

Contents

<i>Preface</i>	xvii
<i>Foreword</i>	xix
1. <i>The Athabasca Glacier, Alberta, Canada</i>	1
Gerald Osborn	
2. <i>The McConnell thrust at Mount Yamnuska, Alberta,</i> <i>Canada</i>	5
P. E. Gretener	
3. <i>Upper Cretaceous coastal plain sediments at Dinosaur</i> <i>Provincial Park, southeast Alberta</i>	9
Emyln H. Koster and Philip J. Currie	
4. <i>The Frank Slide, southwestern Alberta</i>	15
D. M. Cruden and C. B. Beaty	
5. <i>Zone of interaction between Laurentide and Rocky</i> <i>Mountain glaciers east of Waterton-Glacier Park,</i> <i>northwestern Montana and southwestern Alberta</i>	19
Eric T. Karlstrom	
6. <i>Multiple soils in pre-Wisconsin drift on Mokowan</i> <i>Butte, southwestern Alberta</i>	25
Eric T. Karlstrom	
7. <i>The Milk River Canyon, Alberta: Superposition and</i> <i>piping in a semi-arid environment</i>	29
C. B. Beaty and R. W. Barendregt	
8. <i>Multiple catastrophic drainage of Glacial Lake</i> <i>Missoula, Montana</i>	33
David D. Alt	

9. <i>Structural geology of the Sawtooth Range at Sun River Canyon, Montana Disturbed Belt, Montana</i>	37
David R. Lageson	
10. <i>Shonkin Sag laccolith; A differentiated alkaline intrusion, Highwood Mountains, Montana</i>	41
W. P. Nash and Lawrence M. Monson	
11. <i>Upper Cretaceous-Paleocene sequence, Bug Creek area, northeastern Montana</i>	45
Robert E. Sloan	
12. <i>Marysville stock and contact aureole, western Montana</i>	49
Robert E. Derkey and Pamela Dunlap Derkey	
13. <i>Mississippian Waulsortian bioherms in the Big Snowy Mountains, Montana</i>	53
Donald L. Smith and Stephan G. Custer	
14. <i>Geology of the Butte mining district, Montana</i>	57
Lester G. Zeihen, Richard B. Berg, and Henry G. McClernan	
15. <i>The Jefferson River Canyon area, southwestern Montana</i>	63
Christopher Schmidt, Richard Aram, and David Hawley	
16. <i>The Stillwater Complex, southern Montana; A layered mafic intrusion</i>	69
W. W. Atkinson, Jr., and Robert E. Derkey	
17. <i>A study in contrasts: Archean and Quaternary geology of the Beartooth Highway, Montana and Wyoming</i>	75
Paul A. Mueller, William W. Locke and Joseph L. Wooden	
18. <i>Depositional surfaces in the Eagle Sandstone at Billings, Montana</i>	79
William B. Hansen and Kevin R. Kendrick	
19. <i>Stratigraphy and sedimentology of the Paleocene Fort Union Formation along the Powder River, Montana and Wyoming</i>	83
Romeo M. Flores	
20. <i>The Hebgen Lake Earthquake Area, Montana and Wyoming</i>	89
Irving J. Witkind and Michael C. Stickney	
21. <i>Surface faulting associated with the 1983 Borah Peak earthquake at Doublespring Pass road, east-central Idaho</i>	95
Anthony J. Crone	
22. <i>Southern Lemhi Range, east-central Idaho</i>	99
M. H. Hait, Jr.	

23. *Island Park, Idaho; Transition from rhyolites of the Yellowstone Plateau to basalts of the Snake River Plain* 103
Robert L. Christiansen and Glenn F. Embree
24. *Menan Buttes, southeastern Idaho* 109
D. N. Creighton
25. *A Neogene(?) gravity-slide block and associated slide phenomena in Swan Valley graben, Wyoming and Idaho* 113
David W. Moore, Steven S. Oriel, and Don R. Mabey
26. *Geologic framework of the Boise Warm Springs geothermal area, Idaho* 117
Spencer H. Wood and Willis L. Burnham
27. *Geology of the Craters of the Moon lava field, Idaho* 123
Mel A. Kuntz, Duane E. Champion, and
Richard H. Lefebvre
28. *The Montini Volcano; A lava dam on the ancestral Snake River, southwest Idaho* 127
Harold E. Malde
29. *Thousand Springs area near Hagerman, Idaho* 131
R. L. Whitehead and H. R. Covington
30. *Shoshone Falls, Idaho; A Pleistocene relic of the catastrophic Bonneville Flood* 135
Harold E. Malde
31. *The Late Proterozoic Pocatello Formation; A record of continental rifting and glacial marine sedimentation, Portneuf Narrows, southeastern Idaho* 139
Paul Karl Link
32. *Evidence for the spillover of Lake Bonneville, southeastern Idaho* 143
Robert C. Bright and H. Thomas Ore
- 33,34. *Heart Mountain detachment fault and clastic dikes of fault breccia, and Heart Mountain break-away fault, Wyoming and Montana* 147
William G. Pierce
35. *Geology and evolution of the Grand Canyon of the Yellowstone, Yellowstone National Park, Wyoming* 155
Gerald M. Richmond
36. *The Devils Tower, Bear Lodge Mountains, Cenozoic igneous complex, northeastern Wyoming* 161
Frank R. Karner and Don L. Halvorson
37. *Rhyolite-basalt volcanism of the Yellowstone Plateau and hydrothermal activity of Yellowstone National Park, Wyoming* 165
Robert L. Christiansen and Roderick A. Hutchinson

