Foresight

EDITED BY

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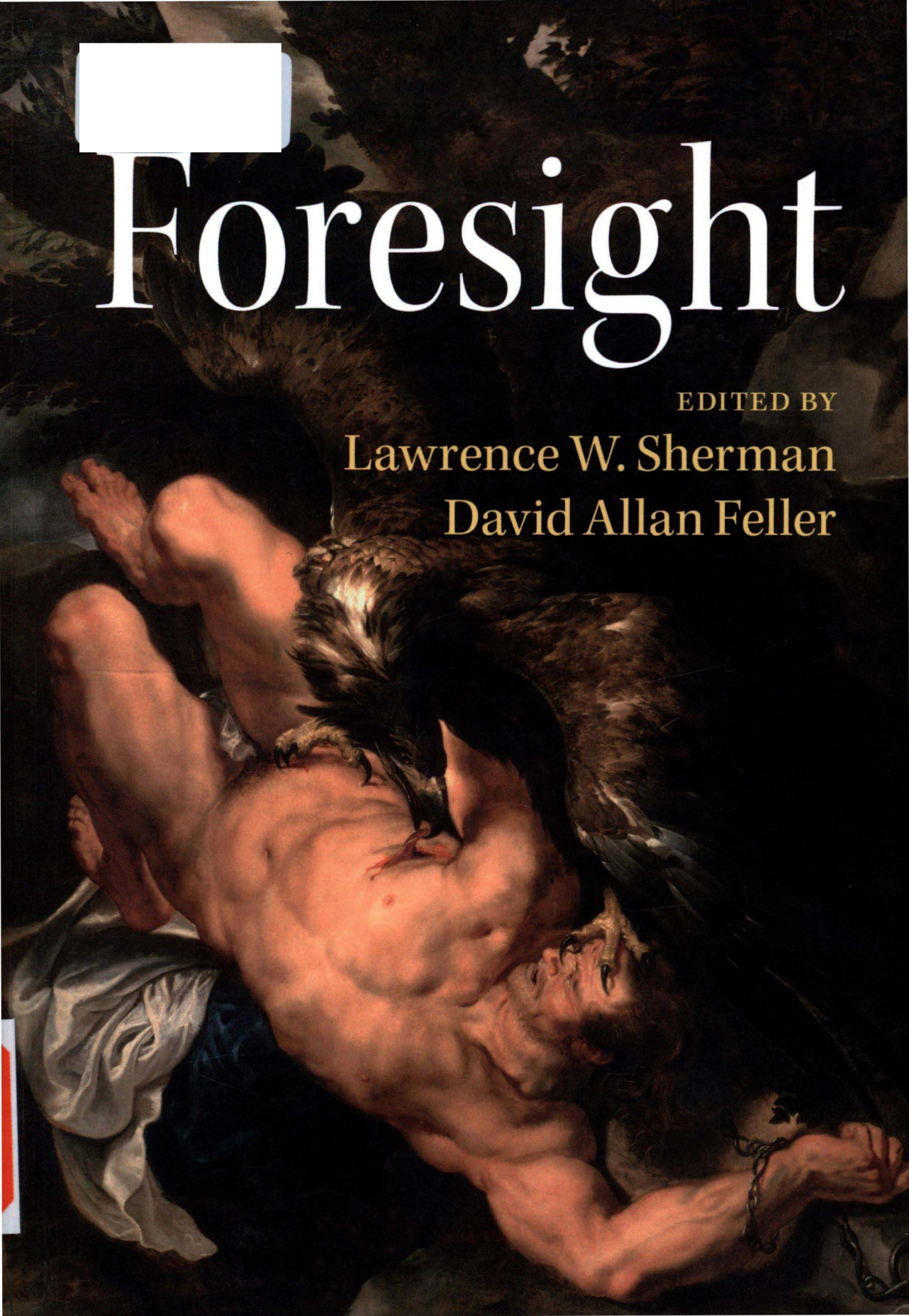

How do attempts to foresee the future actually change it? For thousands of years, humans have called upon foresight to shape their own actions in order to adapt and survive; as Charles Darwin revealed in his theory of natural selection, the capacity to do just that is key to the origin of species. The uses of foresight, however, can also be applied to help us further our understanding across a variety of realms in everything from warfare, journalism and music, to ancient civilizations, space weather and science. In a thought-provoking new addition to the Darwin College Lecture Series, eight distinguished authors each present an essay from their area of expertise devoted to the theme of 'foresight'. This provocative read reveals foresight as a process that can be identified across all areas of human endeavour; an art which can not only predict the future, but make it anything but inevitable.

CONTRIBUTORS

Geoffrey Lloyd, Bridget Kendall, Robert J. Sawyer, Hasok Chang, Nicholas Cook, Jim Wild, Terrie E. Moffitt and Francesca Rochberg.

LAWRENCE W. SHERMAN is Director of the Institute of Criminology at the University of Cambridge, where he has served as Wolfson Professor of Criminology since 2007. He is also Director of the Jerry Lee Centre for Experimental Criminology and Chair of the Cambridge Police Executive Programme.

