

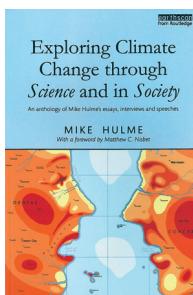
READINGS

BOOK REVIEWS

EXPLORING CLIMATE CHANGE THROUGH SCIENCE AND IN SOCIETY: AN ANTHOLOGY OF MIKE HULME'S ESSAYS, INTERVIEWS AND SPEECHES

Mike Hulme, 2013, 247 pp., \$48.95, softbound, Routledge, ISBN 978-0-415-81163-7

Exploring *Climate Change through Science and in Society* is an anthology of nearly three decades of previously published writings by Mike Hulme. The essays, interviews, and speeches appear in chronological order within seven thematic sections—science, researching, culture, policy, communicating, controversy, futures—and are accompanied by Hulme's own commentary on the background, context, and intentions of each contribution. The collection of selected publications can be read in different ways: as a compilation of writing about climate change over the past 25 years, as an autobiographical reflection from one of the most important contributors to and observers of climate change knowledge, and as a biography of climate change itself,



including the intimate details of a coming-of-age story. The highly accessible book carries correspondingly broad appeal to scientists, scholars, and students interested in the evolution of climate change science and policies.

As a collection of writings about climate science, the book covers topics from relatively early studies of precipitation patterns in the Sahel to mapping climate change knowledge across disciplines; from reflections on climate security to global governance; from how climate change problems are framed to the failures of COP15 in Copenhagen; and from the Climategate scandal to approaching climate change as an “issue magnifier” that can compel us to ask how we want our future to unfold. These and many more topics are organized into sections on the seven themes mentioned above. Each section begins with Hulme's explanation of why he chose the selections that appear in the sections and offers insight into how each topic has evolved since the writing first appeared. In the introduction to the science

section, for example, Hulme discusses the reservations he had in the early 1990s about the abilities of improved satellite technologies to “reduce the damage and death associated with weather-related hazards” without “institutional, social and political change” (p. 16). He goes on to make the point that “all weather hazards are now, to a greater or lesser extent, human-influenced”—thus already at the beginning of the book showing his position on climate change as an all-encompassing issue beyond the grasp of any single discipline. These perspectives are still highly relevant today.

As an autobiography, the book illustrates the breadth of Hulme's career and the wide-angle lens through which he has come to view climate change. Hulme's career encompasses the exponential growth of climate science and political action since the 1980s—decades over which ideas about the causes, consequences, and cures of climate change have all shifted significantly, with climate change emerging as a deeply complex social and political—in addition to environmental—issue. He notes that “[i]t is with this changing idea of climate change and its multiple forms of representation that my own professional career has engaged and evolved” (p. 11). By offering his reflections on each selection, Hulme transforms himself into an instrument to observe and measure how climate change-related science and activities have evolved. Hulme's writings and commentary are from the perspective of a trained geographer immersed in the world of climate science who has turned his attention to the larger context in which science is made meaningful. The book exposes how he has honed his skills as an observer of the interactions between climate and society, including how “the boundaries between the natural and the artificial are breaking down in relation to climate, just as they have already done so in relation to ecosystems, the human body and chemical matter” (p. 113). At the end of the book,

Hulme says we can no longer think of climate change in the modernist sense as a merely physical condition for human action, but have to acknowledge and thrive in the “conditions of pluralism” that arise from different experiences of climate change and climate-related risks. Our different experiences mean that “we will continue to create new stories about climate change and mobilize these stories in support of our projects” (p. 206).

This book illustrates Hulme’s own story, into which he delves most deeply in the final chapter, on responses to his 2009 book, *Why We Disagree about Climate Change* (WWDACC). In this chapter, written specifically for the collection, Hulme discusses positive and negative reactions to the book and its conclusion that climate change is not the sort of problem that lends itself to universal policy solutions. Hulme notes that his intention in WWDACC was missed by critics and that the defeatist, “do nothing” about climate change position he was accused of was a misunderstanding about his call to action to use climate change “to attend more closely to what we really want to achieve for ourselves and for humanity” (WWDACC: 363, cited p. 293), which must have come across as “either too abstract, too obscure, or both” (p. 293). Rather, he had intended WWDACC to show, much more optimistically, that “climate change can be used as a means of securing

common goals in spite of antagonisms and different beliefs” (p. 296).

