

these mining engineers is an asset, as are quotes from other period sources. The University of Nevada Press has included graphics, maps, and photographs in this worthy addition to its respected Mining and Society Series.

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Christine A. Bradley and Duane A. Smith. *The Once and Future Silver Queen of the Rockies: Georgetown, Colorado, and the Fight for Survival into the Twentieth Century*. Louisville, CO: University Press of Colorado, 2019; 323 pp., 206 b&w photos, notes, ind., paper, \$32.95. ISBN: 9781607326076

Together with *The Rise of the Silver Queen* by Liston Leyendecker, Bradley, and Smith, *The Once and Future Silver Queen of the Rockies* provides a wonderful history of the tiny Rocky Mountain mining town of Georgetown, Colorado.

The area that later became Georgetown began its mining journey as a small gold mining camp in the summer of 1859. By the mid-1860s, however, the area's gold return dwindled and rich deposits of silver ore began to support the mining industry in the area.

Over the next thirty-plus years, Georgetown experienced the typical ups and down of the mining industry, but one event, the November 1893 repeal of the Sherman Silver Purchase Act, was a major blow to its economy. The industry struggled into the 1930s and 1940s, but by that time silver mining was nearing an end. The Crash of 1929 helped trigger that destruction.

Georgetown had to then look elsewhere to shore up its economy. Even though the 1890s was a time of financial uncertainty in the silver-producing districts of the West, tourism had already become an important buttress to Georgetown's economy. By the 1960s, the ski industry was burgeoning and historic preservation became

another financial mainstay.

The *Once and Future Silver Queen of the Rockies* provides a good description of life in Georgetown between the 1890s and 1960s. In fact, with the abundant photographs in the book, it is a veritable "Who's Who" of Georgetown's history. The photographs provide grand visual images of the life and times of many of Georgetown's historical figures, and provide a glimpse of the social side of life there.

The inclusion of at least two maps would have aided the reader unfamiliar with the Georgetown area. One map of Georgetown proper, showing streets, historic buildings, and other sites of interest mentioned in text would have helped, as well as another map showing the region, including the Argentine District and the location of significant mines and mills.

As James E. Hansen II suggests in the Dedication of *The Rise of the Silver Queen*, Georgetown's history is more than written records, it is "also the homes where people lived, the business buildings where they earned a livelihood, and the mines where they toiled and sometimes died." With *The Once and Future Silver Queen of the Rockies*, Bradley and Smith complete the story.

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Billy M. Williams. *Playing in a Big Boy's Sandbox: ASARCO's Mission Mining Complex*. Tucson, AZ: Billy M. Williams, 2018; 140 pp., numerous b&w and color photos, ref., append., ind., CD with additional maps, cloth, \$65 (e-mail: cubillw@comcast.net). ISBN: 9780692199626

In thinking of Arizona mining history, locales such as Bisbee, Jerome, Morenci, and even Tombstone come to mind, yet the area a few miles south of Tucson has one of Arizona's oldest recorded mines, which is part of the ASARCO Mission Mine Complex. *Playing in a Big Boy's Sandbox*

is the history of this large, yet often-ignored mine and, more importantly to history buffs, the history of all the properties this complex has encompassed.

The first chapter gives the history of many underground mines and the properties and early companies that operated same, as well as historic photographs of the mines and memorabilia from same.

The second chapter starts with the discovery of hidden ore bodies near the aforementioned mines of Chapter 1. In the 1950s, two companies were active in the area: Banner Mining Company and the United Geophysical Company. Each pursued ore bodies by different means.

Banner leased the old Mineral Hill Mine and did drilling, finding enough high-grade ore to conduct underground operations. Banner later expanded its holdings, did more drilling, and developed substantial low-grade ore.

United Geophysical—founded by Herbert Hoover, Jr., and a subsidiary of the Union Oil Company of California—used geophysical means to explore the alluvium east of Mineral Hill. Walter Heinrichs, Jr., and Bob Thurmond conducted seismic work which led to the discovery of the Pima ore body, confirmed by sixteen diamond drill holes on the anomalies and finally, some underground development. This consisted of a 600-foot vertical shaft and drifts in the high-grade ore. Some forty thousand tons of direct smelting ore running from 6 to 20 percent copper were shipped.

Union Oil did not want to develop and operate a mine, so potentially interested mining companies and individuals were contacted. Cyprus Mines Corporation bought 75 percent of the mine, with Union Oil retaining 25 percent. Later, Cyprus brought Utah Construction and Mining into the partnership, with Cyprus owning 50.01, Utah 24.99, and Union Oil 25 percent of the Pima Mining Company.

By 1955, stripping of the alluvium covering

the ore body started. A 3,000 ton-per-day mill was constructed and operations started in late 1956. The first shipment of concentrates to the El Paso smelter took place on 4 January 1957.

Chapter 2 continues, outlining major accomplishments and expansions of the mine, including the skip hoisting system used in the early days, and an operating agreement with Banner Mining Company that allowed Pima Mining Company to expand its pit in exchange for providing Banner with ore or payment. Pima needed to expand to reach deeper ores, but the lateral extent necessary to safely enlarge the pit overran Banner's Daisy Mine, which shaft mined high-grade ore to the 600 level. The ore continued down but dipped away from the Daisy's shaft, making it advantageous to Banner to have Pima mine this ore from its open pit.

The chapter then addresses ASARCO's involvement in the area, which started in 1954 on lands next to Pima's and Banner's holdings. Underground exploration occurred in 1958, yielding ore for metallurgical tests. In 1959, ASARCO's board gave project approval for a 15,000 ton-per-day operation. The formal opening of the ASARCO Mission Mine occurred on 16 November 1961.

The chapter details the various expansions of the Mission Mine and satellite operations, including acquisitions of neighboring properties, such as Pima, and developments on tribal lands. The integration of the Pima and Mission pits is discussed, and throughout the chapter is well-illustrated with photographs.

The third chapter is aptly titled "Tales of Events that Add to the Story." It will not only appeal to the reader's sense of humor, but will evoke memories of similar instances for anyone who has worked at or around a mine or miners.

The fourth chapter considers the geology of the area encompassed by the Mission complex, written in easy-to-understand language and with numerous drawings and photographs. This chap-

ter leads into the fifth chapter, which details mineral collecting at these mines. The sixth and last chapter describes the minerals of the area. This section is profusely illustrated with outstanding color photographs of mineral specimens.

Playing in a Big Boy's Sandbox is a well-written history of the mines south of Tucson. It is well researched, with numerous historic photos of the mines at various stages of development. I rate this book as one of the top five in my collection of approximately five hundred books dealing with mining history.

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