Linstrum's book is to show that such a stark model of British backwardness is no longer sustainable.

Linstrum concludes that the imperial project of ruling minds was too big to succeed, but also too big to fail; a tale of continuity, but also of change over time; of colonial power, but also of anti-colonial critique. His account, in other words, resists simplistic generalization. Nevertheless, he does also show quite clearly that a body of work that presents imperial psychology as simply a tool of control and domination is misleading. *Ruling Minds* clearly reveals rule to have been a messy and negotiated process, and the rulers and their experts to have sometimes used the tools of psychology to break down racial boundaries, make rule fairer, and even challenge rule itself. Also hinted at but less fully developed is a history of how psychology might provide a tool for the colonized themselves. The picture that emerges may be a little too generous towards imperial psychology for the tastes of those who have studied the sometimes harsh consequences of policy in practice in particular imperial contexts, but Linstrum's focus is on the broader intellectual climate, rather than effects, and here his nuanced analysis is fresh, thought-provoking, and largely persuasive. Where it would be useful to hear more is in relation to questions of underlying structure, system and scale. For instance, there is the issue of disciplinary and professional formation. Here, Linstrum is somewhat loose in the handling of his central focus of analysis. Most often it is psychology, but elsewhere it is some less precise formulation such as mind science, at points it turns towards a broader frame of human science, and for much of the book the key actors are anthropologists rather than psychologists. There is good justification for this. As Linstrum notes, psychology was a discipline in the process of formation at the start of the period, and his analysis is excellent at demonstrating the prevalence and significance of psychological thinking well beyond the discipline and profession. Yet something is also lost in this approach. By the end of the period, disciplinary lines and professional interests had been more clearly drawn, and we might hear more about the resulting politics. Likewise, Linstrum notes at several points the importance of 'networks of empire' for a history such as this, and he does draw our attention to some key partners in such a network, including government bodies and large commercial companies. But the picture of the system (and also its scale), and thus of the politics of knowledge, remains somewhat impressionistic. We see its complexity and myriad partners, and we are alerted to some of the channels of communication, but we emerge in the end without a definitive picture of the map of power, the place of disciplines and professions within this, and the changing structure and dynamics of this system over time. This is, of course, a lot to ask for, and it would be unfair to expect this of a book that does so much in opening up the subject, but these are perhaps questions of the sort raised for future scholarship by Linstrum's fascinating and valuable study.

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James R. Fleming, **Inventing Atmospheric Science: Bjerknes, Rossby, Wexler, and the Foundations of Modern Meteorology**. Cambridge, MA: MIT Press, 2016. Pp. x + 296. ISBN 978-0-262-03394-7. £22.95 (cloth).
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James Rodger Fleming, one of the most productive and pre-eminent figures in the history of meteorology, is next in line to answer two questions which are particularly preoccupying to many historians of this discipline: when did meteorology become modern and what changed to make it so? In *Appropriating the Weather* (1989), Robert Marc Friedman made his case for the years between 1898 and 1925, arguing that the so-called Bergen school around Vilhelm Bjerknes heralded meteorology's modernity by developing a dynamic, numerical prediction technique based on polar fronts and air masses. Kristine Harper affirmed the revolutionary effect of the Bergen school in *Weather by the Numbers* (2008), but focused her work on the relevance of

computation in particular, extending the period studied until 1955. With his new book, Fleming now further prolongs this period and also the cast of characters. He argues that it took the first sixty years of the twentieth century to establish meteorology as a thoroughly modern science which integrated theory and practice, facilitated research on a genuinely global scale, and used new technologies to further explore the influences of the atmospheric layers on the weather. This development culminated in the establishment of the new interdisciplinary field of atmospheric science in the 1960s.

Well aware of the 'pretty big history' he tells, Fleming interweaves the biographies of the three men he identified as key protagonists to create a compelling narrative (p. 4). According to Fleming, Bjerknes (1862–1951), Carl-Gustav Rossby (1898–1957) and Harry Wexler (1911–1962) embodied the changes in meteorology between 1900 and 1960. All three were remarkably successful meteorological researchers, but Fleming makes a point of not portraying them as isolated geniuses, but rather as 'institution builders' and 'extraordinary networkers' (p. 2). Their respective teams thus receive adequate attention within the book. What is more, the three are also interconnected: Rossby interned with Bjerknes for one year in Bergen, and supervised Wexler's PhD thesis. Fleming devotes one chapter to each of them in chronological order and concludes with a chapter on the genesis of atmospheric science.

One of the merits of Fleming's work is the wide array of new sources from private and public archives. Figures like Rossby and Wexler have not yet been thoroughly portrayed by historians of science and this book finally introduces their work and legacy to a wider audience. Bjerknes's biography, in contrast, is well explored. Nevertheless, Fleming adds new facets by contributing Bjerknes's correspondence with the Carnegie Institution, which continuously supported his work from 1906 until a few years before his death in 1951. The documents shed light on how he viewed himself as a researcher and his relationships with his collaborators. A remarkable episode that would merit a more in-depth analysis is how Anne Louise Beck tried to promote Bjerknes's work in the United States already in the 1920s, but, despite being a highly qualified young meteorological researcher, was patronized and held back because of her sex. Instead, the large-scale introduction of Bergen school methods to the United States fell to her male colleagues.

