Although *The Origin of Species* contained just a single visual illustration, Charles Darwin's other books, from his monograph on barnacles in the early 1850s to his volume on earthworms in 1881, were copiously illustrated by well-known artists and engravers. Jonathan Smith explains how Darwin managed to illustrate the unillustratable—his theories of natural selection—by manipulating and modifying the visual conventions of natural history, using images to support the claims made in his texts. Moreover, Smith looks outward to analyze the relationships between Darwin's illustrations and Victorian visual culture, especially the late Victorian debates about aesthetics, and shows how Darwin's evolutionary explanation of beauty, based on his observations of color and the visual in nature, were a direct challenge to the aesthetics of John Ruskin. The many illustrations reproduced here enhance this fascinating study of a little known aspect of Darwin's lasting influence on literature, art, and culture.

**Jonathan Smith** is Professor of English at the University of Michigan-Dearborn. He has published widely on nineteenth-century literature and science, and is the author of *Fact and Feeling: Baconian Science and the Nineteenth-Century Literary Imagination* (1994).
Nineteenth-century British literature and culture have been rich fields for interdisciplinary studies. Since the turn of the twentieth century, scholars and critics have tracked the intersections and tensions between Victorian literature and the visual arts, politics, social organisation, economic life, technical innovations, scientific thought – in short, culture in its broadest sense. In recent years, theoretical challenges and historiographical shifts have unsettled the assumptions of previous scholarly synthesis and called into question the terms of older debates. Whereas the tendency in much past literary critical interpretation was to use the metaphor of culture as ‘background’, feminist, Foucauldian, and other analyses have employed more dynamic models that raise questions of power and of circulation. Such developments have reanimated the field. This series aims to accommodate and promote the most interesting work being undertaken on the frontiers of the field of nineteenth-century literary studies: work which intersects fruitfully with other fields of study such as history, or literary theory, or the history of science. Comparative as well as interdisciplinary approaches are welcomed.

A complete list of titles published will be found at the end of the book.
CHARLES DARWIN AND VICTORIAN VISUAL CULTURE

JONATHAN SMITH
Contents

List of illustrations  ix
Acknowledgments  xxi
Note on the texts  xxiii

1 Seeing things: Charles Darwin and Victorian visual culture  1
  Darwin’s illustrations  3
  Darwin, Ruskin, and Victorian visual culture  20
  Word and image in science  33

2 Darwin’s barnacles  44
  Think developmentally, illustrate transcendentally  45
  The scientific and cultural life of Darwin’s barnacles  50
  Depictions of the seaside in the 1850s  68
  The visual natural theology of Philip Gosse’s seaside books  77

3 Darwin’s birds  92
  Darwin and Gould  95
  The Birds of Great Britain as a visual response to Darwinism  99
  Depicting sexual selection  114
  Ruskin’s Love’s Mémoire and the rejection of the Descent  126

4 Darwin’s plants  138
  The significance of Darwin’s botany  139
  Darwin’s botanical illustrations  144
  Popularizing Darwin’s botany: physiological aesthetics  161
  Ruskin’s Proserpina and the response to physiological aesthetics  166

5 Darwin’s faces I  180
  The Expression and the fine art tradition  183
  Answering Bell  187
  Physiognomy and phrenology  199
## Contents

6  Darwin's faces II  
   Darwin and the photographic image  215  
   Ruskin and photography  216  
   Acting and expression  229  
   Darwin and Victorian caricature  234  

7  Darwin's worms  245  
   Worm castings and the grotesque  250  
   Geology, archaeology, and the picturesque  254  
   Ruskin and the grotesque  271  
   Ruskin and the picturesque  276  
   Geology and landscape: scientific naturalism and the  
   scientific imagination  280  

Notes  286  
Bibliography  320  
Index  342
Illustrations

1.7 “Exactly So!” Fun, 26 January 1873. Columbia University Library.  
List of illustrations