DAVID FELLER holds a PhD in the History and Philosophy of Science from the University of Cambridge, as well as a law degree from Georgetown University Law Center, Washington D.C. His work at the universities of Cambridge and of Manchester, particularly regarding use of dogs as models in evolutionary and genetic science, has created new discussion in both Darwinian Studies and concepts of cultural influences in biology. Most recently he has lectured in Law and Science at Cambridge, discussing how law and science combine to guide notions of the future. He is currently the senior contracts manager for the Physical Sciences for the University of Cambridge.

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Edited by *Lawrence W. Sherman* and *David Allan Feller*

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Notes on Contributors

Geoffrey Lloyd received the Dan David Prize in 2013 for his contribution to our understanding of the modern legacy of the ancient world; the latest in an august career of academic achievements. Throughout his university career he has been based chiefly at Cambridge, holding various university and college posts, first at King's College and then at Darwin College. From 1983 onwards he held a personal chair in ancient philosophy and science, and from 1989 to his retirement in 2000 he was Master of Darwin College. He is a fellow of the British Academy, and among his many other posts and awards, he has received the Sarton Medal (1987); foreign membership the American Academy of Arts and Sciences (1995); and the Kenyon Medal for Classical Scholarship from the British Academy in (2007). He was knighted for "services to the history of thought" in 1997, having published over twenty books and over one hundred and fifty articles.

Bridget Kendall became Master of Peterhouse, Cambridge in 2016. She joined the BBC in 1983 as a radio production trainee for BBC World Service. She rose to the post of the BBC's Moscow correspondent from 1989 to 1995, witnessing the power struggles in the Soviet Communist Party as Mikhail Gorbachev tried to introduce reform, reporting on the break-up of the Soviet Union and the internal conflicts in Chechnya, Georgia, and Tajikistan. She sent reports of the coup in August 1991 and covered Boris Yeltsin's rise to power. She moved to the BBC's Washington, D.C. desk from 1994, and became the Corporation's diplomatic correspondent in 1998. Kendall speaks fluent Russian and has interviewed world leaders including Vladimir Putin live from the Kremlin as part of an internet webcast in March 2001. She is the host of the talk show *The Forum* on BBC World Service radio.

Robert J. Sawyer is one of only eight writers in history to win all three of the world's top awards for science fiction novel of the year: the World Science Fiction Society's Hugo Award, won in 2003 for his novel *Hominids*; the

Science Fiction and Fantasy Writers of America's Nebula Award, for *The Terminal Experiment* (1996); and the John W. Campbell Award in 2006 for *Mindscan*. His influence in the genre extends well beyond his award-winning example, though, as his work with young writers and public engagement has made him one of Canada's most influential publishing industry figures. Over his twenty-two novels, he has looked at science and its meaning in culture across a vast array of disciplines and applications, and his contributions culminated in October 2013 in the Canadian Science Fiction and Fantasy Association's Lifetime Achievement Award, only the fourth time in thirty years the award has been given to an author.

Hasok Chang is the Hans Rausing Professor of History and Philosophy of Science at Cambridge. His research interests include the history and philosophy of chemistry and physics from the eighteenth century onward; philosophy of scientific practice; other topics in the including measurement, realism, evidence, pluralism, and pragmatism. He was President of the British Society for the History of Science (2012–14) and is a founding member of the Committee for Integrated History and Philosophy of Science. His intriguing publications include *Is Water H_2O? Evidence, Pluralism and Realism* (2012) and *Inventing Temperature: Measurement and Scientific Progress* (2004).

Nicholas Cook took up the 1684 Professorship in 2009. He was formerly Professorial Research Fellow at Royal Holloway, University of London, where he directed the AHRC Research Centre for the History and Analysis of Recorded Music (CHARM), and before that he taught at the universities of Hong Kong, Sydney, and Southampton, where he also served as Dean of Arts. A musicologist and theorist, he holds separate degrees in music and in history/art history. His articles have appeared in leading British and American journals, and cover topics from aesthetics and analysis to psychology and popular culture. His books include *A Guide to Musical Analysis* (1987) and *Music, Imagination, and Culture* (1990). Cook's current work is turning toward social and intercultural perspectives on music, and in 2014 he took up a British Academy Wolfson Research Professorship to work on a three-year project entitled "Musical Encounters: Studies in Relational Musicology." He is a Fellow of the British Academy and of the Academy of Europe.

Jim Wild is a physicist studying the space environment and the links between the Sun, the Earth, and other planets. He has a doctorate in solar-terrestrial physics at the University of Leicester and is now Professor of

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Space Physics at Lancaster University's Department of Physics. His research investigates the physics behind the aurora borealis (sometimes known as the northern lights), the impact of space weather on human technology, and the interaction between the Martian atmosphere and the interplanetary environment. In 2010, he was awarded a Science in Society fellowship by the UK Science and Technology Facilities Council. Wild is a fellow of the Royal Astronomical Society and a member of the European Geosciences Union and American Geophysical Union.

