1945, public opinion polls, for instance, were enabled by the emergence of telephones; several decades later, computers helped speeding up mathematical calculations, allowing for actuarial models to predict the statistical chances of an individual to get involved in a traffic accident.

Technologies substantially affect scientifically grounded methods of prediction, and both are in turn intricately intertwined with the political need to not only predict, but also manage and control society's futures. In this regard, historians of technology would have appreciated a bit more detail in the book: how were technologies deployed, by which actors to perform what kinds of predictive activities?

The role of predictive technology in shaping social change is huge and finds its bearings in the public acceptance of each new predictive method. An interesting historical development sketched in Creveld's study is the shift from predicting a person's individual fate to predicting societal or economic futures. Whereas ancient fortunetellers and oracles were famous

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for their personalized predictions, for instance of a warrior's chances to survive a fight, modern warfare technologies allow strategists to model victory on the battlefield and thereby determine a nation's future. By the same token, advanced surveillance techniques are now put to use to not simply follow an individual's online movement, but to also steer his or her consumer needs and—in some countries—manage social behavior. The 'black boxes' of digital platform technologies have unleashed unprecedented powers to predict someone's future actions from tracking individual and collective online behavior.

The last chapters of the book could have addressed more deeply the convergence of the historical modes of prediction—speculation, deduction, extrapolation, polling, and modelling—in contemporary digital systems. Data-based and algorithmically driven methods of prediction reflect many of the historical motives for 'seeing into the future.' Their deployment goes well beyond the motives of prophets to sell wishful thinking as a technique for personal empowerment; predictive technologies may be weaponized to reshape the geo-political world order. Creveld's historical overview could have modified Abraham Lincoln's aphorism: the best way to predict your future is to engineer it.

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Citation: Van Dijck, José. "Review of *Seeing into the Future: A Short History of Prediction* by Martin van Creveld." *Technology and Culture* 62, no. 1 (2021): 258–60.

Entangled Itineraries: Materials, Practices, and Knowledges across Eurasia

Edited by Pamela H. Smith. Pittsburgh: Pittsburgh University Press, 2019. Pp. 396.

Entangled Itineraries is an edited volume that shows to what extent knowledge (used in the plural form in the book's title) is mobile. Global historians of science now understand that the routes which materials, techniques, and knowledges take can be more important than their roots or original forms. And as knowledges travel, they connect different parts of the world, create convergences and hubs, and crystallize into what Dorothy Ko calls "material-emotional complexes." The contributors to this volume trace the movement of people and practices spanning Eurasia in order to explore "nodes of convergence, material complexes, and entangled itineraries" (p. 5).

Throughout this volume, Eurasia appears as a connected spatial unit; there are no traces of the dichotomies that characterized so many older histories of science and technology, dividing Europe and the rest of world, or