Regional Geology of Eastern Idaho and Western Wyoming

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Review by **Christopher G. Kendall**

This text consists of 14 papers and a short introduction with a dedication to Stephen Oriel, who spent most of his geological career mapping the thrust belt of Idaho and Wyoming. The book is broken down into a discussion of the regional synthesis of the area, the Idaho-Wyoming thrust belt, the extensional tectonics of the area, and the Snake River plain. The text attempts to summarize the geology of this complex region and emphasize its structural character and history.

The first chapter begins with a discussion of the track taken by the hot spot, which is thought to have underlain the area. This paper provides a very complete description of the hot spots' occurence and geological expression in terms of the temporal and spatial patterns related to this large scale disturbance of the lithosphere. Next is a paper on the structural evolution of piggyback basins of the Wyoming-Idaho-Utah crossbelt. This paper includes a series of cross-sections and maps describing the details of the stress belt area and how it first developed. This is followed by a series of Tertiary paleogeographic maps for Western Idaho, Wyoming and Montana, which specifically focuses on the north and southeastern Snake River Plain. This is followed by a paper on the Cretaceous thrusting and Neogene block rotation in the north quadrant of the Portneuf range region of southeastern Idaho. This paper is illustrated with geological maps of this complex area, cross-sections, and maps showing how this area has evolved.

There is a further article on the cross-strike structural discontinuity and lateral ramping in the Absaroka thrust system. It is illustrated by maps and cross-sections of this area. Then, there's a chapter on transpression during the tectonic evolution of the Idaho-Wyoming thrust belt. This is followed by papers on the southern Beaverhead Mountains, segmentation of paleoseismicity of the Grand Valley Fault of southeastern Idaho and western Wyoming, the Laramide influence on the Teton Fault, and the surficial gravity slide sheets of northern Idaho and Wyoming cross-belts.

The Heise volcanic field of the eastern Snake River plain is then described, followed by an overview of basaltic volcanism in the Eastern Snake River plain in Idaho, the Quaternary stratigraphy of North American faults, reservoirs, Eastern Snake River plain in Idaho and a model based perspective of Eastern Snake River Plains.

The book will be of greatest interest to the structural geologist, but does touch on volcanism and some sedimentary geology. It's illustrated by numerous cross-section diagrams on photos of the field area, the rocks, thin sections and general regional photos. The text is a fairly typical compendium of papers by a variety of different authors summarizing many aspects of the complex geology of this area. This text would be of intense interest to those working in Eastern Idaho and western Wyoming and structural volcanic geologists. All in all, this book has a professional feel to it and I'm pleased to have it on my shelf.