

Contents

Preface v

Appalachian Orogen Structure and Stratigraphy

1. *The incision history of the Great Falls of the Potomac River—The Kirk Bryan field trip* 1
Paul Bierman

2. *A billion years of deformation in the central Appalachians: Orogenic processes and products* 11
Steven J. Whitmeyer, Christopher M. Bailey, and David B. Spears

3. *The tectono-thermal evolution of the central Appalachian Orogen: Accretion of a peri-Gondwanan(?) Ordovician arc* 35
Howell Bosbyshell, LeeAnn Srogi, Gale C. Blackmer, William S. Schenck, Ryan Mathur, and Victor Valencia

4. *Cambrian–Ordovician of the central Appalachians: Correlations and event stratigraphy of carbonate platform and adjacent deep-water deposits* 61
David K. Brezinski, John F. Taylor, John E. Repetski, and James D. Loch

5. *Late Devonian climatic change and resultant glacial facies of western Maryland* 85
David K. Brezinski and C. Blaine Cecil

Coastal Plain and Geomorphology

6. *Geomorphology, active tectonics, and landscape evolution in the Mid-Atlantic region* 109
Frank J. Pazzaglia, Mark Carter, et al.

7. *Cenozoic stratigraphy and structure of the Chesapeake Bay region* 171
David S. Powars, Lucy E. Edwards, Susan M. Kidwell, and J. Stephen Schindler

8. *Miocene stratigraphy and paleoenvironments of the Calvert Cliffs, Maryland* 231
Susan M. Kidwell, David S. Powars, Lucy E. Edwards, and Peter R. Vogt

9. *Coastal and wetland ecosystems of the Chesapeake Bay watershed: Applying palynology to understand impacts of changing climate, sea level, and land use* 281
Debra A. Willard, Christopher E. Bernhardt, Cliff R. Hupp, and Wayne N. Newell

10. *Holocene barrier-island geology and morphodynamics of the Maryland and Virginia open-ocean coasts: Fenwick, Assateague, Chincoteague, Wallops, Cedar, and Parramore Islands* 309
Randolph A. McBride, Michael S. Fenster, Christopher T. Seminack, Trent M. Richardson, Julie M. Sepanik, J. Thomas Hanley, Joshua A. Bundick, and Elizabeth Tedder

Environmental and “Human” Intersection with Geology

- 11. *Karst of the Mid-Atlantic region in Maryland, West Virginia, and Virginia*** 425
Daniel H. Doctor, David J. Weary, David K. Brezinski, Randall C. Orndorff, and
Lawrence E. Spangler
- 12. *The Centralia coal mine fire (Centralia, Pennsylvania): A field guide for an
evolving system*** 485
Jennifer M. Elick
- 13. *The hydrogeology of urbanization: The lost springs of Washington, D.C., late Tertiary and
Quaternary sediments of D.C., and the Baltimore Long Term Ecological Research
site (LTER)*** 499
Aditi S. Bhaskar, Milan Pavich, and John (Jack) M. Sharp Jr.
- 14. *Building stones of Baltimore, the Monumental City*** 519
Joseph T. Hannibal and David W. Bolton
- 15. *Building stones of the National Mall*** 543
Richard A. Livingston, Carol A. Grissom, and Emily M. Aloiz
- 16. *Introduction and update for the “Geology of the Gettysburg battlefield” and
geology’s influence on military history*** 573
Roger J. Cuffey