

Water, Gold and Obscurity: British Columbia's Bullion Pit

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Introduction

The Bullion Pit is an immense but curiously obscure abandoned gold mine in the Cariboo region of British Columbia, Canada. It is relatively unknown, even within its region and province, receives few visitors, and has not been documented by historians to nearly the extent of some comparable but more famous mines, particularly Barkerville, in the same district. Indeed, most British Columbians have never heard of the Bullion Pit, although it is well known to mining experts.

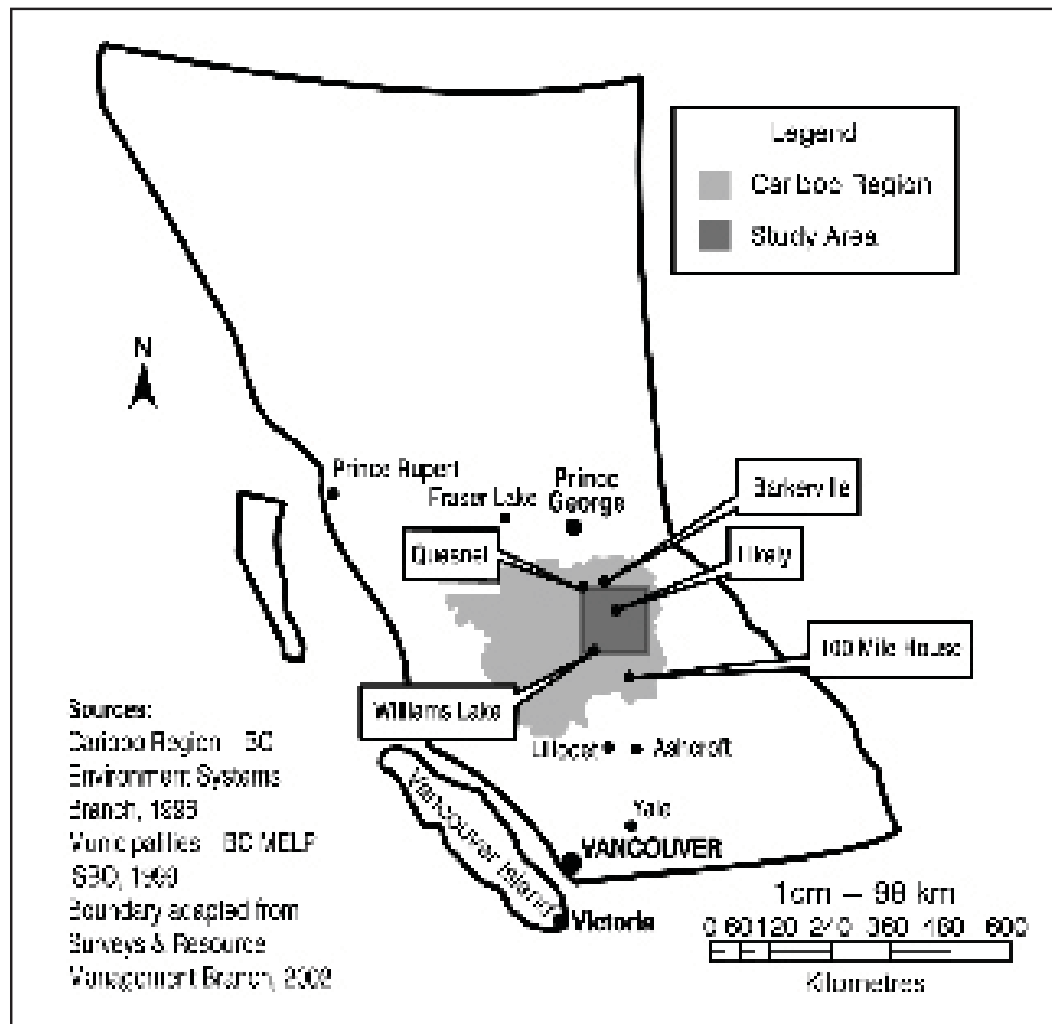
The first objective of this article is to provide an overview of the Bullion Pit's history and, in doing so, describe a case that has not been well documented to date. The second is to explore, in a non-revisionist way, some of the ecological aspects of the case. Since the Bullion Pit has not been worked on a large scale for decades and its recovery has largely been left to natural forces, it offers a sort of laboratory in which to consider an historical process of rapid disturbance followed by slow geological recovery. In the latter respect, the Bullion Pit case is not unique, but its large scale and remoteness combine to make it an interesting case. In researching the Bullion Pit, the authors made several visits to the mine and area and reviewed available government records.

