As I was cleaning out my office one quiet winter afternoon, I heard a colleague down the hall talk like a diligent gardener to a student about the "treatment effects" of various experiments on different political subjects. In sharp contrast, the daily news I have been reading, especially in recent years, reports scenes from the jungle. My political sensibilities tell me that gardening should not be the only occupation for students of world politics.

Why are we drawn so strongly to gardens rather than jungles when studying world politics, and why do we prefer the resolvable, riskinflected world over the radical, uncertainty-marked one that we so often encounter?¹ The answer lies in a view of the world, for the most part held unconsciously, that prefers to highlight the features of politics which lend themselves more readily to systematic study and political control. Hence, students of world politics are habituated to focus their attention largely on the garden-like elements of world politics ruled by resolvable risks. They leave underattended the jungle-like elements marked by radical uncertainties. World politics encompasses both jungles and gardens, and uncertainty as well as risk. If we focus only on predictable risks, we are closing our eyes to a world filled with unpredictable potentialities waiting, for better or for worse, to be actualized by political action or inaction. They are always out there.

The 2020 pandemic illustrates the bone-shattering uncertainty of the world in which we live. People experience this uncertainty viscerally, as different forms of vulnerability: about their very lives, their economic livelihoods, their loved ones, and the communities in which they live. And the television is filled with incessant chatter by those in power who, often unavoidably, lack adequate knowledge about the virus and how it can be mitigated or contained. In the words of Nobel Prize–winning economist Paul Romer, "uncertainty is the overwhelming problem."² Dramatic environmental change in the wake of global warming,

¹ Kay and King 2020: 14. ² Romer, quoted in Seib 2020.

furthermore, may well make the pandemic a starter dish for a full menu that can pose "an unprecedented existential and temporal *uncertainty* concerning the future of ... Earth itself."³ The pandemic illustrates a persistent problem. Many of the most momentous events in world politics are totally surprising to those professing special expertise in the analysis of world affairs.

During the last decade I have been trying to understand why. Together with Stephen Nelson – then a graduate student at Cornell and now a professor at Northwestern University – I wrote some papers to better understand the collective silence with which the discipline of political economy met the Great Recession of 2008, the greatest calamity that had hit the international economy since the Great Depression of the 1930s.⁴ To my astonishment, I learned that economists, political economists, and Wall Street bankers had built their models on the assumption that we live in a world of knowable risk only. Once the crisis hit, those risk models proved to be both totally useless and totally wrong. Little has changed since. Uncertainty is still a marginal concept in finance.

The obliviousness to uncertainty, I sensed, had political roots and consequences worth probing further. Together with the late Lucia Seybert and a group of colleagues, I developed the concept of protean power to capture the unpredictable potentialities that exist all around us.⁵ This was little more than a reminder that Machiavelli's writing about fortuna is as relevant to today's understanding of world politics as Hobbes's Leviathan. While we were developing this argument, the reaction of my colleagues was overwhelmingly skeptical. Did we need still another conceptualization of power, they asked, since the conventional one focusing on control seemed to have served us so well over the centuries? Brexit and the election of Donald Trump in 2016 changed that reaction, but only a little. Readers were willing to concede that they had been surprised by the outcomes of the referendum and the election, glossing over many other momentous, unexpected events they had conveniently chosen to forget. The seminars I attended and the lectures I delivered on the subject of protean power typically elicited an awkward silence followed by the question "This is very interesting. Let me try to translate what you are saying into my own language." That language inevitably was Newtonian and steeped in the notion of control power and manageable risk. I sensed that concepts, theories, and models were grounded in something more basic that made it very difficult – and often

³ Hamilton 2019: 610.

⁴ Katzenstein and Nelson 2013a, 2013b; Nelson and Katzenstein 2014.

⁵ Katzenstein and Seybert 2018; Katzenstein 2020.

impossible – for members of these audiences to acknowledge the importance of uncertainty and the relevance of protean power effects for the analysis of politics.

That more basic thing, the opening and closing chapters of this book argue, lies in the conventional understanding of science, which most students of world politics boil down to commonsense reasoning. A Newtonian view of the world is baked deeply into our language and sensory experience, and often holds sway over subconscious ways of thinking. No stranger to fragility and uncertainty, journalist Thomas Friedman advised the Biden presidential campaign in 2020 to adopt an ad stating "I believe in the Enlightenment, Newtonian physics and the Age of Reason. The other guy doesn't."⁶ Really? Why would Newtonian physics be the answer to a Post-Newtonian president trafficking in disruption and uncertainty?