38. <i>Teton mountain front, Wyoming</i>	173
J. D. Love	
39. <i>The Rhodes allochthon of the Enos Creek-Owl Creek Debris-Avalanche, northwestern Wyoming</i>	179
Thomas M. Bown and J. David Love	
40. <i>Idaho-Wyoming thrust belt: Teton Pass, Hoback Canyon, Snake River Canyon</i>	183
H. Thomas Ore and A. A. Kopania	
41. <i>Phanerozoic stratigraphy and structures in the northwestern Wind River Basin at Red Grade, Wyoming</i>	187
J. D. Love	
42. <i>Wind River Canyon, Wyoming</i>	191
Edwin K. Maughan	
43. <i>Hoback River Canyon, central western Wyoming</i>	197
John A. Dorr, Jr., Darwin R. Spearing, James R. Steidtmann, David V. Wiltschko, and John P. Craddock	
44. <i>Type Pinedale Till in the Fremont Lake area, Wind River Range, Wyoming</i>	201
Gerald M. Richmond	
45. <i>Tertiary subsurface solution versus Paleozoic karst solution, Guernsey, Wyoming</i>	205
L. W. (Dan) Bridges	
46. <i>Dunes of the Wyoming Wind Corridor, southern Wyoming</i>	209
Ronald W. Marrs, Kenneth E. Kolm, and David R. Gaylord	
47. <i>Little Muddy Creek area, Lincoln County, Wyoming</i>	213
Frank Royse and M. A. Warner	
48. <i>Sandstones of the Casper Formation of the southern Laramie Basin, Wyoming: Type locality for festoon cross-lamination</i>	217
James R. Steidtmann	
49,50. <i>Early Proterozoic and Precambrian-Cambrian unconformities of the Nemo area, Black Hills, South Dakota</i>	219
Jack A. Redden	
51. <i>Harney Peak Granite and associated pegmatites, Black Hills, South Dakota</i>	227
C. K. Shearer and J. J. Papike	
52. <i>The White River Badlands of South Dakota</i>	233
James E. Martin	
53. <i>Metamorphic, igneous, and sedimentary relationships on the Sioux Quartzite Ridge, South Dakota</i>	237
Richard F. Bretz	

54. <i>Precambrian metamorphic rocks of the Devil's Gate- Weber Canyon area, northern Utah</i>	243
Frank L. DeCourten	
55. <i>Green River Formation (Eocene), central Utah: A classic example of fluvial-lacustrine environments</i>	247
James L. Baer	
56. <i>The Book Cliffs Cretaceous section: Western edge of the Interior Seaway</i>	251
J. Keith Rigby, Michael P. Russon, and Richard E. Carroll	
57. <i>The House Range, western Utah: Cambrian mecca</i>	257
Lehi F. Hintze and Richard A. Robison	
58. <i>Exceptionally fossiliferous Lower Ordovician strata in the Ibex area, western Millard County, Utah</i>	261
Lehi F. Hintze	
59. <i>The geology of Salina Canyon, Utah</i>	265
Timothy F. Lawton and Grant C. Willis	
60. <i>Stratigraphy and structure of the San Rafael Reef Utah; A major monocline of the Colorado Plateau</i>	269
J. Keith Rigby	
61. <i>Moab salt-intruded anticline, east-central Utah</i>	275
D. L. Baars and H. H. Doelling	
62. <i>Late Paleozoic-Mesozoic stratigraphy, Hite region, Utah</i>	281
D. L. Baars	
63. <i>Kolob Canyons, Utah: Structure and stratigraphy</i>	287
Sheldon Kerry Grant	
64. <i>Late Cenozoic volcanism in the St. George basin, Utah</i>	291
W. Kenneth Hamblin	
65. <i>Beaver Dam Mountains: The geology Rosetta Stone for southwestern Utah</i>	295
James L. Baer	
66. <i>Laramide fault blocks and forced folds of the Livermore-Bellvue area, Colorado</i>	299
Vincent Matthews III	
67. <i>Precambrian structure, metamorphic mineral zoning, and igneous rocks in the foothills east of Estes Park, Colorado</i>	303
Robert M. Hutchinson and William A. Braddock	
68. <i>Late Cretaceous Mesaverde Group outcrops at Rifle Gap, Piceance Creek Basin, northwestern Colorado</i>	307
J. C. Lorenz and A. K. Rutledge	