In tracing the history of the Bullion Pit,¹ we are guided by two main questions:

- Why are some significant resource-use cases so much more obscure than others?
- Why is this particular case less well known than others?

We begin with the story of the Bullion Pit, in regional and historical context.

Canada's westernmost province of British Columbia covers a vast area, nearly 950,000 kilometre² (366,000 square miles). Most of the population, which has just reached four million, lives, however, in the southwest part of the province; the northern two-thirds contain only about ten percent of its residents. Just below the midpoint of the province, in



Map 1. Selected towns and mining communities in British Columbia.

the Quesnel-Williams Lake area, is the Cariboo region, a region of lakes, forests, and mountains (see Map 1). Highway 97, the province's main north-south artery, connects a string of large and small towns between 100 Mile House and Prince George, of which the largest are Quesnel and Williams Lake, but outside the highway corridor the land is mostly wilderness, with some ranches and a few small villages dotting the landscape.

First Nations people have lived here for millennia, and Europeans came to the region at the end of the eighteenth century—Alexander MacKenzie's famous trip from "Canada by Land" of 1793 went through part of this country, and soon there were a number of fur trade posts operating throughout the area. The district was pioneered not from the west, from the ocean, but overland, from the east. Although settlement began on Vancouver Island soon after the Oregon Treaty of 1846, it was at first limited to a small colony at Victoria. Surprisingly perhaps, the first major incursion

of Europeans on to the mainland was not at Vancouver (which was not founded until the railway reached the coast in 1885), but inland. The lure was not rich land, but gold.

The mountains of western North America have seen a number of gold rushes, beginning with the California rush of 1849, and gradually spreading north up the mountain chain, as prospectors worked the creeks and rivers for alluvial, or placer gold. Gold was found in Washington State in 1855 at Fort Colville, and two years later discoveries were made on the lower Fraser River and its tributaries. In 1858 important discoveries were made in the region around Yale, and by the summer of that year more than twenty thousand people had arrived, mostly by boat from San Francisco. Yale flourished briefly, then shrank to a village, but remained famous for its gold rush history. Hundreds of miners then pushed north up the Fraser valley in search of more gold, and in 1860, important discoveries were made in the Cariboo region, around Quesnel Forks, Keithley Creek, and Antler Creek. In 1869 another important discovery was made on a tributary of the Omineca River. The best known discovery was made in 1862 on Williams Creek, when Billy Barker found gold and founded the community that now bears his name. Barkerville is the most famous not so much because it was the first or the richest gold mining town, but because it lasted long enough as a community to be turned into a tourist attraction that has become synonymous with gold mining in the Cariboo.

The development of the region as a series of mining communities was astonishingly rapid. In 1857 there were no Europeans in the Cariboo except a handful of fur traders; six years later there were tens of thousands. To serve them, and to keep order in the gold fields, the British government built the Cariboo Trail to connect the north-central region with the coast