The conventional theories, models, and hypotheses that inform our study of world politics are grounded in a Newtonian worldview that has no place for uncertainty. My chapters in this book attempt to uncover this hidden foundation and to contrast it with a Post-Newtonian worldview more attuned to the existence and importance of uncertainty. For more than a century, theories and approaches grounded in this Post-Newtonian worldview have generated remarkable progress in our understanding of the natural world. Is there something that students of world politics, and the social sciences more generally, could learn from the natural sciences that think of the world as filled with potentialities and uncertainties? As Albert Hirschman observed about the social sciences, including the study of world politics, a long time ago, they often "consider it beneath their scientific dignity to deal with possibility until after it has become actual and can then at least be redefined as a probability."⁷ Today it is a marker of the professional respectability of the best scholars of world politics to be carefully trained in a broad array of statistical methods and thus to acquire an intellectual disposition that overlooks ex ante possibilities by treating them as ex post probabilities.

The authors of the book's eight other chapters have a variety of interests in their exploration of worldviews. Mark Haas and Henry Nau focus on foreign policy ideologies and traditions interpreted from the perspective of worldviews (Chapter 2); Milja Kurki on relational cosmology as a central scientific contribution to the relational revolution in the natural sciences and its implication for the analysis of world politics (Chapter 3); Jairus Grove on relationalism as shown in American nuclear war preparations (Chapter 4); and Michael Barnett on Jewish nationalism and

⁶ Friedman 2020a, 2020b. ⁷ Hirschman 1980: xii.

cosmopolitanism in disparate Jewish communities (Chapter 5). Henry Nau (Chapter 6) and Prasenjit Duara (Chapter 7) reflect on these contributions through the lenses provided by their distinctive worldviews. Finally, Bentley Allan (Chapter 8) and Timothy Byrnes (Chapter 9) present challenging arguments about science and religion as today's two foundational worldviews. In short, this is a hybrid of an edited and singleauthored book that analyzes both implicit and explicit worldviews.

I want to acknowledge here that my understanding of Newtonianism and Post-Newtonianism is that of a barely informed layperson. I bring no special expertise to any number of extremely complex subject matters and theoretical debates in physics and cosmology. Asked to read a few pages, a physicist friend of mine acknowledged that "physics is part of human culture, sure ... to try to lift someone's language about very arcane physics and paste it into some other situation should not be attempted."⁸ None of what he had read, he argued, was of any relevance to the social sciences or humanities. I promised myself and him that, in the interest of full transparency, his unsparing judgment would be included in the book's Preface, possibly providing my colleagues in the social sciences some welcome cover for stopping their reading here.

Needless to say, I disagree. Physics is undeniably part of human culture, and the unwillingness of the social sciences to acknowledge uncertainty as a constitutive aspect of world politics and its tendency to equate uncontrollable uncertainty with manageable risk surely can be informed by a branch of science that takes uncertainty seriously.

Listening to David Mermin, a Cornell physicist, fed my curiosity at a ten-hour intellectual marathon I convened in the fall of 2016 in my living room for a discussion of Alex Wendt's *Quantum Mind*. Building on the argument that physics is part of human culture, Mermin, disagreeing with what he had read in Wendt's book, wrote in an email exchange with Wendt: "we're at opposite poles. I take human experience as given, and try to use it to make sense of quantum mechanics; you take quantum mechanics as given, and try to use it to make sense of human experience."⁹ This opened the door for me to begin thinking and reading seriously about the effects of different scientific worldviews on the scholarly and the human enterprise.

Concerned with a few basic differences between two scientific worldviews, I am neither interested in nor qualified to adjudicate the intense and persisting arguments among physicists and cosmologists. My

⁸ Eric Siggia, personal communication, August 30, 2020.

⁹ Wendt 2015; David Mermin email correspondence with Alexander Wendt (September 2, 2016).

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overriding concern is instead to show that students of world politics will be unable to integrate uncertainty into their theories and models as long as they remain committed, often unthinkingly, to a Newtonian worldview. As the natural sciences have moved in the last century to Post-Newtonian understandings of the world that integrate Newtonianism as a special case, why is that intellectual move so difficult for so many scholars of world politics, who insist that they are committed to the *scientific* study of world politics?

In this they are joined by public intellectuals and policymakers who often have no interest in science. Richard Haass's recent compendium on world politics offers a practical guide for readers seeking a better understanding of the global forces that shape their lives. As President of the Council on Foreign Relations and former director of Policy Planning in the US Department of State, Haass is well suited to this task. He dismisses academic debates and theories as "too abstract and too far removed from what is happening to be of value to most of us."¹⁰ The literature on which Haass draws and to which his compendium contributes depends on a handful of foundational concepts, such as the balance of power, that have barely changed since the time of Hobbes and Newton. His book illustrates that the creation of knowledge in the field of global politics all too often is repetitive. In light of new circumstances, authors confront foundational issues with a handful of well-known concepts without adding new depth to our understanding of world politics including our understanding of the unexpected.¹¹ This book is a prime target for Haass's criticism: it is about abstractions that are removed from daily events.