As a biography of climate change, the book serves as a time machine allowing the reader to travel back across 25 years and read how the science, research approaches, cultural and political responses, communication frames, and controversies around climate change have evolved. The past quarter-century is only the beginning of the increasingly important and complex role that climate change will play in the collective human story. Hulme reflects that “the assumption has remained through this period that human-induced climate change is an important, urgent, and discrete problem which at least in principle lends itself to policy solutions. Optimism has waxed and waned, but the belief has been maintained that at least some forms of policy intervention will yield tangible public benefits—whether in terms of reductions in climate-changing emissions (from some assumed baseline) or else through reduced exposures to climate risks” (p. 9). However, from Hulme’s vantage point, no single policy approach can or will address climate change in part because the science of climate change continually generates new information that in turn suggests different institutional and political responses (p. 10), and in part because of the value-laden nature of climate science: “Not that science reduces to values, but that it is a carrier of values” (p. 295). Ultimately, the book is

NEW PUBLICATIONS

THE WEST WITHOUT WATER: WHAT PAST FLOODS, DROUGHTS, AND OTHER CLIMATIC CLUES TELL US ABOUT TOMORROW

B.L. Ingram and F. Malamud-Roam, 2013, 256 pp., \$29.95, hardbound, University of California Press, ISBN 978-0-520-26855-5

This book documents the tumultuous climate of the American West over 20,000 years, with tales of past droughts and deluges and predictions about the impacts of future climate change on water resources. It merges climate and paleoclimate research, introducing readers to key discoveries in cracking the secrets to the region’s past. The authors describe how droughts and catastrophic floods have plagued the West with regularity and recount disastrous events in the history of the West.

CLIMATE-CHALLENGED SOCIETY

J. Dryzek, R. Norgaard, and D. Schlosberg, 2013, 169 pp., \$16.99, softbound, Oxford University Press, ISBN 978-0-19-966011-7

This book is an introduction to the severe and broad-ranging challenges that climate change presents and how societies can respond. It synthesizes and deploys scholarship on the range of social, economic, political, and philosophical issues surrounding climate change. It includes an examination of science, public opinion, and policy making; economic analysis and its limits; different policies, climate justice, and governance at all levels; the challenge of an emerging “Anthropocene;” and the prospects for fundamental transition in ideas, movements, economics, and governance.

OCEAN SURFACE WAVES: THEIR PHYSICS AND PREDICTION

S. Massel, 2013, 667 pp., \$134.00, softbound, World Scientific, ISBN 9-789814-460118

This text is an extended and updated edition of the book published in 1996 under the same title. It contains a study on surface ocean waves induced by wind, earthquakes, and possible landslides and asteroid impacts. The basic mathematical principles, physical description of the observed phenomena, practical forecasting techniques of the various wave parameters, and extended application in ocean and coastal engineering are discussed from the stochastic point of view. All chapters were completely rewritten and supplemented with many new discoveries that were published since the first edition.

a coming-of-age story about how society has brought about and must respond—while fully acknowledging the values embedded in each option—to a changing climate: “In the end, these are matters which demand cultural reflection and analysis—about human beliefs, social practices and public discourses” (p. 298).

One criticism (which was also leveled against *WWDACC* by critics) that I have of the book is that Hulme has not leveraged the 25-year retrospective to offer specific thoughts about the future. If I were to meet Hulme now, I would ask him how his career and the reflections he offers in this book have prepared him to face the future as a climate scientist, commentator, and citizen.

Hulme does offer that “the human future is strongly shaped by our beliefs and the stories we tell about the future; it is not determined by the output of climate simulation models” (p. 267). On the eve of the release of the *National Climate Assessment* in the United States, and as the IPCC working groups publish their contributions to the *Fifth Assessment Report* (both heavily influenced by climate model output), I encourage those of us engaged in climate

change—whether as scientists, scholars, students, or citizens—to consider how the output of climate simulation models are part of the story. Climate science should not be sidelined, but should be integrated into our stories in ways that bring science and society into closer conversations. Hulme gives us his story. We might take his book not only as a wealth of information and a useful retrospective but also as inspiration to follow his lead and tell our own stories of what we know about, experience, do, fear, and hope regarding climate change.

—HEATHER LAZRUS

Heather Lazrus has a Ph.D. in environmental anthropology and is a project scientist at the National Center for Atmospheric Research and an adjunct assistant professor in the Department of Anthropology at the University of Colorado.

FOR FURTHER READING

Hulme, M., 2009: *Why We Disagree about Climate Change: Understanding Controversy, Inaction, and Opportunity*. Cambridge University Press, 427 pp.

OXYGEN: A FOUR BILLION YEAR HISTORY

Donald Canfield, 2014, \$27.95, softbound, Princeton University Press, ISBN 978-0-691-14502-0

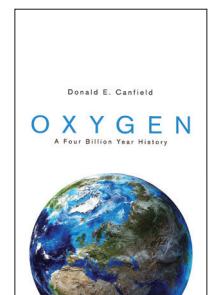
Recently, Donald Canfield published a book titled *Oxygen: A Four Billion Year History*, which deals with how scientists have unveiled the history of oxygen. The book ranges from the detection of oxygen as an atmospheric component, to how scientists of various disciplines searched together and/or independently for where oxygen came from, to when it occurred for the first time in the atmosphere as O₂ and the impacts of that event.

