

Contents

<i>Preface</i>	vii
<i>Foreword</i>	ix

I. INTRODUCTION

<i>1. Historical perspective</i>	1
Gerald Meyer, with contributions by George Davis and P. E. LaMoreaux	
<i>2. Hydrostratigraphic units</i>	9
Paul R. Seaber	

II. HYDROGEOLOGIC REGIONS

<i>3. Hydrogeologic setting of regions</i>	15
Ralph C. Heath	

Cordilleran Sector

<i>4. Region 1, Western mountain ranges</i>	25
Bruce L. Foxworthy, Debra L. Hanneman, Donald L. Coffin, and E. Carl Halstead	
<i>5. Region 2, Columbia Lava Plateau</i>	37
G. F. Lindholm and J. J. Vaccaro	
<i>6. Region 3, Colorado Plateau and Wyoming Basin</i>	51
O. James Taylor and J. W. Hood	
<i>7. Region 4, Central Valley and Pacific Coast Ranges</i>	59
C. D. Farrar and G. L. Bertoldi	
<i>8. Region 5, Great Basin</i>	69
M. D. Mifflin	
<i>9. Region 6, Coastal Alluvial Basins</i>	79
W. F. Hardt	

10. Region 7, Central Alluvial Basins	81
T. W. Anderson, G. E. Welder, Gustavo Lesser, and A. Trujillo	
11. Region 8, Sierra Madre Occidental	87
J. Joel Carrillo R.	
12. Region 9, Sierra Madre Oriental	89
Juan M. Lesser and Gustavo Lesser	
13. Region 10, Faja Volcanica Transmexicano	93
Ruben Chavez	
14. Region 11, Sierra Madre del Sur	99
Ricardo Riva Palacio	

Central Cratonic Sector

15. Region 12, Precambrian Shield	101
R. N. Farvolden, O. Pfannkuch, R. Pearson, and P. Fritz	
16. Region 13, Western Glaciated Plains	115
D. H. Lennox, H. Maathuis, and D. Pederson	
17. Region 14, Central Glaciated Plains	129
N. C. Krothe and J. P. Kempton	
18. Region 15, St. Lawrence Lowland	133
R. N. Farvolden and J. A. Cherry	
19. Region 16, Central Nonglaciated Plains	141
Donald G. Jorgensen, Joe Downey, Alan R. Dutton, and Robert W. Maclay	
20. Region 17, High Plains	157
John B. Weeks and Edwin D. Gutentag	
21. Region 18, Alluvial valleys	165
J. S. Rosenshein	

Appalachian Sector

22. Region 19, Northeastern Appalachians	177
Allan D. Randall, Rory M. Francis, Michael H. Frimpter, and James M. Emery	
23. Region 20, Appalachian Plateaus and Valley and Ridge	189
Paul R. Seaber, J. V. Brahana, and E. F. Hollyday	
24. Region 21, Piedmont and Blue Ridge	201
Harry E. LeGrand	

Coastal Plain Sector

25. *Region 22, Atlantic and eastern Gulf Coastal Plain* 209
Harold Meisler, James A. Miller, LeRoy L. Knobel, and
Robert L. Wait
26. *Region 23, Gulf of Mexico Coastal Plain* 219
Hayes F. Grubb and J. Joel Carillo R.
27. *Region 24, Southeastern United States* 229
Richard H. Johnston and James A. Miller
28. *Region 25, Yucatan Peninsula* 237
Juan M. Lesser and A. E. Weidie

Island Sector

29. *Region 26, West Indies* 243
William Back
30. *Region 27, Hawaiian Islands* 255
Charles D. Hunt, Jr., Charles J. Ewart, and Clifford I. Voss

Permafrost

31. *Region 28, Permafrost region* 263
Charles E. Sloan and Robert O. van Everdingen

III. COMPARATIVE HYDROGEOLOGY

32. *Nature of comparative hydrogeology* 271
Stanley N. Davis
33. *Alluvial aquifers along major rivers* 273
John M. Sharp, Jr.
34. *Western alluvial valleys and the High Plains* 283
George H. Davis
35. *Glacial deposits* 301
D. A. Stephenson, A. H. Fleming, and D. M. Mickelson
36. *Coastal Plain deposits* 315
James A. Miller
37. *Sandstones and shales* 323
Stanley N. Davis
38. *Carbonate rocks* 333
J. V. Brahana, John Thrailkill, Tom Freeman, and W. C. Ward
39. *Volcanic rocks* 353
Warren W. Wood and Louis A. Fernandez
40. *Plutonic and metamorphic rocks* 367
Frank W. Trainer

IV. GROUNDWATER AND GEOLOGIC PROCESSES

41. Ground water as a geologic agent	381
P. A. Domenico	
42. Landform development	383
Charles G. Higgins, Donald R. Coats, Victor R. Baker, William E. Dietrich, Thomas Dunne, Edward A. Keller, Robert M. Norris, Gerald G. Parker, Sr., Milan Pavich, Troy L. Péwé, James M. Robb, J. David Rogers, and Charles E. Sloan	
43. Landform development; Karst	401
Derek C. Ford, Arthur N. Palmer, and William B. White	
44. Ground water and clastic diagenesis	413
F. W. Schwartz and F. J. Longstaffe	
45. The generation and dissipation of abnormal fluid pressures in active depositional environments	435
P. A. Domenico and V. V. Palciauskas	
46. Ground water and fault strength	447
S. A. Rojstaczer and J. D. Bredehoeft	
47. The role of ground-water processes in the formation of ore deposits	461
John M. Sharp, Jr., and J. Richard Kyle	
48. Ground water and hydrocarbon migration	485
J. Tóth	

V. OUTLINE FOR THE FUTURE

49. Scientific problems	503
Leonard F. Konikow and Stavros S. Papadopulos	
50. Epilogue; Societal problems	509
J. S. Rosenshein and William Back	
Index	511

Plates

Plate 1. Hydrogeologic map of North America showing the major rock units that underlie the surficial layer	
R. Heath	
Plate 2. Hydrogeologic map of North America showing the major units that comprise the surficial layer	
R. Heath	
Plate 3. Ground-water flow systems in the Great Basin	
J. R. Harrill, J. S. Gates, and J. M. Thomas, with additions by M. Mifflin	