2.2 (a) Plate ix and (b) plate x from John V. Thompson, *Zoological Researches and Illustrations* (Cork: King and Ridings, 1828–34). Courtesy of the Yale University Library. 54
2.3 (a) “Larva. First Stages” and (b) "Larva. Last Stages." Plates xxxix and xxx from Charles Darwin, *A Monograph of the Sub-Class Cirripedia; The Balanidae* (London: Ray Society, 1854). University of Michigan Libraries. 55
2.5 “Alcippe Lampas” and (b) “Cryptophialus.” Plates xxxi and xxxiii from Charles Darwin, *A Monograph of the Sub-Class Cirripedia; The Balanidae* (London: Ray Society, 1854). University of Michigan Libraries. 59
2.6 Hablot K. Browne (“Phiz”), detail from cover illustration of monthly parts of Charles Dickens’s *Little Dorrit* (London: Bradbury and Evans, 1855–57). University of Michigan Special Collections Library. 68
2.7 William Powell Frith, *Life at the Seaside (Ramsgate Sands)* (1854). Oil on canvas. The Royal Collection © 2004, Her Majesty Queen Elizabeth II. 70
2.8 John Leech, “Common Objects at the Seaside.” *Punch* 35 (21 August 1858): 76. University of Michigan Special Collections Library. 72
2.9 “Seaside Sirens.” Wood engraving, 1855. Getty Images. 73
2.11 William Dyce, *Pegwell Bay, Kent – A Recollection of October 5th, 1858* (1859–60). Oil on canvas, 63.5 × 88.9 cm. Tate Gallery, London. By courtesy of the Tate Gallery, London/Art Resource, New York. 76
2.13 (a) Pen and watercolor sketch by Philip Henry Gosse of *Aiptasia couchii* for *Actinologia Britannica*. (b) Lithographic proof plate for plate v of Philip Henry Gosse’s *Actinologia Britannica*. From “British Sea-Anemones and Corals:
List of illustrations

Original Sketches and Drawings in Colour by Philip Henry Gosse and his Correspondents, 1839–1861, items 44 and 56 on folio pages 25 and 34. The Horniman Museum London.

2.14 (a) Lithographic proofs of individual figures and (b) the lithographic proof plate itself for plate iv of Philip Henry Gosse’s *Actinologia Britannica*. From “British Sea-Anemones and Corals: Original Sketches and Drawings in Colour by Philip Henry Gosse and his Correspondents, 1839–1861,” items 28 and 35 on folio pages 15 and 33. The Horniman Museum London.


List of illustrations


3.9 Pencil and watercolor sketch with annotations of (a) moorhen and (b) moorhen chick. (c) “Gallinula Chloropus” John Gould, The Birds of Great Britain (London, 1862–73), vol. iv, plate 85. Gould Drawings 266 and 262, Kenneth Spencer Research Library, University of Kansas. Moorhen plate courtesy of the University of Michigan Special Collections Library.


3.12 “The Ruff or Machetes pugnax.” Figure 37 from Charles Darwin, The Descent of Man, and Selection in Relation to Sex, 2 vols. (London: Murray, 1871) ii:42. University of Michigan Special Collections Library.


### List of illustrations

| 4.1 | “The rock-pigeon, or *Columba livia.*” Figure 17 from Charles Darwin, *The Variation of Animals and Plants Under Domestication* (London: Murray, 1868). University of Michigan Libraries. |
List of illustrations


4.4 “Orchis mascula.” Figure 1 from Charles Darwin, On the Various Contrivances by which British and Foreign Orchids are Fertilised by Insects, and the Good Effects of Intercrossing (London: Murray, 1862), facing p. 18. University of Michigan Libraries.

4.5 “Drosera rotundifolia.” Figure 2 from Charles Darwin, Insectivorous Plants (London: Murray, 1875), 4. University of Michigan Libraries.

4.6 “Diagram showing the movement of the upper internode of the common pea.” Figure 6 from Charles Darwin, The Movement and Habits of Climbing Plants, 2nd edn. (London: Murray, 1875). University of Michigan Libraries.


4.8 “A. Pollen-mass of O. mascula.” Figure 11 from Charles Darwin, On the Various Contrivances by which British and Foreign Orchids are Fertilized by Insects, and the Good Effects of Intercrossing (London: Murray, 1862), 15. University of Michigan Libraries.

4.9 “Primula veris.” Figure 1 from Charles Darwin, The Different Forms of Flowers on Plants of the Same Species (London: Murray, 1877), 15. University of Michigan Libraries.

4.10 “Section of the flower of an orchid.” Figure xxxii from Charles Darwin, On the Various Contrivances by which British and Foreign Orchids are Fertilized by Insects, and the Good Effects of Intercrossing (London: Murray, 1862), 292. University of Michigan Libraries.

4.11 (a) Schematic representation of the different “unions” possible in long- and short-styled flowers of the common cowslip. (b) “Diagram of the flowers of the three forms of
List of illustrations


List of illustrations

5.4 Comparison of the face of a monkey (a) and an ox (b) with that of a human of comparable characteristics. Plate i from Johan Caspar Lavater, Essays on Physiognomy, trans. Thomas Holcroft, 2nd edn., 3 vols. (London: Symonds, 1804) ii:154. University of Chicago Library, Special Collections Research Center.


