

MONTANA GEOLOGY



Diane Nugent©

Fielding L. Graves
Gold dredging on grasshopper Creek at Bannack-circa, 1898

January

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1995



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A Department of Montana Tech of the University of Montana

Gold Fever

by F. Lee Graves



"truth and the marvelous go hand in hand when young America finds a good gold gulch."

Montana Diarist, 1864

Mining has always been the main attraction at Bannack. Ever since John White and his fellow prospectors found gold on the Grasshopper in 1862, gold has lured more men to Bannack than anything else. By the same token, Bannack *lost* more men to gold—because gold lured men to new strikes such as Alder Gulch at Virginia City and Nevada City, Last Chance Gulch at Helena, to the mines at Salmon, Idaho and even to the Yukon and Alaska.

At first men came with picks and shovels and panned for gold, which is placer mining at its most rudimentary. If the diggings looked promising, miners constructed rockers fashioned after baby cradles. The rectangular rocker had sides about two feet high, which sifted the gravel. Finer, gold-bearing gravel then was panned and the gold extracted.

Miners also set up sluice boxes, board troughs with crossbars called riffles in the bottom. A stream of water washed gravel through the sluice, with the much heavier gold sinking to the bottom and being trapped by the riffles.

Another common form of mining used at Bannack—even today— is hydraulic mining. High-pressure hoses wash dirt and gravel from hillsides to sluices below, and the gravel then is sluiced for gold. Much evidence of hydraulic mining is seen above and below Bannack—deep cuts in the hillsides that look as though flash floods came through the area.

One of the most productive forms of mining at Bannack was dredging, which lasted from 1895 until approximately 10 years later. A total of five dredge boats worked Grasshopper Creek and dug as deep as 40 feet looking for gold. Since bedrock was known to be deep in Grasshopper Gulch, no one was sure that even a dredge could reach it until H.J. Reiling of Chicago, and others, organized the Gold Dredging

Company and built the first boat, the *Fielding L. Graves*, in 1895. It was the first electric dredge in the world.

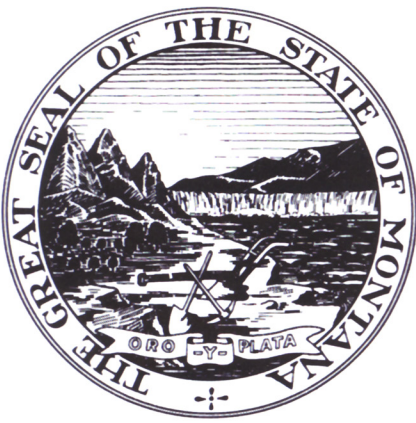
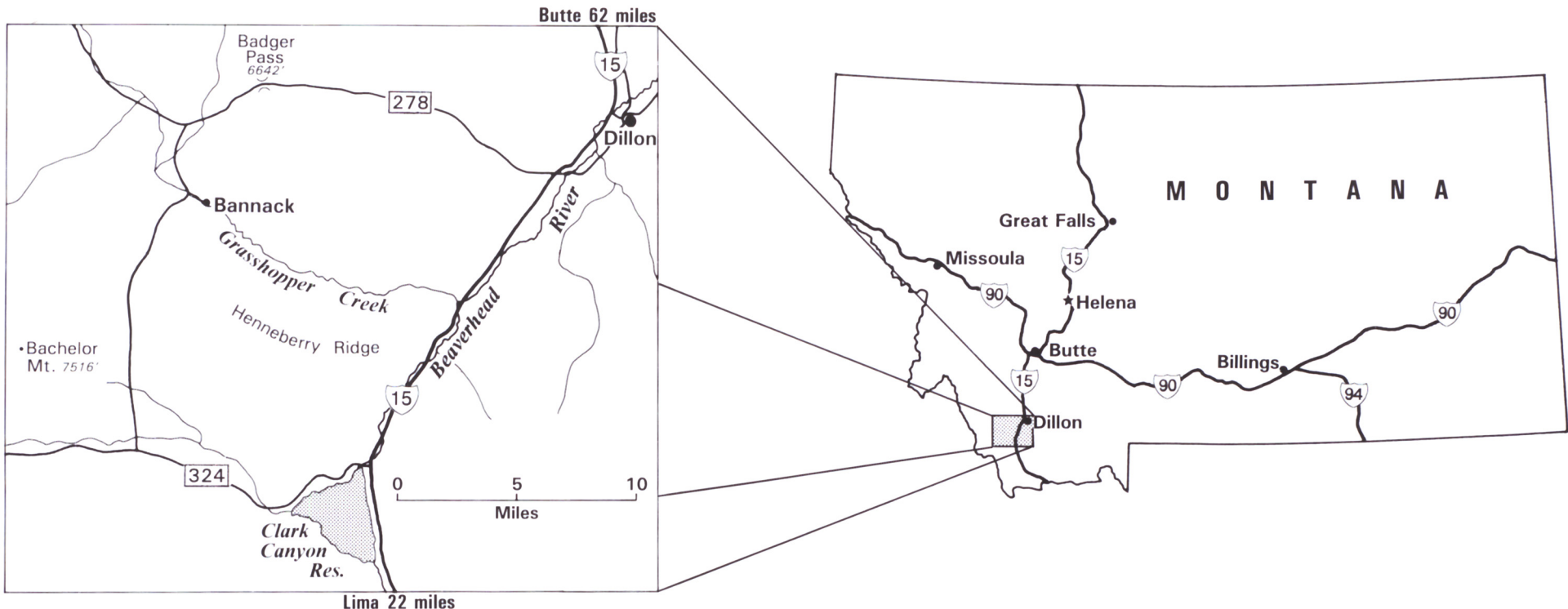
The dredge's machinery was built by the Bucyrus Steam Shovel and Dredge Company of Milwaukee, and moved by a spur line of the Union Pacific, the Utah and Northern Railroad, to Red Rock, Montana. The heavy machinery was then freighted by teams and wagons for 40 miles to Bannack, and the boat was constructed on Bannack's east end at a cost of about \$35,000.

