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## **Book Review**

**Nowotny, Helga. 2016. *The Cunning of Uncertainty*.  
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**H**elga Nowotny is a scholar of great repute who has contributed greatly to our knowledge of science and technology, societal development, and social time in late modernity. In *The Cunning of Uncertainty*, Nowotny reflects upon uncertainty as an intrinsic part of human existence. Throughout the book's five sections (including a preface and an epilogue), Nowotny invites readers to embark upon a journey during which we will consider, challenge, and even change our understanding of the various kinds of uncertainty that we encounter. Her main argument is that societies ought not try to annihilate uncertainty (as such efforts are inevitably bound to fail); rather, we need to embrace uncertainty—learn to cope with it and engage with it in productive and constructive ways.

Initially, Nowotny explains that the human “craving for certainty,” that is, the human eagerness to rule out doubts and diminish fears by anticipating that which lies ahead, is hardly new. In earlier times, when humanity placed its faith in oracles and divinatory practices, the future, like fate, was viewed as already set, although not yet revealed. Modernity saw belief in oracles and divinatory practices fade as belief in sci-

ence rose (underpinned by the Enlightenment). Perceptions of the future changed: in the mid-eighteenth century, the future appeared not as a predetermined entity, but as an open horizon. This new view of the future as horizon brought with it a sense of optimism and confidence that the future could be managed and controlled. In the latter part of the twentieth century, that optimism slowly transformed into mounting doubts. These doubts manifested themselves in a view of the future (or rather futures) as something that should be predicted in order to mitigate or avoid unwanted outcomes. Nowotny argues that this change in the meanings ascribed to the notion of the future has led to our present view of the future as fragmented, volatile, and fragile. Drawing on the historian Reinhart Koselleck, she states that the future moves closer to the present as a consequence of the wish to map out probable futures from a present vantage point; or more succinctly put: “The present is... extended into the future” (p. 33). Gradually, uncertainty has become associated with a sense of threat linked to the anticipation of future deterioration. Perceptions of the future are thus likely to be characterized by feelings of fear *vis-a-vis* threats—perceived, imagined, or both—that “will materialize unless one

reacts by flight or fight” (p. 18). This, argues Nowotny, has to do with an increased tendency these days to confuse and conflate risk, danger, and uncertainty. Originally, risk referred to the conscious act of daring to put something valuable at stake. Risk-taking could, accordingly, generate gains, as well as losses, whereas danger generally alludes to something harmful only. Recently, the concept of risk has been robbed of its original meaning: risk has been reduced to a calculable and manageable object that needs to be contained, prevented, and mitigated. For this reason, risk is increasingly confounded with the concepts of danger and uncertainty. This confusion may increase our feelings of fear as we attempt to tame the future. Nowotny calls for caution, however, warning that fear may lead us into decisions based upon a too-narrow view of the future. Additionally, fear and uncertainty make poor partners, since the former cripples our ability to cope with the latter.

We expect science to generate knowledge that may assist humanity in navigating the waters of uncertainty. Nowotny argues that, while science has surely enhanced humanity’s capability to deal with uncertainties, to make predictions, and to anticipate risks, even the most elaborate algorithm can never fully guard against surprises or the unexpected. The contemporary idea of “future making” reeks of overconfidence, as the twist and turns of the “non-linear dynamics of complex systems” (p. 32) can never be fully foreseeable; similarly, the unintended consequences of human purposeful action can never be fully captured and/or assessed. Yet, despite the fact that predictions are always provisional (and contextual), Nowotny notes that science can still extend the range of those predictions. For

instance, the wealth of data available today constitutes an important tool for making better and more far-reaching predictions. Nowotny also notes another merit of big data: namely, its potential to nudge science towards asking *what* questions, rather than *why* questions. What is more, she underlines the importance of keeping in mind that “[d]ata are not simply given” (p. 44) and ought always to be understood in the context in which they were produced. In science, uncertainty is a driving force, as it excites, challenges, and pushes scientists towards the realm of the (as yet) unknown. Hence, “[s]cience at its very best thrives on the cusp of uncertainty” (p. 116). Venturing into the forests of the unknown creates space for unanticipated discoveries that may produce important new knowledge: in other words, for the pleasant surprise of serendipity. Nowotny is critical of systems, funding agencies, for instance, that insist on *a priori* information: that is, on assurances of what they will receive. She is convinced that the attempt to transform scientific uncertainty into certainties only displaces the uncertainty; as such it may actually hamper the knowledge production and the genuine long-term vision of science. Nowotny, is, furthermore, with regard to funding systems, critical towards, for example, grant applications that, in several instances, are steeped in a rhetoric of “over-promising.” Nowotny highlights the perils of applicants adapting to and/or applying such a rhetoric. Promising “too much” (naturally a subjective judgment), if the other party ends up disappointed, may have undesirable consequences such as the erosion of relationships built on trust.

Nowotny explains well the duality of uncertainty. On the one hand, uncertainty may evoke feelings of fear

and/or insecurity; on the other hand, it may be a space where human creativity can flourish. Any knowledge that springs from our attempts to reduce uncertainty merely leads to new questions—making uncertainty cunning, indeed. Like the Lernaean Hydra, it grows two new heads for every one chopped off.

Altogether, I view *The Cunning of Uncertainty* as a brilliant and insightful reflection on the complex topic of uncertainty. For those operating in future-making fields (politicians, scientists, policy-makers), it may serve as both a reminder and an eye-opener in the way it reframes the importance of a critical mindset towards the hopes we pin on supposed certainties. The book is a nuanced piece of writing, and Nowotny lays out, challenges, and scrutinizes her own arguments from various angles throughout. I find the way in which she does this to be particularly appealing. The book addresses our current situation without resorting to black-and-white thinking. It is neither alarmist nor overly optimistic. It is not, by any means, a step-by-step manual for planning the future (nor indeed for ignoring it). Rather, Nowotny puts forth a host of original ideas and leaves it to readers to form their own opinions. She frequently draws on a historical perspective, and she also points out the importance of context. In my view, the most intriguing part of the book is certainly Chapter 1, “Craving

for Uncertainty,” which presents several of her main arguments. Her own ambivalence towards the developments (especially the technological ones) and the tendencies she describes is consistent with her overall perception of knowledge as provisional and contingent upon context. Nowotny advises that the scientific enterprise should be driven by posing the question of *what* (or *how*), rather than that of *why*. Here, I would offer a minor reflection: If we lose sight of the “why,” does not the “what” risk becoming ahistorical? That being said, I am convinced that Nowotny does not advocate an ahistorical science. Nonetheless, I believe we should think twice before we switch to the “what” at the expense of the “why” (co-existence is, in my view, preferable). I also think that Nowotny’s ideas may prove valuable to various research fields: criminology, for instance, where the vocabulary of risk, prediction, and prevention is prevalent, and potential pitfalls in the pursuit of certainty (usually articulated in terms of security) have made themselves known (c.f. Zedner 2009). *The Cunning of Uncertainty* is important for a wide audience—officials, scholars, and policy-makers, but also anyone interested in the complex situation in which we find ourselves today. I warmly recommend the book to those interested in the late modern condition, notions of the future, and the multifaceted relationship between science and technology.

## References

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