Canfield elaborates on how findings had to be revised and/or had to be interpreted differently as more data became available, technology advanced and allowed higher accuracy than before, and/or a new discovery was made. In so doing, he acknowledges the work and contributions of all scientists, whether their interpretation of data had to be revised later as possibilities advanced and new or further data became available, or whether their interpretation still stands today. Canfield recounts how hypotheses had been tested, rejected, or accepted, and why they eventually had to be revised, reinterpreted, and/or further interpreted. He points out the contribution of intellectual ideas and efforts that the research brought to the great picture. He makes the reader well aware that different

interpretations of data are possible and are needed to push science forward. Different interpretations force scientists to engage more deeply with the material to show that their interpretation is correct and/or the other interpretation is not (entirely) correct. Doing so also ensures that one may discover special cases, and may find (overlooked) aspects that may be the reason for the different interpretation and/or modified outcome.

The book shows that major discoveries and progress were usually achieved by individuals or small groups that met regularly and were slightly complementary in their skills, either within the general discipline or an auxiliary/overlapping discipline. These groups formed because of their common scientific interests—even though the individual interests came from different angles. The teams were based on healthy respect for the ability of the others and similar chemistry—call it friendship, if you like.

Canfield wrote his book in a unique, very fascinating style—almost like a detective story. He also



reflects on his contributions to the great picture, from starting out as a fresh graduate picking the graduate school of his dreams and interests to his research today. He succeeds in doing so without making the book a biography about himself or a recap of his research. When he talks about himself, one could easily replace “I” with Canfield, and the reader would just learn that Canfield was one of the many researchers unveiling the secrets of oxygen on Earth.

As the educated *BAMS* reader knows, the great oxygen event was biologically caused. However, reading the details of how it came to biology’s changing the atmospheric and oceanic composition, and how dramatically this biological evolution changed the

Earth, I could not help but think about what Earth may have looked like prior to humankind and how Earth will look in a million years or more in response to accumulated anthropogenic changes. My impression is that this book is a must-read for anyone caring about the atmosphere, and that it has a great chance to become a classic in science education, like *The Prince* is in leadership education.

—NICOLE MÖLDERS

Nicole Mölders is a professor of atmospheric sciences with the Geophysical Institute and College of Natural Sciences and Mathematics, Department of Atmospheric Sciences, at the University of Alaska, Fairbanks.

BIBLIOPHILIA

2013 ASLI’S CHOICE AWARD WINNERS

At the February AMS Annual Meeting in Atlanta, the Atmospheric Science Librarians International (ASLI) announced their ASLI’s Choice Award winners for 2013. The awards, now in their ninth year, are presented annually for the best books in atmospheric sciences, meteorology, and climatology. Selections are based on nine criteria: uniqueness, comprehensiveness, usefulness, quality, authoritative-ness, organization, illustrations/diagrams, competition, and references.

This 2013 ASLI’s Choice winner in the science category was *Mathematics and Climate*, by Hans Kaper and Hans Engler, published by the Society for Industrial and Applied Mathematics, with ASLI praising the book’s “accessible explanations in key areas where climate and mathematics meet.”

The winning book in the historical category was an AMS publication, *Taken by Storm 1938: A Social and Meteorological History of the Great New England Hurricane*, by Lourdes B. Avilés, which ASLI recognized “for its comprehensive account of this major storm, from its inception to aftermath.”

Honorable mention in the historical category was given to *Probing the Sky with Radio Waves: From Wireless Technology to the Development of Atmospheric Science*, By Chen-Pang Yeang,

published by the University of Chicago Press, awarded for its “very thorough, technical history of radio waves and their importance to ionospheric science.”

ASLI is a professional organization devoted to communicating and disseminating information among libraries and educational institutions involved in atmospheric science research and scholarship.

ASLI and AMS congratulate all the winners and publishers, and ASLI invites everyone to make nominations for the 2014 ASLI’s Choice Awards. But do it soon—the deadline is 15 November 2014. For criteria, more information, and to nominate, go to the ASLI’s Choice Award page (www.aslionline.org/wp/asli-choice/), or e-mail any member of the ASLI’s Choice Award Committee: Maria A. Latyszewskyj, Environment Canada Library, Downsview (maria.latyszewskyj@ec.gc.ca); Christine Sherratt, committee chair, MIT Libraries (gcsberra@mit.edu); Steve Quillen, NOAA Central Library (Steve.Quillen@noaa.gov); Judie Triplehorn, Geophysical Institute Library (jtriplehorn@gi.alaska.edu); Jennifer Harbster, Library of Congress (jehar@loc.gov).