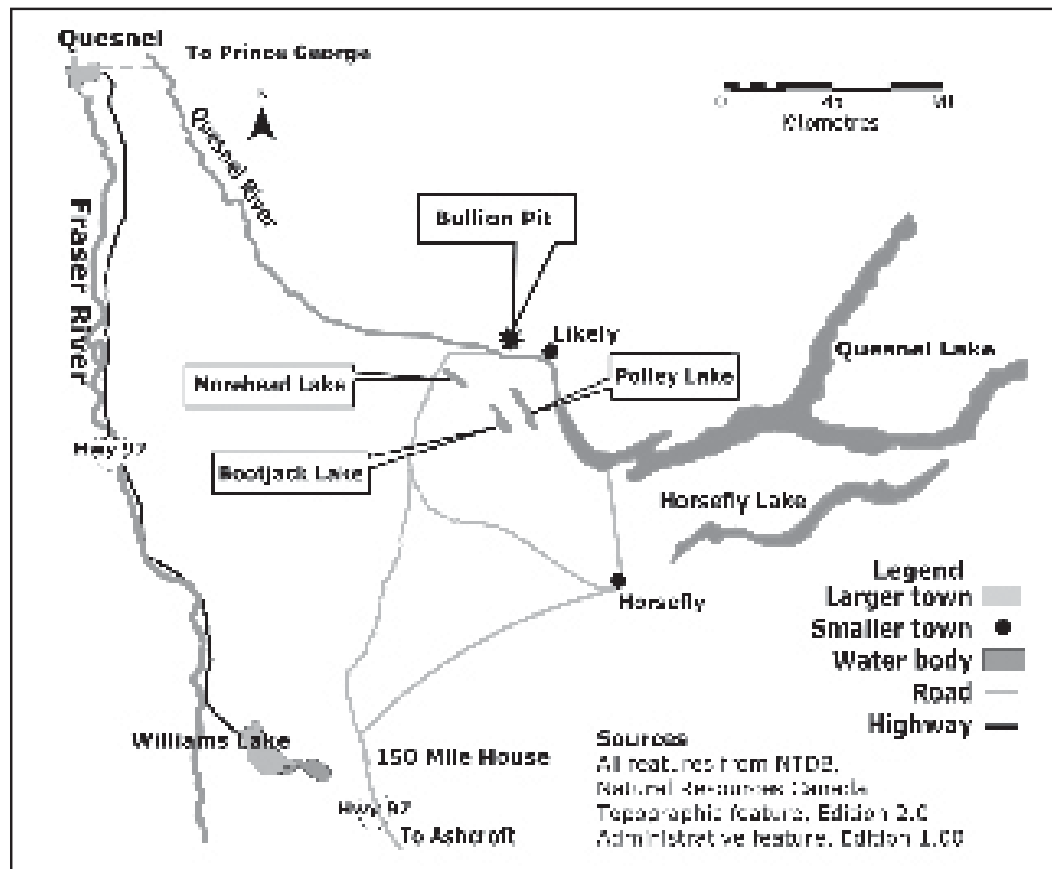
Figure 1. Freight wagons owned by Guggenheim Bullion Mine on the Cariboo Trail, [c. 1900]. BC Archives Acc. 193501-001. Used with permission.

through Lillooet, and later with the lower Fraser Canyon (see Figure 1). The trail, really a road suitable for heavy wagons, was 530 kilometre long, and remains itself an important historical artifact. Production peaked early, in 1863, and the gold seekers moved on, finding new deposits near Dease Lake in 1873 and in the Yukon in 1896, but gold continued to be mined in the Cariboo using hydraulic mining, a technique that was introduced before 1880. The usual pattern of exploitation was first placer mining by hand, which was very labour intensive, and was feasible only when deposits were rich, then hydraulic mining, which was much more capital intensive but required far less rich deposits to make it pay. Next in some places dredges were used; these were even more expensive but could turn a profit with a few cents worth of gold in a ton of dirt and gravel. Finally there was a period when the diggings were reworked, typically in the nineteenth century by Chinese workers, though even now, if the price of gold goes high enough, the old grounds still attract attention.

The original gold fields were highly productive. It is estimated that in the first three years, 1857-59, the Fraser River produced \$1.7 million worth of gold. This is a huge sum, difficult to compare to today's money. The price of gold is now twenty times what it was then, but it is probably more significant to know that an ordinary labourer employed all year (which few were) would be lucky to earn three hundred dollars. \$1.7 million of gold was equivalent to a full year's wages for 5,600 men, and this was just the first three years.² Hill's Bar, just below Yale on the Fraser, alone eventually produced \$2 million worth.

The most famous gold mining community in the Cariboo was the town of Barkerville, at the end of the Cariboo Trail, now accessible by a good highway running about ninety kilometre east of Quesnel. It is claimed that it was once the largest city in North America west of Chicago and north of San Francisco, a claim that if true (the same is said of a number of other places) must have been so for only a short time in the early 1860s. Nevertheless, it produced substantial amounts of gold well into the twentieth century. The region continues to be productive, and has thus avoided the status of ghost town long enough to be re-born as a tourist attraction, a kind of Dawson City south, attracting thousands of visitors each year. But there were many other important mining communities in the region, most of them much less well known, and one of the most impressive of them is the Bullion Mine.