Water was run more than 30 miles by the Graves-Graeter ditch to power the hydroelectric plant on the banks of Grasshopper Creek 350 feet below the ditch. This plant powered the *F.L. Graves* for the seven years that it worked Grasshopper Creek.

The dredge was launched May 15, 1895 with a large celebration culminating with the wife of the Gold Dredging Company's president breaking a bottle of champagne on its bow and christening the boat after one of Bannack's pioneer merchants. The *F.L. Graves* immediately began operation, its crew of pilot, motorman and deckhand working six months of the year—the normal dredging season, determined by ice on the creek. The corporation purchased about two miles of the Grasshopper's bed for the dredge to work.

Buckets, each weighing 1,200 pounds and holding five cubic feet of gravel, dumped their loads into a sluice box on the dredge itself. Water was then run through the sluice, leaving gold-bearing dirt caught in the riffles. At the end of the "run," the gravel was removed and panned, yielding between \$800 and \$7,000 per weekly cleanup. The largest cleanups recorded were \$22,000 and \$38,000 in two successive weeks' work. The dredge operated until 1902 when it "ran out of auriferous gravel." Its remains still are visible west of Bannack on the Grasshopper, where it was moored in 1902.

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Enacted by Legislature Assembly of the State of Montana (Section 75-607, R.C.M., 1947, Amended), the scope and the duties of the agency are summarized as follows:

- To collect, compile, and publish information on Montana's geology, mining, milling, and smelting operations, and ground-water resources.
- To maintain collections of geologic and mineral specimens, photographs, models, and drawings of mining and milling

equipment, and literature on geology, mining, and ground water.

- To conduct investigations of Montana geology, emphasizing economic mineral resources and ground-water quality and quantity.

In accordance with the enabling act, MBMG conducts research and provides information, but has no regulatory functions. To carry out its duties most effectively, the Bureau operates in four divisions: Research, Administration, Analytical, and Publications.

The Bureau director serves as the State Geologist and represents Montana in the Association of American State Geologists.

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Special Publication 95—Guidebook of the Helena area, west-central Montana, compiled by Richard B. Berg and Ray H. Breuninger (*eds.*), 1987, 64 p., 20 figs., 1 table \$5.00

Geologic Map 27—Glacial features of the upper Swiftcurrent valley, Glacier National Park, Montana, H.L. James, 1982 . . . \$2.50

Special Publication 102—Coal geology of Montana, Mark A. Sholes (*ed.*), 1992, 157 p., 134 figs., 5 tables, 1 appendix 2 sheets \$25.00

Reprint 6—Gold placers of Montana (2nd edition, revised), Charles J. Lyden, 1987, 120 p., 23 figs, 22 maps \$10.00

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