
Book Reviews

William T. Parry. **All Veins, Lodes, and Ledges Throughout Their Entire Depth: *Geology and the Apex Law in Utah Mines***. Salt Lake City: University of Utah Press, 2004; 160 pp., 20 b&w photographs, 26 line illustrations, 2 maps, references, glossary, index, cloth, \$ 30.

The subtitle *Geology and the Apex Law in Utah Mines* perfectly summarizes this delightful little book. The author presents a remarkably clear, readable, and succinct overview of the relation between geology, mining, and the apex law, as it played out in the rich metal deposits around Salt Lake City during the late nineteenth and early twentieth centuries. A topic of great importance for mine development throughout the West, often clouded in difficult legalese and geologese, is clarified through specific, concrete examples. Crisp case studies illustrate three complex topics: ore deposits, their formation and geometry; the apex mining law; and the legal resolution of the resulting conflicts.

The first few chapters trace the development of the Mining Law of 1872 to its European origins, emphasizing the origins of extra-lateral rights. Congressional maneuvering to establish the law, and its roots in local practices in mining districts, notably those of California and Nevada, are outlined. Chapter Four summarizes and explains the apex aspects of the law and its lateral implications. Chapter Five concisely describes the formation of Utah's metallic ore deposits. This chapter indicates how geological complexity, particularly ore deposit geometry, creates difficulties for reconciling legal prescriptions—typically based on extremely simplistic understandings of ore deposit geometries—with field con-

ditions. Chapter Six briefly indicates how surveyors transfer reference directions underground. This might have been written in the past tense, or at least have included some indication that the methods described are historical.

The five chapters that form the core of the book each address one major legal issue created by trying to reconcile apex law and geology. These issues are identified by the chapter subtitles: the claim must match the vein; the vein must have recognizable boundaries; mineralization of lodes must be continuous; extra-lateral rights need not be advertised; and monuments take precedent over descriptions. Each topic is illustrated and explained by court cases from major Utah mining districts. The explanations are clear, and supported by simple and most-helpful geometrical and geological illustrations. These excellent case studies intertwine law and geology, and bring to life the problems encountered in trying to reconcile the two—a valuable contribution to the literature on the history of mining law development.

The final chapter, which could have had a somewhat more representative title, includes an insightful discussion of how and why highly-qualified, professional, and honest geologists and mining engineers can present totally opposing points of view as expert witnesses in court, based on essentially the same information. This contentious, often misunderstood subject, touched on repeatedly in the book, is reduced to a few essential points and illuminated revealingly.

Reproductions of the photographs could have been of better quality. Presumably this is a trade-off for trying to keep the price reasonable. A few typos mar the text. The most serious ones

probably are the variations in spelling of Tarbet (pp. 48, 127). This is somewhat unfortunate, because *Flagstaff Silver Mining Co. v. Tarbet* almost certainly is the Utah apex law case cited most widely in the domestic mining literature. The index is rather thin, as is the glossary, which, in particular, could have benefitted from more geology. A one-page summary of the cases is included, giving a clear overview of the mining districts where each originated, and of the associated legal issues.

Overall, this is a very nice contribution that will be of great interest to a variety of people: anyone interested in the history of the apex and lateral rights aspects of mining law, in Utah and Utah mining history, or in the relation between mining, geology, and law. The book includes insightful sections on the development of major metal-mining districts in Utah. The remarkably clear and concise presentation of ore deposit geology, geometry, and its legal implications, should be of considerable value to anyone interested in the development of mining in the West. But while the importance of apex and lateral rights law will be obvious to mine historians, it may not be to the public at large. I wish the author had briefly indicated why this issue had such major legal, and hence economic, social, and historical, implications throughout the metal-mining West.

One may hope that this book will be made widely available, e.g. at national and state park shops, and maybe in shops at the ski resorts built in old mining districts. It should be readily accessible to readers at large. It gives an excellent introduction to one of the major forces in the development of the West, and of Utah in particular.

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Ronald H. Limbaugh and Willard P. Fuller, Jr. *Calaveras Gold: The Impact of Mining on a Mother Lode County*. Reno: University of Nevada Press, 2004; 404 pp., 76 b&w photos, 6 maps, 6 charts, 2 tables, notes, glossary, suggested readings, index, cloth, \$39.95.

Ronald Limbaugh, a prolific historian, and Willard Fuller, a mining geologist, engineer, and consultant, combine their respective talents to produce a model of mining history. Focused on a single county in California's mother lode region, they tell the story of mines, miners, and environmental damage from placer mining days to the present era of environmental regulation.

Surface placer mining lasted but a brief moment in the 1850s. Miners soon discovered placers buried in ancient rivers. Drift and hydraulic mining quickly replaced the pan and rocker. Hydraulic mining went the way of history when federal court injunctions stopped the environmentally destructive practice.

Lode mining in the period from 1850 to 1885 included copper. In the 1860s copper mining boomed due to demand. Capitalists experimented with smelting, but falling prices and increasing costs after the Civil War terminated the experiment. At Copperopolis, miners deployed heap roasting with all of its environmental devastation. By 1867 the copper boom was over. Geology and technology also hampered the growth of mining through the 1880s.

Mining dramatically impacted American Indian life. The authors follow the reactions of the Miwok as mining communities forced their migration. So too other ethnic groups experienced the movements charged by mining ventures and economics. Mining also impacted economic development in the county. Merchants, farmers, loggers, shippers, and industrialists provided for the needs of the mining industry and diversified the county's economy.

Modern mining technology changed the face of Calaveras mining at the turn of the century.