Terrie E. Moffitt is the Knut Schmidt Nielsen Professor at Duke University's Department of Psychology & Neuroscience and Department of Psychiatry & Behavioral Sciences. Her main course of research looks at the interplay between nature and nurture in the origins of problem behaviors with particular interest is in antisocial and criminal behaviors. She is Associate Director of the Dunedin Multidisciplinary Health and Development Study in New Zealand, and she also directs the Environmental-Risk Longitudinal Twin Study ("E-risk"), which follows a 1994 birth cohort of 1116 British families with twins. For her research, she has received the American Psychological Association's Early Career Contribution Award (1993), Distinguished Career Award in Clinical Child Psychology (2006), and the Stockholm Prize in Criminology (2007). She is a fellow of the Academy of Medical Sciences (1999), the American Society of Criminology (2003), the British Academy (2004), and Academia Europaea (2005).

Francesca Rochberg is the Catherine and William L. Magistretti Distinguished Professor of Near Eastern Studies at the University of California at Berkeley. Her early academic career included honors as a fellow with the John Simon Guggenheim Memorial Foundation and the John D. and Catherine T. MacArthur Foundation. Her current research focuses on Assyriology, with an emphasis on Akkadian scholastic texts of the second and first millennia BCE, Babylonian astronomy and astrology, and the impact of the philosophy of science on the historiography of ancient science. In 2010, she was posted at the Ludwig-Maximilian Universität, München as a research fellow, and is a member of the American Philosophical Society. In 2007 she became a member of the Princeton, Institute for Advanced Study, School of Historical Studies, and has received the John Frederick Lewis Award for *Babylonian Horoscopes* (American Philosophical Society, 1998).

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murder, Robert Sawyer, in Chapter 3, comes close. He argues that for foresight in fiction to "extrapolate to what plausibly might happen," the first requirement is the author's "conviction that human nature does change, that our psyches and our societies are malleable." And so, he implies, we have and will act to change them: "It is this ability to change that may explain why we're here and all other forms of humanity have died out." Charles Darwin would agree.

Even when it is wrong, foresight can shape the future. Bridget Kendall, in Chapter 2, reviews the consequences of the 1987 television announcement that there would be no hurricane the next day, when there was. Without counting the exact cost of this error, it is possible to accept that more preventive measures from an accurate forecast could have reduced the losses which the hurricane caused. The long-run way in which that error may change the future is more beneficial: in 2014, the UK Meteorological Office announced major investment in supercomputers and satellite data collection that can increase the micro-regional precision of forecasts of floods, high winds, and other weather disasters early enough to reduce their damage. The journalism reporting this new capacity comprised a Greek Chorus chanting reminders of the 1987 error.

Thesis and Antithesis

Our authors are anything but one-sided in the link between foresight and outcomes. They do not claim merely that accurate foresights cause action that changes the future, or that inaccurate foresight causes inaction that leads to disaster; that two-sided coin is merely the thesis in the dialectic. The antithesis in this dialectic is that *even inaccurate or fabricated foresights can create a self-fulfilling prophecy* in which the foresight becomes accurate only because it was proclaimed with great conviction.

Francesca Rochberg, in Chapter 8, observes this phenomenon in ancient Mesopotamia, in the rise to power of Esarhaddon (681–669 BC). "According to the Assyrian imperial master narrative," she writes, "Esarhaddon told of his own appointment as crown-prince by divine selection." He then cited specific omens as evidence of the decision of not one, but many, Gods that he should become the next ruler. Using these omens as a weapon to defeat his brothers and others vying for the

throne, Esarhaddon's "announcement of the omens was an essential ingredient of the master narrative, the key to securing a legitimate claim" to rule.

It is easy to scoff at anyone's claims of divine selection to rule, as the Stuart Kings of England discovered after James I offered an in-your-face insistence on the sacred nature of his family's Royal powers. But just as foresight of divine intentions can create self-fulfilling prophecy, so can scoffing at foresight itself. As Terrie Moffitt suggests in Chapter 7, a strong lack of interest in foresight can spell disaster for individuals with that predilection stretching over their entire life course.

Foresight → Better Outcomes

Analyzing the life histories of 1037 people born in Dunedin, New Zealand in 1972–73, Moffitt shows that low self-control is strongly associated with a wide range of poor outcomes that can be prevented by foresight, including financial foresight. By their mid-thirties, people who had low self-control measured from ages three to eleven were clearly less "financially planful." Compared to their peers with better self-control, they were "less likely to save and they had acquired fewer financial building blocks for the future (such as home ownership, investment funds, or retirement plans)," a finding that was clear even when IQ and parental social class were held constant. These same impulsive people were also seen in a statistical gradient, in which the less self-control they had, the less foresight they had shown in many aspects of life: health (including smoking), wealth, parenting skill, staying free of criminal prosecution, getting an education.

The point of Moffitt's analysis fits right into the foresight dialectic. While she demonstrates a strong link from low foresight to poor outcomes, she repeatedly claims that low foresight is malleable. If societies have foresight about members with low foresight, she argues, we should be able to intervene at many stages of life to help them take foresight more seriously. This takes us from the anti-thesis back to the thesis, as Robert Sawyer argued, that we prosper as a species because we can change ourselves to adapt better than we have in the past.

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