

***Maintenance Base for the Copper Conveyor:  
The Butte, Anaconda & Pacific Railway and  
Its Roundhouse and Repair Shops, 1914***

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In the fall of 1914, another day begins in Anaconda, Montana. The sun rises on the town, on the largest copper smelter in the world, which reduces ores extracted from the Butte hill to nearly pure copper, and on a variety of supporting activities, including a railway.

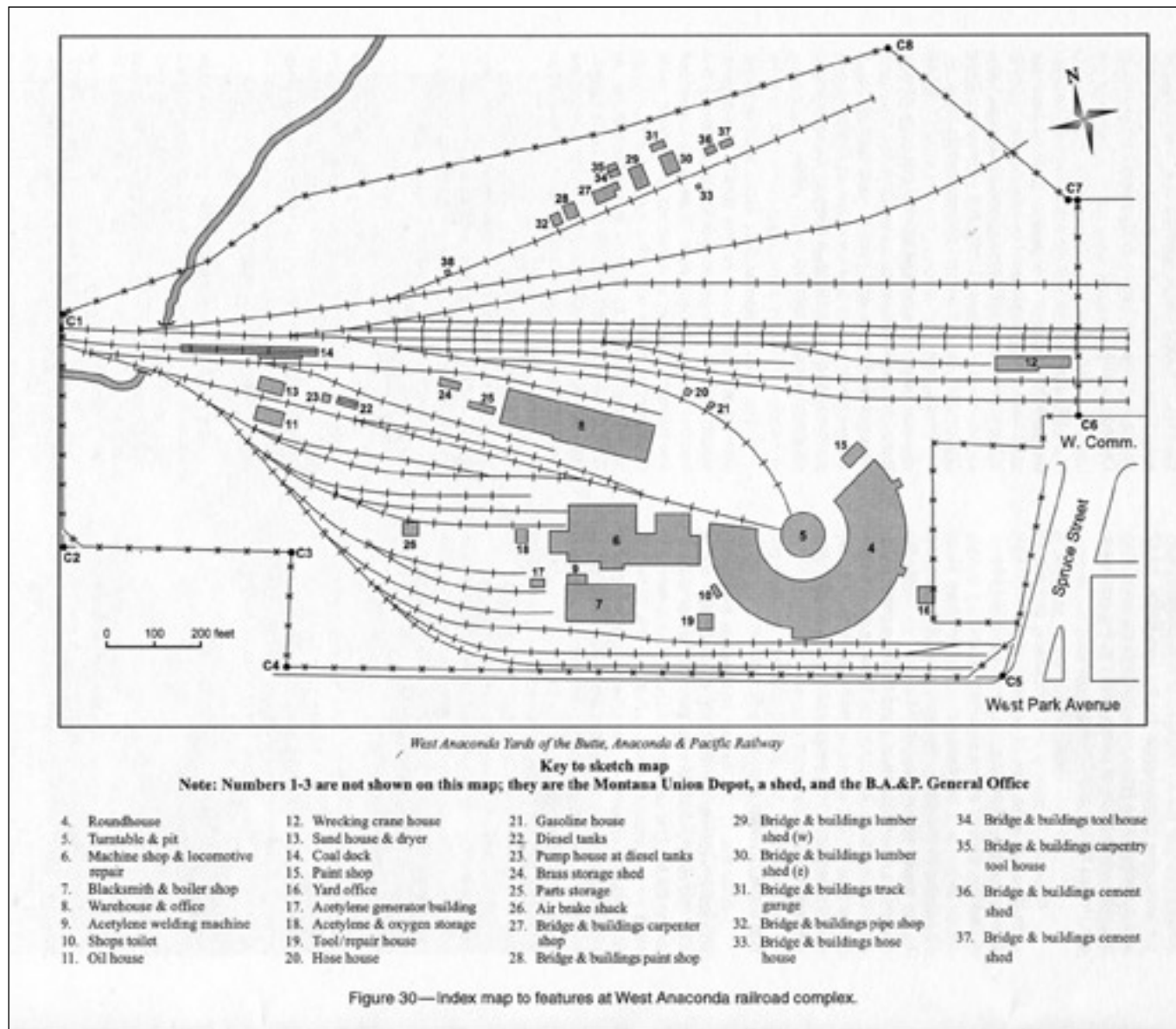
Great long-term change is occurring, both far away and close by. In Europe, the Great War, only months old, is already consuming the unprecedented quantities of metals, including copper and zinc from Montana, that will characterize twentieth-century industrial warfare. Pulling the trains working around Anaconda's smelter hill and drawing power from new overhead electric wires are boxy electric motors that look nothing like the familiar steam locomotives that were doing the same job just a year ago. This is the first high-voltage electric railway to be converted from steam power for economic reasons, and not—as in earlier instances—to remove smoke from long tunnels or cities. Less than a year since full implementation, it is working as intended.<sup>1</sup>

