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Introduction: The Foresight Dialectic

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The idea of foresight is as old as recorded societies, as controversial as climate change, as interesting as a murder mystery, and as useful as an umbrella. It is a siren tempting journalists to dash themselves on the rocks of prediction, a competitive sport in which winners may claim high fees for their success—or even failure. Yet the greatest value of foresight is to *change* our futures, not just to predict them. Foresight embraces more than disengaged claims about what will happen; it can also engage lines of action in which foresight itself causes what happens next—either to confirm its prediction or avoid it. As Francesca Rochberg states in Chapter 8, "foresight is not simply looking forward, but anticipating future change and acting on that vision."

Dialectic

The dialectic between prediction and causation runs throughout this volume, across disciplines as diverse as journalism, music, and ancient history. The consistency of that theme was neither foreseen nor required by the organizers of the 2013 lectures documented in this volume, the twenty-seventh in the renowned Darwin College series presented in Cambridge every year since 1986. The convergence of eight independent thinkers on this dialectic was emergent, unplanned, and serendipitous. As the result of what turned out to be an intellectual Rorschach test, presenting the idea of foresight repeatedly led our authors to interpret it as a blend of prophecy and its fulfilment.

While no author mentions the idea of "pre-crime" explored in the 1956 Philip K. Dick story *The Minority Report*, in which foreseeing a future crime in the brain of the would-be murderer allows police to prevent the

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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

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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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Foresight → Worse Outcomes

Yet this thesis must include the argument that societies may use foresight to change themselves for the worse, as Nicholas Cook reminds us in his analysis of foresight in music in Chapter 5. Building on Jacques Attali's claim that "every major social rupture has been preceded by an essential mutation in the codes of music," Cook pursues the link between the musical foresight and the success of the change it predicts. He cites analyses of the Balkan wars of the 1990s as evidence that music helped to promote the conflicts, including Donna Buchanan's claim that, performances and recordings by Bulgarian musicians during the 1980s "functioned not only as prominent harbingers, but as agents of political transition." Did foresight predict the struggles, cause them, or both?

Cook's lecture carries the analysis further, to consumers of music becoming its producers in a kind of crowd-source production by consumers, or "prosumption." Foresight in this sense becomes an iterative process of innovation provoking (causing) more innovation that repeats and intensifies the production of a new kind of music. Thus foresight in the prosumption of music is changing music itself, while the new music is changing its wider social context. Whether that context is better or worse than its predecessor is beyond the boundaries of the thesis, which allows a wide range of other factors to affect the good of the outcome.

No example of foresight causing events for the worse is more vivid than Bridget Kendall's discussion, in Chapter 2, of the 2012 death of reporter Marie Colvin in Syria. Noting the dilemma of journalists offering foresight in the middle of ongoing events, Kendall places the circumstances of a journalist's death in the wider context of all journalism in covering events in which the main message is that people are dying, and innocent civilians are being slaughtered: "If you are crouched in a bombed out house in a suburb of Homs during the Syrian conflict, like the late *Sunday Times* correspondent Marie Colvin and her colleagues in 2012, should you steer clear of giving live interviews by satellite from your location? It is thought that it may have been the Syrian military picking up her signal and launching an attack on the house where she was staying which led to her death."

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Hasok Chang, in Chapter 4, also tackles the problem of foresight being right in its prediction, but uncertain in the effects of making the prediction. This problem is not essentially dialectical, since it starts by simply drawing boundaries between predicting two different phenomena (the subject of interest—like the weather—and the effects of the prediction—like closing schools, or not). But it has major implications for the role of science in the foresight dialectic, which may be to claim exemption from a more general view of foresight. When it comes to foresight in science, Chang argues, success in prediction has never been certain to lead to further success. The history of science shows a wide range of sequelae of predictive success, with foresight about science itself having a miserable track record.

Error and Humility

Chang's argument about foresight in science echoes Kendall's central concern about foresight in journalism, which is that "foresights" are so very often wrong. Both authors counsel humility in offering foresight, if only because there are so many unimagined alternative scenarios that may still come to pass. Chang quotes Joseph Priestley saying in the eighteenth century that accurate predictions may expand ignorance even while expanding knowledge: "every discovery brings to our view many things of which we had no intimation before." Chang also quotes a wonderful image that Priestley offered for this claim: "The greater is the circle of light, the greater is the boundary of the darkness by which it is confined."

Yet is this true for every area of science? In Chapter 6, Jim Wild implies that progress has reduced ignorance while expanding knowledge of "space weather," defined as encompassing "conditions and processes occurring in space, including on the sun, in the magnetosphere, ionosphere and thermosphere, which have the potential to affect the near-Earth environment." Wild reports that the planetary systems affecting space weather are quite stable, with little change to foresee in the short or long term. Foresight's problem is to understand how new human technologies may be disrupted by foreseeable bouts of space weather disruptions.

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The 1859 geomagnetic storm, known as the "Carrington event," provides only a glimpse of what could happen today. The telegraph was the only technology affected by that event. But a similar storm today could knock out all satellite-generated technologies, from air traffic control to satnav guidance in automobiles to GPS tracking of sex offenders wearing electronic shackles on their ankles. At worst, it could knock out the electrical grids for entire nations, as in the experience of all Bangladesh in late 2014. Hospitals, heating systems, and water and food supplies could all be disrupted. Wild reports estimates that full recovery from another Carrington event could take four to ten years.

Wild's account of these hazards calls for better forecasting of such events. But true foresight about them would be much broader, at least in the foresight dialectic implied by the other authors. The thesis of that dialectic would be that damage from space storms can be minimized by humans refining technologies that humans designed. A big vision, such as giant surge protectors for every use of electricity, might or might not be useful, but something creating that effect would be very useful. In foreseeing these hazards for such a purpose, they could be prevented. Foresight can falsify the predictions by making them not come true—but only if humans adapt and take corrective action.