This, however, does not make it a purely academic exercise. Far from it. Newtonianism has a view of nature as inert and self-equilibrating that is at odds with the view of many natural scientists. The 2020 pandemic, firestorms, and floods are warning signs that should open our eyes to the prospect of much broader environmental challenges reflected in nature as active and utterly oblivious to any notion of an equilibrium. This will certainly change, and possibly transform, world politics in the coming decades. Being more self-aware of the various worldviews that shape our theories and models of world politics may turn out to be highly germane to those interested in policy.

I recall vividly a conversation with economic historian Charles Kindleberger in front of the Harvard Bookstore, a few years before his death. Charlie was an icon. When queried regarding what he was doing toward the end of his distinguished career, Charlie was, as always,

¹⁰ Lawrence 2020; Haass 2020. ¹¹ Gabriel 1994.

unpretentiously laconic and wry. He replied cheerfully that he was tidying up his study: putting together in various books some of his myriad of articles and book chapters so that they would be more readily accessible for others after he was gone. This book has done the exact opposite for me. My study is not tidy. Far removed from my expertise, I have delved into fields of scholarship looking for insights that had escaped my attention, as they continue to escape the attention of most scholars of world politics. Working in fields I barely understand has made me appreciate once more the old adage "the more we know, the less we know."

This book was made possible and indelibly energized by two friends and intellectual companions. Alexander Wendt's monumental and audacious book *Quantum Mind* made him an astute and supportive critic at different stages of the project's evolution, and especially of my two chapters. Himself the editor of a book on worldviews, Henry Nau might well be tempted to update for this occasion Winston Churchill's World War II characterization of Charles De Gaulle: "the heaviest cross I have to bear is the Cross of Lorraine." This project was a serious test of his *Leidensfähigkeit* (ability to suffer), as it was at least for one of my German colleagues who introduced me to this delicious noun after reading excerpts from Chapters 1 and 10. I am immensely grateful to both Alex and Henry for their inspiration, perseverance, and, most importantly, their friendship.

I have received an enormous amount of help from many friends and colleagues, which I note at various places in Chapters 1 and 10. I am immeasurably grateful to Uriel Abulof, Begüm Adalet, David Bateman, Alexandra Blackman, Alexandra Cirone, Caryl Clarke, Matthew Evangelista, Roderick Floud, Jill Frank, Jeffrey Friedman, Peter Gourevitch, Ilene Grabel, Patrick Jackson, Sabrina Karim, Robert Keohane, Jonathan Kirshner, Stephen Krasner, Sarah Kreps, Douglas Kriner, Adam Levine, Patchen Markell, David Mermin, Henry Nau, Daniel Nexon, Leonardo Orlando, Richard Price, Yaqing Qin, Chris Reus-Smit, Bryn Rosenfeld, Rudra Sil, Divya Subramanian, Geoffrey Wallace, Christopher Way, and Alexander Wendt. Close to the end of this project, my colleagues at the Social Science Center Berlin (WZB) discussed excerpts of Chapters 1 and 10 in two seminars. I am very grateful for their generosity even though I was not able to follow all of their suggestions or answer all of their objections.

David Stuligross improved the writing in Chapters 1 and 10 immensely by editing the text from "within," as it were, nudging it toward communicating to readers just what I am trying to convey rather than from "without," improving only grammar and punctuation. I am immensely thankful for his work.

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This has been a deeply collaborative project. Without the help of a group of exceptional scholars and friends whom I invited to join me on this journey, I simply could not have ventured this far off the garden path. I would like to thank my coauthors, who agreed to draft discussion papers for a roundtable on the subject of worldviews at the 2019 meeting of the International Studies Association in Toronto. Their papers – and a memorable lunch after the public event – convinced me that this project might indeed be feasible. The coronavirus upended plans for a meeting at Cornell in April 2020. Full drafts were instead discussed in three Zoom meetings in June 2020. The revisions of our papers were aided enormously by the insightful and constructive critiques of four discussants. I thank John Owen, Richard Price, Robbie Shilliam, and Alexander Wendt for their written comments and active intellectual presence throughout our meetings.¹²

Every text has a subtext. Mine is a song without words. I dedicate this book and its song to Mary, the love of my life.

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