

Julia Schubert, *Engineering the Climate: Science, Politics, and Visions of Control*, Manchester, UK: Mattering Press, 2021, 280 pp., ISBN: 9781912729265.

Journalist Eli Kintisch describes it as a “bad idea whose time has come.”¹ Climate engineering (or geoengineering), which entails the deliberate modification of the Earth's climate system, has long been touted as a necessary if controversial measure in addressing climate change. At the heart of the debate around climate engineering, however, lies a contradiction: the dangers of this approach are widely recognised, but public and private actors are increasingly investing time, effort, and money into this solution. How did it come to this? That is the central question of this recent book by sociologist Julia Schubert.

Focussing exclusively on the United States, Schubert explores how something so often described as a bad idea could become internalised in U.S. politics and federal infrastructure as a potential solution to climate change. She argues that climate engineering did not just arrive on the political agenda in the late 2000s due to the urgency of climate change, but that it has been part and parcel of the way climate change has been defined, studied, and addressed throughout the preceding century. During this time, science and politics became “coupled” in the “very formulation of climate engineering as a potential measure to counteract climate change” (p. 18). This bad idea grew, therefore, out of a longer history of science–state relationships. In taking this perspective, Schubert's analysis is as much historical as it is sociological, resonating with work done by historians of science. With scholars publishing ever more and exciting work on climate engineering in recent years, this field of research seems ripe for pursuing more cross-disciplinary approaches like Schubert's.

Engineering the Climate is split into three parts. The first looks at the years following 2009, when a number of hearings, reports, and position statements signalled the arrival of climate engineering on U.S. political agendas. Referring to a slate of policy documents and research programmes that emerged in the early 2010s, Schubert shows how scientific and political struggles were aligned in debates regarding the issue, and how an inventory of terms, knowledge, evidence, and research priorities developed around it. The second part traces the historical roots of climate engineering

¹ Kintisch (2010, p. 13).

alongside the emergence of climatology in the U.S. and Europe since the turn of the 20th century. Building heavily on the work of scholars like Jim Fleming and Zeke Baker, Schubert emphasises the role of meteorological knowledge and ideas about weather modification in shaping the field of climatology. Whereas in the first half of the century these ideas were often framed optimistically as a useful tool at the state's disposal, the rise of environmentalism in the 1960s and 1970s problematised the promise of climate modification. This corresponded with shifts in the political status of climate science (as the problem-defining authority) and climate change (as the proposed problem). The final part returns to the 21st century, in which climate change has been framed as an innovation problem (to be fixed with technology), and climate engineering as a last-resort solution to it. Particular emphasis is placed on the role of “expert witness” testimonies delivered to Congress by a small group of experts (the “geo-clique”) in turning climate science from a problem-defining authority to a problem-addressing one.

Throughout the book, science and politics are treated as interrelated, even “allied”: for science to be politically relevant, scientific expertise must resonate with and be internalised by the political system. Schubert frequently invokes notions that build on this perspective, noting how the staged advice of scientific experts helped define political priorities, and how agencies constituted the expert infrastructure required to internalise scientific expertise in the federal government. These sociological aspects of knowledge production and transmission are particularly valuable when applied to the 2010s, when the narrative of climate engineering as a last resort took hold.

But given the importance of the historical dimension to Schubert's argument, it is also worth pointing out where historians may find it lacking. Whereas her engagement with archival material from the 21st century is extensive and insightful, she relies predominantly on a handful of histories of climate and weather modification for the preceding century. This imbalance is reflected in her analysis, for instance in the way climatology is unquestioningly treated as a subfield of meteorology for most of the 20th century. This assumption neglects much work on the history of climatology that looks beyond simply its relationship to meteorological knowledge, highlighting factors such as nation-building, colonialism, aerial surveillance, and utopianism. Focussing on the unique American origins of climatology—and crucially relying primarily on an American-focused historiography—limits her ability to assess whether and how these features play into the “coupling” of science and the state. My point is not to say Schubert should have included all of these themes in her analysis. However, showing awareness of such factors can only help us better contextualise the climate engineering debate, as this book implores us to do.

Furthermore, Schubert justifies her decision to focus on the U.S. context by referring to its active community of climate-engineering researchers and the dynamic policy-making environment surrounding this subject (p. 24). This justification reads somewhat ironically when near the end of the book she comments on the problem of countries from the Global South being marginalised in these debates (p. 218). Additionally, other actors such as Russia, China, and Saudi Arabia are also ignored, despite having both active interests in modifying the climate and existing track records of

implementing these technologies.² Some reflection on how the U.S. context relates to the global context would have been welcome here.

These drawbacks do not undermine the central value of Schubert's book, which is to tackle the perception of choicelessness in the climate engineering debate. Her historical-sociological analysis shows that the justification for pursuing climate-engineering fixes as a last resort is a recent and historically contingent one. It is an idea that has been reframed—not birthed—by the contemporary climate change debate. Since reframing is a fundamentally social and political act, Schubert reminds us that we are by no means out of options.

Floris Winckel  0000-0002-4815-3896
Ludwig-Maximilians-University Munich, Germany
floris.winckel@rcc.lmu.de

References

- Hamilton, C. (2013). *Earthmasters: The dawn of the age of climate engineering*. New Haven, CT: Yale University Press.
- Kintisch, E. (2010). *Hack the planet: Science's best hope—or worst nightmare—for averting climate catastrophe*. Hoboken, NJ: Wiley

² Hamilton (2013).