5.8 “Horror and Agony, copied from a photograph by Dr. Duchenne.” Figure 21 from Charles Darwin, The Expression of the Emotions in Man and Animals (London: Murray, 1872), 306. University of Michigan Special Collections Library.


5.10 (a) “Dog approaching another dog with hostile intentions.” Figure 5 from Charles Darwin, The Expression of the Emotions in Man and Animals (London: Murray, 1872), 52. University of Michigan Special Collections Library. (b) Edwin Landseer, Alexander and Diogenes (1848). Oil on canvas, 112.5 × 142.6 cm. Tate Gallery, London. Courtesy of the Tate Gallery, London/Art Resource, New York.

5.11 “Chimpanzee disappointed and sulky.” Figure 18 from Charles Darwin, The Expression of the Emotions in Man and Animals (London: Murray, 1872), 141. University of Michigan Special Collections Library.
List of illustrations

5.12 (a) “Observativeness Large – Mr. Charles Darwin . . .” and (b) “Persistenacity very Large,” “Persistenacity very Small,” “Persistenacity Small – A prairie Wolf, or Coyote,” and “Persistenacity Large – A Bull-dog.” Joseph Simms, Nature’s Revelations of Character; or Physiognomy Illustrated (New York, 1879), 192 and 193. Hesburgh Library, University of Notre Dame.

5.13 (a) “Profile of a Luchatze negro woman, showing deficient bridge of nose and chin, and elongate facial region and prognathism.” (b) “Face of another negro, showing flat nose, less prognathism and larger cerebral region. From Serpa Pinto.” (c) “Esquibo Indian women, showing the following peculiarities: deficient bridge of nose, prognathism, no waist, and . . . deficiency of stature through short femur.” Figures 5, 6, and 7 from E. D. Cope, “Evolution of Human Physiognomy,” Knowledge 4 (1883):168–69. University of Michigan Libraries.


6.4 (a) Indignation. Plate vi, figure 2 from Charles Darwin, The Expression of the Emotions in Man and Animals (London: Murray, 1872). University of Michigan Special Collections Library. (b) Resistance. Figure 32 from Johann Jacob Engel, Ideen Zu Einer Mimik (1785), J. J. Engel’s Schriften, vol. vii
<table>
<thead>
<tr>
<th>Illustration</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Britannia or Tower Rock, Port Desire,” “Anchorage and Spanish Ruins, Port Desire,” “Upper Part of Port Desire Inlet,” and “Bivouac at the Head of Port Desire Inlet.” Robert Fitzroy, ed., <em>Narrative of the Surveying Voyages of His Majesty’s Ships Adventure and Beagle...</em> , 3 vols. (London:</td>
<td></td>
</tr>
</tbody>
</table>
List of illustrations xix

Colburn, 1839) ii: facing p. 316. University of Michigan Special Collections Library. 256


7.7 (a) “Section through the foundations of a buried Roman villa at Abinger.” (b) “Section within a hall in the Basilica at Silchester.” Figures 8 and 10 from Charles Darwin, The Formation of Vegetable Mould through the Action of Worms (London: Murray, 1881), 180 and 205. University of Michigan Libraries. 263

7.8 Colored tracings by J. G. Joyce of the Silchester excavations. Darwin Papers, Cambridge University Library, dar 65,104. By permission of the Syndics of Cambridge University Library. 264

7.9 (a) “A north and south section through the subsided floor of a corridor, paved with tesserae . . . ” Figure 14 from Charles Darwin, The Formation of Vegetable Mould through the Action of Worms (London: Murray, 1881), 214. University of Michigan Libraries. (b) “Section of the tertiary formation at Coquimbo.” Figure 21 from Charles Darwin, Geological Observations on Coral Reefs, Volcanic Islands, and on South America (London: Smith, Elder, 1851), iii:128. University of Michigan Libraries. (c) “Section of the Pequenes or Portillo Pass of the Cordillera,” “Section of the Cumbre or Uspallata Pass,” and “Section up the Valley of Copiapo to the Base of the Main Cordillera.” Plate 1 from Charles Darwin,
List of illustrations

Geological Observations on Coral Reefs, Volcanic Islands, and on South America (London: Smith, Elder, 1851). University of Michigan Libraries. 265

7.10 (a) “Section through one of the fallen Druidical stones at Stonehenge.” (b) “Traverse section across a large stone, which had lain on a grass field for 35 years.” Figures 7 and 6 from Charles Darwin, The Formation of Vegetable Mould through the Action of Worms (London: Murray, 1881), 151. University of Michigan Libraries. 268