The Butte, Anaconda & Pacific Railway (BA&P) is based in Anaconda, the site of the roundhouse and repair shops, the switchyards and industrial spurs, and the general offices. A part of the Anaconda Copper

Mining Company (ACM), the BA&P's primary functions—since its construction in 1893—have been to carry the ores from the Butte hill to the smelting works in Anaconda. It also hauls away the copper anodes and other products of the smelter. In smaller quantities, it also carries mine timbers, fuels for Anaconda operations, general merchandise, and passengers, express, and mail. More than five hundred employees are based in Anaconda and Butte as well as the railway junction community of Rocker, three miles west of Butte, and track maintenance bases along the line. In its main task, the railway collects ore from large bins on mine headframes on the Butte hill; assembles the nine or ten daily westbound ore trains at the Rocker switchyard; and disassembles the trains at East Anaconda, twenty miles farther west, for delivery up a steep, curving track to the smelter. Across town, on the northwest edge of Anaconda, are the railway's primary facilities for maintaining its locomotives and cars.<sup>2</sup>

***The Shops***

The functional layout of structures, equipment, and activities at the BA&P's West Anaconda shops resembles that of thousands of railway operating terminals around the world. By the mid-nineteenth century, railways were commonly repairing, maintaining, and, occasionally, constructing rolling stock (locomotives, freight and passenger cars, and company service equipment such



as snowplows) at industrial complexes, usually called “shops.” Located in terminal cities and at regular intervals on long main lines, these shops typically formed the largest concentrations of railway workers, from more than one hundred workers at West Anaconda to thousands in railway shop towns like Altoona, Pennsylvania; Roanoke, Virginia; and Hillyard, next to Spokane, Washington.

The BA&P’s shops consist of four large buildings, many smaller buildings and structures, a dense array of tracks, and many locomotives, cars, and track-maintenance machines awaiting repair or their next service.<sup>3</sup>

The center of visible activity is the brick and wood roundhouse, a semicircular (five eighths of a circle) building internally divided into twenty stalls, most for locomotives and two for painting rail cars. The stalls are reached over a turntable, a sixty-foot-long bridge that spins on a center bearing in the middle of a circular pit. In the roundhouse stalls, locomotives are inspected and maintained. Narrow inspection pits between the rails allow workers to get underneath the engines. For major repairs, locomotives can be moved on two tracks into the

**Facing Page:** *West Anaconda yards of the Butte, Anaconda & Pacific Railway. From Brian Shovers, Butte & Anaconda Revisited: An Overview of Early-day Mining and Smelting in Montana (Butte: Montana Bureau of Mines and Geology, 1991). Used by permission.*

north half of the brick machine shop building, with its distinctive roof monitors, just west of the roundhouse. In the south half, workers use various machine tools to cut, lathe, drill, mill, and otherwise shape metal. The wood-paved floor absorbs oil and offers a soft landing for dropped tools. In the brick boiler and blacksmith shop, just south of the machine shop, workers maintain the steam locomotives that have been retained to operate on the railway’s tracks that lack overhead electric power. Boilermakers tend to the demands of the firebox and boiler, in which an inch or less of steel separates fire and exhaust from boiling water and high-pressure steam. Blacksmiths forge hot iron and steel to shape parts for locomotives and cars.

The people who repair the railcars do much of their work outdoors, tending to the brakes, wheels, and couplers. The other large building in the complex is the wooden storehouse, which contains most any parts, supplies, and other materials that might be needed for any operation within the complex.

The complex contains several dozen other smaller buildings and structures. Auxiliary to the roundhouse are facilities for coal, fuel for the steam locomotives, and sand, the latter sprayed under locomotive drive wheels to improve traction. Other small buildings and sheds house specific materials, including paint, flammable oil supplies, ice, and lumber. One small structure contains a fire-fighting hose cart, with five hundred feet of hose.

Based in this complex are the locomotives and cars that make up the regular daily traffic of eight passenger trains, up to two dozen freight trains, and even more transfer and switching operations.

