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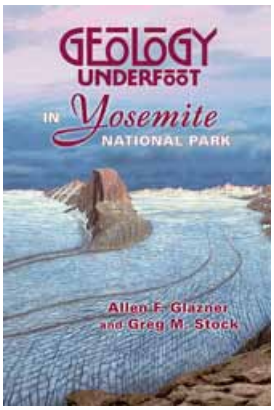

Geology Underfoot in Yosemite National Park, Alan F. Glazner and Greg M. Stock, 2010, Mountain Press Publishing Company, Missoula, 304 p., softcover USD24.00, ISBN: 978-0-87842-568-6.

Check a geologist's short list of the top ten geologic wonders in America, and you likely will find Yosemite in the upper half, because of its intrinsic grandeur and geologic significance. Massive cliffs aside, this is the part of North America that didn't exist until it was deposited, obducted, and shunted laterally, before being intruded, ejected, uplifted, weathered, eroded, and gouged out by glaciers. Well, the details are considerably more intriguing, and *Geology Underfoot in Yosemite National Park* does an excellent job in providing the reader with the geologic history, as well as instruction in how to think like a geologist.

Geology Underfoot in Yosemite National Park is Glazner's third guidebook in the *Geology Underfoot* series as first author. Geology is a small world, and Glazner's reputation for excellent work, as well as his prominence in igneous and metamorphic petrology and tectonics is known even to stratigraphers. Stock, second author on this volume, is the first official Yosemite National Park Geologist and an expert in landscape evolution and cosmogenic age dating in and around Yosemite. With this in mind, I expected that *Geology Underfoot in Yosemite National Park* would be an interesting book to read, and I was not disappointed.

After a brief introduction to the geological underpinnings of Yosemite, principally continental break up and reassembly, the mechanics of glaciers, and the untold story of the influence of surface-water hydrology on the park, the authors present 25 vignettes on specific topics, ranging from magma generation to climate change, glaciations, and mass wasting. Because it is a guidebook, the order of vignettes first concerns Yosemite Valley, then Tuolomne Meadows, the western foothills, eastern flank, Mono Lake area, and silver mining activities. Since you won't find information on the vignettes from the publisher's website, a synopsis follows.

Vignette 1 concerns the crosscutting relationships and radioisotope ages of granites and granodiorites (105–85 Ma) in the main part of the Yosemite Valley. A brief discussion on differentiating mafic enclaves from xenoliths is fascinating. Climbing and waterfalls are covered in vignettes 2–4. Mass wasting processes, rockfalls, rockslides, triggering mechanisms, and age dating techniques are highlighted in vignettes 5–7. Floods and natural dams are the focus of vignettes 8 and 9. Tectonism, fracturing, and exfoliation are featured in vignettes 10–12. Contrary to the prevailing views of introductory physical geology textbooks, the authors make a compelling case of lateral compression as the dominant force in generating sheeting joints. Glaciations and megadroughts are explored in vignettes 13–15. Among the more amazing features in the park are erratics and core stones that are preserved on pedestals: these provide for interesting discussions of the extent of glaciations. Vignette 16 features CO_2-charged groundwater hydrology and rock-water interactions. Exotic quartzite and schist bodies exposed in the High Sierras (vignette 17) are contrasted with the metamorphic terranes of the western flanks (vignette 19), and post-intrusion volcanics provide evidence of post-erosional uplift in vignettes 18 and 20–21. Sublacustrine volcanism and ancient shorelines of Mono Lake are integrated with glacial epochs in vignettes 21–24. A brief historic account of Yosemite economic geology (vignette 25) rounds out the guidebook.

Geology Underfoot in Yosemite National Park is well written, concise, and up-to-date. The guidebook is amply illustrated with maps, diagrams, charts, and images to supplement the text. So, to whom would I recommend this book? It would be an invaluable companion for geology professors and students visiting the park. References are given under Sources of More Information for those who would like to pursue topics from various vignettes. Interested nongeologists will find a treasure trove of knowledge, and a glossary is provided to help the uninitiated decipher our language and dialects.

Kevin R. Evans
Department of Geography, Geology, and Planning
Missouri State University
Springfield, Missouri 65897, USA
kevinevans@missouristate.edu