69. <i>Tertiary mineralization—Idaho Springs, Colorado</i>	311
S. Budge, P. J. LeAnderson, and G. S. Holden	
70. <i>Paleozoic-Mesozoic section: Red Rocks Park, I-70 road cut, and Rooney Road, Morrison area, Jefferson County, Colorado</i>	315
Robert J. Weimer and L. W. Le Roy	
71. <i>The Black Canyon of the Gunnison, Colorado</i>	321
Wallace R. Hansen	
72. <i>The carbonatite complex at Iron Hill, Powderhorn district, Gunnison County, Colorado</i>	325
Theodore J. Armbrustmacher and Spencer S. Shannon, Jr.	
73. <i>The Florissant Fossil Beds National Monument, Teller County, Colorado</i>	329
R. M. Hutchinson and K. E. Kolm	
74. <i>Granite-tectonics of the Pikes Peak intrusive center of Pikes Peak composite batholith, Colorado</i>	331
Robert M. Hutchinson	
75. <i>The Garden of the Gods and basal Phanerozoic nonconformity in and near Colorado Springs, Colorado</i>	335
Jeffrey B. Noblett, Andrew S. Cohen, Eric M. Loeffler, and Debra A. Gevirtzman	
76. <i>Paradox Valley, Colorado; A collapsed salt anticline</i>	339
William L. Chenoweth	
77. <i>Grenadier fault block, Coalbank to Molas Passes, southwest Colorado</i>	343
D. L. Baars, J. A. Ellingson, and R. W. Spoelhof	
78. <i>The geology of Summer Coon volcano near Del Norte, Colorado</i>	349
Jeffrey B. Noblett and Bruce M. Loeffler	
79. <i>Recurrent Quaternary normal faulting at Major Creek, Colorado: An example of youthful tectonism on the eastern boundary of the Rio Grande Rift Zone</i>	353
James P. McCalpin	
80. <i>Alteration zones related to igneous activity, Spanish Peaks area, Las Animas and Huerfano counties, Colorado</i>	357
Robert M. Hutchinson	
81. <i>Monument Valley, Arizona and Utah</i>	361
Ronald C. Blakey and Donald L. Baars	
82. <i>The mouth of the Grand Canyon and edge of the Colorado Plateau in the Upper Lake Mead area, Arizona</i>	365
Ivo Lucchitta	

83, 84. <i>Geology along the South Kaibab Trail, eastern Grand Canyon, Arizona</i>	371
Stanley S. Beus	
85. <i>Geology of the Gray Mountain area, Arizona</i>	379
Charles W. Barnes	
86. <i>SP Mountain cinder cone and lava flow, northern Arizona</i>	385
G. E. Ulrich	
87. <i>San Francisco Mountain: A late Cenozoic composite volcano in northern Arizona</i>	389
Richard F. Helm	
88. <i>Holocene scoria cone and lava flows at Sunset Crater, northern Arizona</i>	393
Richard F. Helm and Richard B. Moore	
89. <i>Meteor Crater, Arizona</i>	399
Eugene M. Shoemaker	
90. <i>Petrified Forest National Park, Arizona</i>	405
S. R. Ash	
91. <i>Ship Rock, New Mexico: The vent of a violent volcanic eruption</i>	411
Paul T. Delaney	
92. <i>Upper Cretaceous-Paleocene sequence, northwestern New Mexico</i>	417
Barry S. Kues and Spencer G. Lucas	
93. <i>Capulin Mountain Volcano and the Raton-Clayton Volcanic Field, northeastern New Mexico</i>	421
John C. Stormer, Jr.	
94. <i>The Vanes Caldera, Jemez Mountains, New Mexico</i>	425
Kenneth J. DeNault	
95. <i>Quaternary basalt fields of west-central New Mexico: McCartys pahoehoe flow, Zuni Canyon aa flow, Auni Ice Cave, Bandera Crater, and Zuni Salt Lake Maar</i>	431
Wolfgang E. Elston and Kenneth H. Wohletz	
96. <i>Precambrian-Upper Paleozoic geology along I-40 east of Albuquerque, New Mexico</i>	437
James R. Connolly and Barry S. Kues	
97. <i>The Emory resurgent ash-flow tuff (ignimbrite) cauldron of Oligocene age, Black Range, southwestern New Mexico</i>	441
Wolfgang E. Elston, William R. Seager, and Richard J. Abitz	
98. <i>Paleozoic reef complexes of the Sacramento Mountains, New Mexico</i>	447
Arthur L. Bowsher	

99. <i>White Sands National Monument, New Mexico</i>	451
David V. LeMone	
100. <i>Banded Castile evaporates, Delaware basin, New Mexico</i>	455
Roger Y. Anderson and Douglas W. Kirkland	
<i>Index</i>	459