### *After 1914*

From 1914 to 1918, the BA&P and its parent ACM experienced tremendous changes. War-driven economics, labor tensions, and tumultuous politics both pushed and disrupted mining and smelting in Butte and Anaconda. The immediate postwar years saw the beginning of a decades-long decline for railroads in the United States. In the early 1920s, the BA&P passenger trains lost many riders to buses and automobiles on the first paved intercity road in Montana, between Butte and Anaconda. Rail freight not directly associated with mining and smelting, such as express, perishables, and general merchandise, also diminished. Continuing strongly, however, the westbound ore and concentrates to Anaconda and eastbound smelter products kept the BA&P busy.<sup>4</sup>

The motive power maintained at the roundhouse and shops changed over the subsequent decades. Use of steam locomotives ended in the early 1950s, and the electric motors stopped pulling trains in 1967, leaving the work to diesel-electric power. The railway itself survived the difficult decades of the 1970s and 1980s, during which ARCO took over The Anaconda Company and then just a few years later shut down

and dismantled the smelter and ceased copper mining in Butte. In the mid-1980s, ARCO sold the BA&P to several managers, who renamed it the Rarus Railway. Montana Resources Inc. acquired and reopened the open-pit mine in Butte, with the Rarus carrying the copper concentrates on the beginning of their long journey to Asian smelters.<sup>5</sup>

Most recently, in May 2007, a Florida-based owner of railway short lines, Patriot Rail Corporation, purchased the Rarus Railway and two months later restored its historic name. According to Patriot Rail's website, the BA&P now carries "copper tailings, impacted soils, copper concentrates, beer and slag." It also runs the Copper King Express, a seasonal tourist train that offers views of, among other sights, miles of "impacted soils" along Silver Bow Creek. Through decades of changes, the roundhouse, repair shops, and many associated buildings and structures survived, and they now house Patriot Rail's maintenance of its twelve locomotives and other rolling stock.<sup>6</sup>

Most of the hundreds of railway shops that existed in the United States before the mid-twentieth century have been either demolished or radically diminished in structures and activities. This loss is due to decades of decline in the railway business, to diesel-electric power replacing maintenance-intensive steam locomotives, to the abandonment of some railroads, and to contemporary rail operating and labor practices.

Anaconda is the site of a rare example of a surviving, working, largely unaltered railway shops complex built in the late nineteenth and early twentieth centuries.

Beyond current operations and properties, a few historic BA&P features survive. For instance, an electric boxcab locomotive once maintained at the West Anaconda roundhouse is now displayed in the Anselmo mine yard on the west side of Butte. Repainted and paired with an auxiliary tractor-truck that distributed the pulling power over more wheels on the rails, this “cow-and-calf” combination is coupled to an ore hopper car and caboosie. Another holdover from the early days, Rocker, the former railway switchyard town just west of Butte, remains active in the transportation

economy as an oasis for truckers and motorists on interstate routes 15 and 90.

No longer surviving in Anaconda is a building just across the street, to the south of the BA&P roundhouse and shops. The large brick streetcar barn was the last major remnant of the Anaconda’s street railway system. Until they ended service in 1951, the Anaconda streetcars were the last operating urban rail transit in Montana. The carbarn was demolished in 2008.<sup>7</sup>

Copper mining and milling continues in Butte. Locomotives and cars of the Butte, Anaconda & Pacific Railway, maintained in Anaconda, still carry copper (and molybdenum) concentrates westward across the lower Butte hill.

<sup>1</sup> William D. Middleton, *When the Steam Railroads Electrified* (Milwaukee, WI: Kalmbach, 1974), 206.

<sup>2</sup> Histories of the BA&P include Charles V. Mutschler, *Wired for Success: The Butte, Anaconda & Pacific Railway, 1982–1985* (Pullman: Washington State University Press, 2002); Brian Shovers, Mark Fiege, Dale Martin, and Fred Quivik, *Butte and Anaconda Revisited: An Overview of Early-day Mining*

*and Smelting in Montana*, Special Publication 99 (Butte: Montana Bureau of Mines and Geology, 1991), 51–55; Middleton, *When the Steam Railroads Electrified*, 204–15; and Gordon W. Rogers, “Where Electrification First Made Good,” *Trains* 23 (July 1963): 16–28.

<sup>3</sup> A map of the shops is in Shovers et al., *Butte and Anaconda Revisited*, 54. Also useful are the Sanborn fire insurance maps of Anaconda, available online, in black and white

only, without the color coding of building materials.

<sup>4</sup> Mutschler, *Wired for Success*, 79–89.

<sup>5</sup> Mutschler, *Wired for Success*, 105–16.

<sup>6</sup> Patriot Rail Corporation, <http://www.patriotrail.com>, News section, 2007-05-01 and 2007-07-19; and Copper King Express, <http://www.copperkingexpress.com>.

<sup>7</sup> Erin Nicholes, “Out with the Old,” *Montana Standard*, February 9, 2008.