

# Contents

<i>Preface</i>	<i>xi</i>
<i>How to Use This Book</i>	<i>xv</i>
<b>INTRODUCTION: DOCUMENTING GLOBAL CHANGE</b>	<b>1</b>
<b>PART 1: POPULATION</b>	<b>15</b>
Are We Too Many, or Are We Too Greedy?	
THOMAS MALTHUS	
<i>An Essay on the Principle of Population</i> (1798)	19
COMMENTARY: Björn-Ola Linnér	
GEORGE KNIBBS	
<i>The Shadow of the World's Future</i> (1928)	31
COMMENTARY: Alison Bashford	
GEORG BORGSTRÖM	
"Ghost Acreage" (1962)	40
COMMENTARY: Sverker Sörlin	
PAUL EHRLICH	
<i>The Population Bomb</i> (1968)	54
COMMENTARY: Michael Egan	
<b>PART 2: SUSTAINABILITY</b>	<b>63</b>
Are We Limited by Knowledge or Resources?	
HANS CARL VON CARLOWITZ	
<i>Sylvicultura oeconomica</i> (1713)	67
COMMENTARY: Paul Warde	
WILLIAM STANLEY JEVONS	
<i>The Coal Question</i> (1865)	78
COMMENTARY: Paul Warde	

SAMUEL H. ORDWAY JR. "Possible Limits of Raw-Material Consumption" (1956) COMMENTARY: Paul Warde	89
DONELLA H. MEADOWS, JORGEN RANDERS, AND DENNIS L. MEADOWS FOR THE CLUB OF ROME <i>The Limits to Growth</i> (1972) COMMENTARY: Michael Egan	101
<b>PART 3: GEOGRAPHIES</b> Are Human and Natural Futures Determined or Chosen?	117
ELLSWORTH HUNTINGTON <i>The Pulse of Asia</i> (1907) COMMENTARY: Carole Crumley	121
GRIFFITH TAYLOR "Nature Versus The Australian" (1920) COMMENTARY: Carolyn Strange	134
VILHJALMUR STEFANSSON <i>The Northward Course of Empire</i> (1922) COMMENTARY: Sverker Sörlin	145
<b>PART 4: "THE ENVIRONMENT"</b> How Did the Idea Emerge?	157
VLADIMIR I. VERNADSKY <i>The Biosphere</i> (1926) COMMENTARY: Pey-Yi Chu	161
PAUL SEARS <i>Deserts on the March</i> (1935) COMMENTARY: Libby Robin	174
WILLIAM VOGT <i>Road to Survival</i> (1948) COMMENTARY: Sverker Sörlin	187
RACHEL CARSON <i>Silent Spring</i> (1962) COMMENTARY: Christof Mauch	195

<b>PART 5: ECOLOGY</b>	205
How Do We Understand Natural Systems?	
ALEXANDER VON HUMBOLDT AND AIMÉ BONPLAND <i>Essay on the Geography of Plants</i> (1807)	209
COMMENTARY: Stephen T. Jackson	
ARTHUR TANSLEY "The Use and Abuse of Vegetational Concepts and Terms" (1935)	220
COMMENTARY: Libby Robin	
EUGENE P. ODUM <i>Fundamentals of Ecology</i> (1953)	233
COMMENTARY: Stephen Bocking	
C. S. HOLLING <i>Resilience and Stability of Ecological Systems</i> (1973)	245
COMMENTARY: Libby Robin	
<b>PART 6: TECHNOLOGY</b>	261
Does Technology Create More Problems Than It Solves?	
EUGÈNE HUZAR <i>The Tree of Science</i> (1857)	264
COMMENTARY: Jean-Baptiste Fressoz	
ALVA MYRDAL <i>To Choose a Future</i> (1972)	273
COMMENTARY: Arne Kaijser	
CESARE MARCHETTI AND NEBOJSA NAKICENOVIC "The Dynamics of Energy Systems and the Logistic Substitution Model" (1979)	282
COMMENTARY: Paul Warde	
<b>PART 7: CLIMATE</b>	291
How Can We Predict Change?	
JOHN TYNDALL "On the Transmission of Heat" (1859)	295
COMMENTARY: Mike Hulme	

SVANTE ARRHENIUS "On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground" (1896) COMMENTARY: Sverker Sörlin	303
GILBERT T. WALKER "Seasonal Foreshadowing" (1930) COMMENTARY: Neville Nicholls	316
G. S. CALLENDAR "The Artificial Production of Carbon Dioxide and Its Influence on Temperature" (1938) COMMENTARY: James Rodger Fleming	327
WALLACE S. BROECKER "Unpleasant Surprises in the Greenhouse?" (1987) and J. R. PETIT, J. JOUZEL, D. RAYNAUD, ET AL. "Climate and Atmospheric History of the Past 420,000 Years from the Vostok Ice Core, Antarctica" (1999) COMMENTARY: Tom Griffiths	337
<b>PART 8: DIVERSITY</b> Why Do We Need It, and Can We Conserve It?	363
CHARLES S. ELTON <i>The Invaders</i> (1958) COMMENTARY: Libby Robin	367
COUNCIL ON ENVIRONMENTAL QUALITY <i>The Forestry Projections and the Environment: Global-Scale Environmental Impacts</i> (1980) COMMENTARY: Mark V. Barrow Jr.	381
MICHAEL E. SOULÉ "What Is Conservation Biology?" (1985) COMMENTARY: Libby Robin	391
RAMACHANDRA GUHA "Radical American Environmentalism and Wilderness Preservation: A Third World Critique" (1997) COMMENTARY: Rob Nixon	409

<b>PART 9: MEASURING</b>	433
How Do We Turn the World into Data?	
JAMES RENNELL	
<i>An Investigation of the Currents of the Atlantic Ocean</i> (1832)	437
COMMENTARY: Sarah Cornell	
CARL-GUSTAF ROSSBY	
"Current Problems in Meteorology" (1957)	445
COMMENTARY: Maria Bohn and Sverker Sörlin	
GRETCHEN C. DAILY	
<i>Nature's Services: Societal Dependence on Natural Ecosystems</i> (1997)	454
COMMENTARY: Richard B. Norgaard	
NICHOLAS STERN	
<i>The Economics of Climate Change</i> (2006)	465
COMMENTARY: Paul Warde	
<b>PART 10: THE ANTHROPOCENE</b>	479
How Can We Live in a World Where There Is No Nature Without People?	
PAUL J. CRUTZEN AND EUGENE F. STOERMER	
"The 'Anthropocene'" (2000)	483
COMMENTARY: Will Steffen	
JOHAN ROCKSTRÖM, WILL STEFFEN, KEVIN NOONE, ET AL.	
"A Safe Operating Space for Humanity" (2009)	491
COMMENTARY: Susan Owens	
MIKE HULME	
"Reducing the Future to Climate: A Story of Climate Determinism and Reductionism" (2011)	506
COMMENTARY: Libby Robin, Sverker Sörlin, and Paul Warde	
<i>Select Bibliography</i>	527
<i>Acknowledgments</i>	541
<i>Commentators</i>	543
<i>Selection Credits</i>	549
<i>Index</i>	553