7.15 “Man is But a Worm.” Punch’s Almanack for 1882 (6 Dec. 1881). University of Michigan Libraries. 275
Acknowledgments

While this book cannot claim to be of Darwinian importance, it was certainly written at a Darwinian pace, and over the course of more than a decade I have accumulated what sometimes feels like a Darwinian-sized set of debts of gratitude. Lee Sterrenburg and George Levine have not only read the entire manuscript but watched and encouraged its development. Susan Erickson, Barbara Gates, David Knight, Rosemary Jann, Bernie Lightman, Robert Patten, Richard Stein, and Rebecca Stott have graciously read and commented on individual chapters. I have benefited from conversations with Dame Gillian Beer and am particularly grateful for her desire to include this book as part of Cambridge’s series on Nineteenth-Century Literature and Culture. I have benefited as well from conversations with John Brooke, Ann Datta, Gowan Dawson, Jim Endersby, Jim Helyar, Richard Kaye, Marsha Richmond, Martin Rudwick, Jim Secord, Rusty Shteir, Jonathan Topham, and Paul White. My work on John Gould is deeply indebted to the work and wisdom of the late Gordon Sauer. I’ve received help with specific questions from Graeme Gooday, Paul Barlow, Peter Morton, Bob Peck, and, like so many Victorianists, from the members of the VICTORIA listserv. From Geoffrey Cantor, Sally Shuttleworth, Harriet Rivoo, and Laura Walls I have received general assistance and support that has helped this book come to be. At Cambridge University Press, Linda Bree has been a patient and encouraging editor.

This project would not have been possible without the helpful assistance of many librarians, curators, and archivists. I’m especially grateful to the staff at the University of Michigan libraries, in particular Franki Hand in Special Collections, Charlene Stachnik at the Museums Library, and Chris Anderson at the Herbarium Library; the Darwin Correspondence Project, particularly Sheila Dean; the Manuscripts Room at the Cambridge University Library, particularly Adam Perkins and Godfrey Waller. At the Natural History Museum in London I owe thanks to Paul Cooper, at the Horniman Museum to David Allen, at the University of Kansas’s Spencer Research
Acknowledgments

Library to Jim Helyar, at Case Western Reserve University’s Kelvin Smith Library to Sue Hanson, at the Kalamazoo College Library to Paul Smithson, at the University of Chicago Library to Barbara Gilbert, at the Missouri Botanical Gardens Library to Linda Oestry, at the Royal Academy Library to Andrew Potter, at the Wedgwood Museum to Lynn Miller, at the Michigan State University Library to Peter Berg, and at the Ashmolean Museum to Rupert Shepherd. The interlibrary loan staff at both the University of Michigan-Dearborn’s Mardigian Library and Eastern New Mexico University’s Golden Library processed many requests for me.

I am extremely grateful for financial support from the National Endowment for the Humanities, the Horace R. Rackham School of Graduate Studies and the Office of the Vice President for Research at the University of Michigan-Ann Arbor, and the Office of Research and Sponsored Programs (particularly Drew Buchanan) at the University of Michigan-Dearborn. This book would not have been researched, written, or illustrated without the generous assistance of each. I also express my deep thanks to Dan Little at Dearborn and Lee Bollinger, Nancy Cantor, and Paul Courant at Ann Arbor for their personal and professional kindnesses.

For a semester largely spent thinking and writing about Darwin at Eastern New Mexico University, I cannot adequately express my gratitude to the extraordinary Jack Williamson, or to my friends and colleagues there, especially Mary Ayala, Nina Bjornsson, Colin Ramsey, and Jerry Spotswood. Words are even more inadequate for thanking my friends and colleagues at Dearborn, in particular Elias Baumgarten, Suzanne Bergeron, Larry Berkove, Scott DeGregorio, Susan Erickson, Jim Gruber, Elton Higgs, Paul Hughes, Maureen Linker, Jim Knight, Sheryl Pearson, Bruce Pietykowski, Pat Smith, Jackie Vansant, and Kathy Wider.

Finally, Bree Loverich and Marcie Holowicki provided research assistance on the project, Belinda Soliz made sure the manuscript looked good and helped obtain the illustrations, Charlie Myers digitized most of the images, and Christian McDavid kept track of the funds. I am grateful to each.


Finally, I am thankful for my wife, Michelle, whose love reminds me daily of the power of things unseen.
Note on the texts