to harm others when they exercise their rights, but there is no doubt that mines can have major consequences on land use and the environment.

Presumably the public wants abundant, low-cost minerals, but it also wants a balanced approach to land use choices and better environmental outcomes. Bakken's characterization may help both sides come up with reasonable changes to the 1872 Mining Law, and better solutions than we are seeing in most disputes about mining projects. One hopes that the contending parties can come up with an approach that retains the best features of the 1872 Mining Law, while doing something to mitigate those "unintended consequences."

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John Mason Hart. ***The Silver of the Sierra Madre: John Robinson, Boss Shepherd, and the People of the Canyons.*** Tucson: University of Arizona Press, 2008; 256 pp., 24 b&w photos, 1 map, notes, bib., ind., cloth, $45. ISBN: 0816527045

Professor John Mason Hart of the University of Houston has done admirable research in original sources to tell and update the legend of the fabulous Batopilas Mine in Chihuahua, Mexico. *Silver of the Sierra Madre* views this nineteenth-century mining enterprise with a twentieth-first-century sensitivity to the exploitation of people and resources. Lamenting and censuring the past as seen through the lens of the present is a tricky business, however, and this account does not make its own best case.

The story is a colorful one, and the introduction promises "a tale of adventure, tragedy, triumph, and survival" in "the eternal search for wealth and power." The account begins in 1861, when John Riley Robinson, fifty-one years old, "a doctor, railroad superintendent, gristmill operator, [and] inventor" left Mansfield, Ohio, and traveled by carriage, stagecoach, and horseback to the canyons of Chihuahua, Mexico.

Hart's fine description of this journey combines Robinson's recorded impressions and other background information. This section, entitled "Robinson's Quest," sets the tone for the rest of the book, and concludes: "In his search for wealth, John Robinson entered an isolated place rich in mineral wealth and cultural diversity. He had initiated what would become a historic and revealing encounter of nineteenth-century American capitalism and culture with the people of the Third World." Hart's work includes a sympathetic explication of the culture of the indigenous Tarahumara–Raramuri people, and foreshadows the twenty-first century problems with drug trafficking in the area.

The story also has its poignant personal aspects. Robinson's two adult sons, acting successively as managers of the property, died, probably of typhoid fever, as did two of his grandchildren. His friendship with General Luis Terrazas, "the patriarch of the most important family in the Chihuahua oligarchy," was cemented by the marriage of his sole surviving grandson, Charles, to the General's only granddaughter. In 1879, "tired and aging," he and his partners sold the property to Alexander Shepherd, former governor of the District of Columbia.

The last and by far the longest chapter of the book is entitled "The Patron Grande, Community, and Corrupt Practices." According to Hart, "Alexander Robey Shepherd, the new managing partner of the Batopilas Mining Company, was a prime example of the elite American entrepreneurs interacting with [President Porfirio] Diaz and Mexico's elites. His strategies for gaining power in Chihuahua changed the social dynamics of the region and duplicated those he had used in Washington, D.C."

In 1887, Shepherd's Batopilas Consolidated Mining Company combined separate mine workings and local companies. The company expanded mining, and renamed the extended haulage tunnel, reputed to be the longest in the world, the

Porfirio Diaz Tunnel. The company introduced motorized equipment and modernized processing, with cyanidation eventually supplementing mercury amalgamation. Batopilas Consolidated also mechanized transportation, replacing the long mule trains with railroads.

Shepherd's family, his wife and seven children, lived in grand and feudal style. The "Castle" that was their home still stands as a tourist attraction. All of these changes, Hart concludes, led to development of an "alienated working class" and the concurrent events of the Mexican Revolution. He laments "the oppressive nature of the American mining company's interactions with a cross-section of Mexican society."

Hart cites references from archives in both the United States and Mexico, and library collections from Washington, D.C., to California and Texas. He had access to personal and corporate records from the Batopilas Mining Company and the Batopilas Consolidated Mining Company, spanning development from 1860, through the Mexican Revolution of 1910 and World War I, to the mine's closing in 1921.

The book has some problems of omission and with historical "facts," however. Oddly, no mention is made of the Sherman Silver Purchase Act of 1890, or of the subsequent Depression of 1893, which must have affected the Batopilas enterprise. A person named "Junior" Almaden is introduced as "heir to a nascent California wine-making operation." Undoubtedly Hart refers to the Almaden winery, but it was founded by a French family, and was not named for the family, but for its mercury mining locale, named, in turn, for a historic mercury mine in Spain. Another questionable lapse concerns the cyanide process, discovered in 1887 and not widely used until the twentieth century. That process should not be blamed for earlier deaths, and its health risks are debatable in any case. It is probably also erroneous to claim that Copper Canyon ores contained significant quantities of chromium and aluminum.

Hart also engages in some peculiar uses of technical terms. The patio process for ore treatment is well known, and there is no need to translate it as "esplanade." There are probably no arêtes [glaciated peaks] in that part of the Sierra Madre. A tunnel is not a shaft; neither is a shaft a pit. A stope is not the same as a mine face; a refinery is not the same as a smelter; ore processing does not produce "chaff." No miner speaks of "grinders" that "smash" rocks, or of "vertical tunnels." The valuable liquid in the processing plant is never called "slop."

The book also falls short in editing and proofreading. Punctuation is careless: e.g. on page 39, "before intersecting the vein and; he recognized," and on page 94, "at the same, time." Words are omitted: e.g. page 19, "the estate consisted a big house." The Camuchin Mine is misspelled "Camunchin." The writing contains too many cases of contorted syntax, such as on page 24, "[he] . . . provided musical entertainment through his ten-year-old daughter;" page 71, "the pueblo hosts wanted to win these races badly;" and page 19, "the people of Julimes enjoyed more of life's comforts than did those of Chupadero, including at least a few commercial goods."

The thesis of this book, however valid it may be, is weakened by its presentation.

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Robert P. Wolensky and Joseph M. Keating. ***Tragedy at Avondale: The Causes, Consequences, and Legacy of the Pennsylvania Anthracite Coal Industry's Most Deadly Mining Disaster, September 6, 1869.*** Easton, PA: Canal History and Technology Press, 2008; 191 pp., b&w photos, maps, append., notes, ref., ind., paper, $19.95. ISBN: 0930973407

It is fitting for me to review *Tragedy at Avondale* since the late Joseph Keating served as our tour guide to the disaster site on the post-conference tour for the 2005 Mining History Asso-