Mistakes → Improvements

Yet as the climate change debate demonstrates, attempts to promote such foresight may reveal a modified antithesis—that *even inaccurate or fabricated foresights can create a self-fulfilling prophecy*. Instead of the foresight becoming accurate only because it was proclaimed with great conviction, an equally convinced *denial* of the foresight can also make the foreseeable horrors come true. Financial interests tied to short-term denial of long-range foresights, or foresights of uncertain dates, can persuade democracies there is nothing to worry about. The collapse of human civilizations from Greenland to Easter Island may offer mute tribute to the success of such foresight deniers.

This volume begins with several ancient civilizations, including China, the Graeco-Roman world, and Mesopotamia. In Chapter 1, Geoffrey Lloyd considers four questions about foresight in those societies, the

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last of which is central to the foresight dialectic: "How is foresight related first to divination in particular, and prediction in general, and then to wisdom and prudence?" The word "prudence" is central, as Terrie Moffitt agrees in Chapter 7, since it denotes the fusion of prediction and prevention, decisions made to avoid harm and promote survival – exactly what *individuals* with the weakest self-control fail to do. But how does foresight shape prudence in entire *societies*?

Lloyd's answer is that prudence in ancient civilizations might require ample scepticism about the standard methods of predicting events. He reports that a first-century BCE Chinese philosopher named Wang Chong challenged the methods of his day in concluding that "The widespread opinion that the dead turtle shell and the dried milfoil stalks can . . . obtain replies to questions that are put is erroneous." Lloyd also cites Sunzi's treatise on the art of war, emphasizing "the need for foreknowledge, but says that that is not to be got from ghosts and spirits, nor by comparing past events, nor from plotting the positions of the heavenly bodies: no: it can only be got from knowing the enemy's situation." This means spies—a particularly non-divine source of foresight.

Lloyd cites sceptics in other ancient civilizations, showing that scepticism about irrational methods was itself rational. But what if the methods had been firmly grounded in science? Our most serious modern challenge to prudence from foresight is public scepticism about strong evidence. Yet that challenge may come from Lloyd's distinction between precise predictions and more general scenarios plotting likely outcomes of alternative courses of action. The predictions were largely based on non-empirical divinations, but the scenarios were derived from empiricism of history. Lessons learned from histories of past mistakes informed the wisdom of China, Greece and Rome. The mistakes were tied to stable features of human societies at that time, including governance, warfare, food supplies, and crises.

Today's crises may be fundamentally different, even if human nature is not. We face many problems for which the past provides little guidance. From magnetic space-storms to climate change, human effort is changing the nature of the problems which humans face. The number of humans on the planet is unprecedented, which makes even the oldest of problems unprecedented in their scale. Our sceptics may have evolved to look to the

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past to find wisdom for prudent actions in foresight. Much wisdom, undoubtedly, can still be drawn from the past. But the past can hardly be a complete guide. What the foresight dialectic tells is that adaptation is needed to prevent a harmful future. That, in turn, requires that we capitalize on Robert Sawyer's conviction that human nature, and human societies, are malleable.

Hope or Humility?

Here is where our authors part company, since Sawyer's conclusion challenges the counsel for humility offered by Bridget Kendall and Hasok Chang. Chang concludes that "true foresight consists in recognising . . . proper limits." Nicholas Cook, Terrie Moffitt, Francesca Rochberg, and Robert Sawyer hold out the hope for an end to the curse of Cassandra. Yet all authors agree on the power of foresights—right, wrong, or conditional—to influence decisions—right, wrong or disastrous. Humility is wise, but so is empiricism. The empirical evidence assembled in these eight lectures offers powerful evidence for the contingent, probabilistic nature of both predictions and prudence, changing conditions and human adaptations.

These characteristics of foresight go well beyond the making of predictions. They mean that each statement about what the future will be can provoke a dialectical discussion over what the future should be, and ultimately becomes. Whether that idea brings the reader hope or despair is the ultimate Rorschach test of this volume.

The Darwin College Lectures

That such agreement on these choices can be achieved across a wide range of topics and disciplines is yet another tribute to the Darwin College Lecture series. The very idea for the Darwin Lectures was a case of foresight becoming a self-fulfilling prophecy. The foresight was that in a world of increasing specialization and differentiation of disciplines, there would be continuing intellectual interest in a multi-disciplinary view of big ideas and subjects. Since that claim was stated, and especially since videos of the lectures have been posted online for some one million

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views, Darwin College has helped to sustain the broad intellectual approach it foresaw.

C.P. Snow observed that science was rarely discussed at Cambridge college dinners, since the divide between science and humanities is so great that "there seems then to be no place where the [two] cultures meet." Yet for three decades, Darwin College has created just such a meeting in Cambridge on Friday nights of every January and February. It has even added the third culture, of social science, to this gathering of minds and perspectives.

Every Darwin College Lecture series must touch all three realms of thinking, including physical science as well as its less-exact siblings. This mandate is not only challenging to the convenors of each series, but also to the readers of each volume. It is tempting to think that readers may sit down and plow their way through such volumes from cover to cover. A more modest ambition is that any reader might enrich their lateral thinking by reading even one lecture on a topic of interest by someone from an entirely different field. This is, after all, what Steven Johnson[1] argues to be the best source of new ideas, just as Gutenberg devised the printing press after viewing a wine press in action. After almost three decades, the Darwin College Lectures have become established as a reliable venue for lateral thinking from cross-disciplinary insights—and sometimes even foresights.

[1] *Where Good Ideas Come From* (N.Y.: Riverhead Books, Penguin Press, 2010).

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