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## *Introduction*

The Geological Society of America returns to Denver, Colorado, for its 128th Annual Meeting, GSA 2016. Colorado's rich geologic history is a fitting place for the gathering of geologists. The four "Great Surveys" of the late 1800s ventured west to explore and document the region's unknown natural resources and collect valuable geologic information. Many of the field trips in this volume, aptly titled *Unfolding the Geology of the West*, will cover the same hallowed ground as the early geologic expeditions. This is something to ponder as you enjoy participating in this year's field-trip lineup.

The volume is organized into four sections spanning some of the major subdisciplines of geology. Part 1 (Stratigraphy, Sedimentology, and Paleontology) leads off with D. Larsen and P. Lipman (Chapter 1) reviewing the current knowledge of the Southern Rocky Mountain volcanic field, ancient Lake Creede, and associated ore deposits. D. Loope et al. (Chapter 2) take you into Utah's canyon country to explore how new techniques involving dating apatite grains, groundwater chemistry, and biologic activity are being used to unravel the evolution of the Colorado Plateau during the Cenozoic. The Permian-Triassic boundary in Colorado is examined by J.W. Hagadorn and others (Chapter 3) using detrital zircon chronology, newly discovered fossil assemblages, and chemostratigraphy. J.J. Smith et al. (Chapter 4) go eastward to the High Plains to discuss the stratigraphy and depositional history of the crucial High Plains aquifer, while S.M. Keller and M.L. Morgan (Chapter 5) journey back to the Colorado Piedmont to examine the channel geometry and lithology of the energetic Eocene Castle Rock Conglomerate. To round out the first section, N. Latysh (Chapter 6) takes you inside the U.S. Geological Survey for a rare glimpse at three unique collections, including ice cores collected from glaciated regions of the world, rock cores representing millions of meters of the Earth's subsurface, and a paleontology collection that has provided valuable information to researchers since 1879!

Part 2 (Structure and Metamorphism) begins with a discussion by P.E. Barkmann et al. (Chapter 7) on the structural geology and sedimentation of Colorado's South Park Basin, which is followed by a paper by E.A. Erslev et al. (Chapter 8), who present a new thrust belt model of the eastern flank of the Front Range based on results from the NSF/EarthScope Bighorn Project. C.G. Daniel et al. (Chapter 9) take us southward to the famous "triple-point" terrain in northern New Mexico, where debate continues over the equilibrium/disequilibrium nature of the kyanite + sillimanite + andalusite (and polymorphs) assemblage. J.W. Sears et al. (Chapter 10) transect Glacier National Park to examine the Lewis plate, a Laramide-age thrust that contains the displaced remnants of the Mesoproterozoic Belt Basin. The second section closes with a comprehensive roadside trip to northern Colorado by B. EchoHawk and U. Kackstaetter (Chapter 11) to survey faults, folds, fossils, crystals, and diamond pipes.

Part 3 (Quaternary Landscape Evolution) commences with M.A. Foster et al. (Chapter 12), who discuss the development of the different erosion surfaces and dynamic geomorphic events that have shaped the terrain of the Colorado Front Range. C.A. Ruleman et al. (Chapter 13) journey to the San Luis Basin in southern Colorado and northern New Mexico to look at how the Rio Grande was instrumental in uniting smaller closed subbasins as it cut its way from Colorado south to the Gulf of Mexico. To close the section, we move north to the upper Arkansas River valley where A.D. Schweinsberg et al. (Chapter 14) present new cosmogenic ages of Pinedale and Bull Lake moraines and outburst flood deposits. The chapter also presents the results of their numerical modeling of Pinedale glaciers in the Sawatch Range and discharge estimates of glacial-lake paleoflood deposits.

Part 4 (Engineering and Environmental Geology) completes the volume. D.M. Abbott Jr. and D.C. Noe (Chapter 15) provide thought-provoking insight on the interactions between our society and the geology around us. They point out the realities of acquiring the natural resources we all need and depend on, as

well as living with the dangers posed by geologic hazards along the Front Range. Lastly, D.B. Yager et al. (Chapter 16) travel to the mining districts of Creede and Silverton in southwestern Colorado to discuss the local geology and environmental and policy issues related to both naturally occurring acid mine drainage and human-generated waste materials from the extraction of mineral resources.

We gratefully thank all of the authors who contributed chapters to this volume. These field trips are made possible only through their tremendous knowledge and enthusiasm. Sharing information is the key to making our discipline viable for future generations.

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