Like Beck, Rossby studied with Bjerknes, but later extended what he had learned to include not just polar fronts but hemispheric flows more generally, oceanic and atmospheric currents and jet streams. Born in Sweden, but naturalized as a US citizen in 1939, Rossby played a seminal role in establishing training programmes for thousands of weather cadets and officers to match the meteorological education of the US military to that of the German Luftwaffe. Somewhat disillusioned by what he perceived to be political limitations of his research in the United States, he returned to his native Sweden in 1946 to model meteorological training and research there after his experience overseas. Wexler, of Russian descent, was a student of Rossby's and served as head of research at the US Weather Bureau between 1946 and 1962. He was in charge of its theoretical and experimental research programmes at a time when radar, digital computing and satellites drastically changed the technological framework of meteorological research.

Fleming's book is a treasure chest of insights into the lives of three leading meteorologists of the twentieth century. They were fascinated by the technical possibilities that opened up layer after layer of the atmosphere for them. The case Fleming makes for a noticeable shift in meteorology around 1960 is convincing: atmospheric science was established as a new interdisciplinary field and chaos theory put an end to hopes of ever calculating perfect weather forecasts. At the same time, Fleming observes, meteorologists transitioned 'from charismatic leadership to committee work, corporate organization, and state sponsorship' (p. 193).

A more specialized reader may be disappointed that Fleming cuts short his elaborations on questions of a more conceptual nature: how were knowledge and technology transferred between Norway, Sweden and the United States? How was the development of atmospheric science tied to

ever-increasing investments from both the public (e.g. the military) and the private sectors (e.g. the Carnegie Institution, civilian aviation)? Did this change the focus of research and the kind of knowledge that was produced? An analysis of a more systematic instead of biographical nature would perhaps offer more opportunities to compare and contrast the evolution in meteorology with that in other sciences. But perhaps this is too much to ask of a book clearly intended to serve as an introduction to key technical and scientific innovations of meteorology in the first half of the twentieth century. What it lacks, perhaps, in epistemological and structural depth it makes up for with apt storytelling and a sense of biographical detail that will hopefully engage a more general public.

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TOM CROOK and MIKE ESBESTER (eds.), **Governing Risks in Modern Britain: Danger, Safety and Accidents, *c.*1800–2000**. Basingstoke: Palgrave Macmillan, 2016. Pp. xiv + 315. ISBN 978-1-137-46744-7. £63.00 (hardback).
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The thirteen chapters that comprise *Governing Risks in Modern Britain* offer a historical gloss on a phenomenon by now familiar to our own age, in which everything from terrorism to the consumption of red meat has been identified as a threat to self or society. Editors Tom Crook and Mike Esbester suggest that the volume will offer some historical perspective to these contemporary problems. But Crook and Esbester have broader ambitions. Their hope is that the volume will contribute meaningfully to historiographical debate, encouraging a re-evaluation of the role of the modern British state, while also inciting greater appreciation of how governance not only includes acts by people on people, but also implicates an assemblage of technologies, objects, machines, substances and infrastructures. Such ambitions are realized, Crook and Esbester argue, in the volume's thirteen chapters, which are grouped around four broad themes.

Ulrich Beck's 'risk society' casts a long shadow throughout *Governing Risks in Modern Britain*. This is especially true of Part One, which comprises chapters by Francis Dodsworth and Ryan Vieira, each of whom attempts to disrupt Beck-inspired histories of risk management. Dodsworth, for instance, in his study of crime prevention, accepts that policing moved away from 'crime-fighting' models of law enforcement in the nineteenth century, towards the prevention of harm through 'surveillance, pre-emption and anticipation' in the twentieth (p. 34). His contention, however, is that contra Beck, this process had an earlier genesis than first suggested, and was a product less of modernity than of the growth of the insurance industry, societal panic over crime and rapid urbanization. Vieira's chapter on press reports of accidents in the early nineteenth century strikes a similar note, accounting for the growth of accident reports in terms not of the spread of man-made, technological hazards, but of the impact of industrialization on understandings of class. Furthermore, Vieira suggests that accident reports were a means of managing the anxieties produced by technological modernity, a more nuanced position than Beck's in its stress on the specifics of historical context.

Further challenges to Beck can be found in the four chapters that comprise Part Two. Yet it is in this section that the volume's contributors begin to discuss the role of materialities in the co-construction of risk. Thus, in his study of synthetics, Chris Otter reaffirms the importance of the local over the global, in a further criticism of Beck, while simultaneously underlining the material impact of new technologies on bodies – bodies were now burned, shocked, poisoned, crushed and asphyxiated with greater regularity. Technological developments created new, more hazardous relationships between human and non-human actors, a point developed in two further chapters by Tom Crook and Rebecca Whyte. Crook draws attention to the growth of 'sewerage gas' from indoor plumbing, as it accumulated in the cavities of Victorian homes during the latter half of the nineteenth century. There was an irony to this, as Crook explains, for the problem of sewerage gas emerged as the middle classes installed more complex water-borne plumbing