The Bullion Mine, or Bullion Pit, is located in the middle of the Cariboo region, five kilometres east of the village of Likely, which was named after one of the mine's operators (see Map 2). Likely, population about two hundred, is at the end of a paved road about a hundred kilometres northeast of Williams Lake, and the Bullion Pit is a few hundred meters



Map 2. Quesnel-Williams Lake region showing the location of the Bullion Pit.

from this road. The mine's location is indicated by a small weathered sign that says "Pit," its size and condition suggesting a site of only local interest, not an important tourist attraction. The village, which is at the east end of Quesnel Lake, is described in a promotional website as "the Eldorado and Shangri-la of the Cariboo,"³ and it is indeed in an enchanting location. Quesnel Lake, which is a forked fiord about a hundred kilometres long, is spectacularly beautiful, with clear water and lovely mountain views in the distance to the east. It is claimed (how promoters love these superlatives) that it is the deepest fiord-lake in the world; a sounding has yielded a depth of 601 metres (2,000 feet).

Not far from Likely, at the junction of the two branches of the Quesnel (originally Quesnelle, named after a fur trader) River, is the ghost town of Quesnel Forks. Like the mine, it is not well known outside its area; its location is indicated by a small weathered sign that tempts the tourist to venture down a dirt road to find it. Founded in 1859, it was the region's first great gold rush town, and had a population of about three thousand in the 1860s, the majority of whom were Chinese miners, the last of whom died as late as 1959. It even had a Tong House, which was still (barely) stand-

ing in 1996. As befits a ghost town it is a haunting, tranquil place. The river rushes by a flat, grassy area where there are a few log buildings in various stages of decay and restoration. There is a space for campers, and even a small outdoor beer garden built by friends in memory of a local resident. The most interesting feature is the graveyard, which has been restored by the Likely historical society, and which contains several graves of men who died violently, some at the Bullion Mine.



Figure 2. Glory hole at Bullion Mine, 1946. BC government photograph. BC Archives, Acc. 199003-004. Used with permission.

The Bullion Pit, however, is, though impressive, far from lovely. Or perhaps it does have beauty, coming from its starkness; like some other post-industrial landscapes, it is dramatically impressive rather than conventionally pretty. It is a huge scar in the earth, a chasm, 120 metres (400 feet) or so in depth, twice that in width, and about 1.6 kilometre long, the result of what was once (another superlative) proclaimed to be the largest hydraulic placer mine in the world (see Figure 2). In all, some 200 million tonnes (220 million tons) of material were washed away to create it, and although it has been sixty years since the last large scale mining was done on the site, it looks as raw as though it had been created yesterday. The sides are very steep, and constantly eroding; uprooted trees lie halfway down its slopes.

Gold was found on the site in the 1870s and was first worked on a small scale by Chinese miners. In 1894 it became a large-scale operation, and it continued to be worked on and off by a number of different owners until 1942. There was at one time a large camp associated with it; in 1902 there were about thirty-five buildings, including bunkhouses for 120 workers, a hospital, store, slaughterhouse, manager's residence, stables, a blacksmith's shop, a powder house (for explosives) and a number of other buildings. All were abandoned in 1942, and it is interesting to see the results of

sixty years of cold and wet on frame buildings; the camp site consists of piles of rotten lumber lying in disarray on the original foundations. Most of the paint, which was red, has weathered away, and the only building still partly standing is a rather elaborate privy. The extensive ditching system that was built in the 1890s to bring water for the hydraulic operations is still there, though much overgrown with bushes and small trees, evidence of an impressive amount of hand labour (see Figure 3).



Figure 3. Men working at the Bullion Mine, Quesnel Forks, c. 1900s. BC Archives, Acc. 193501-001. Used with permission.

Hydraulic mining, a technique developed in California after the 1849 gold rush, is a more sophisticated form of simple placer mining. The basic form of placer mining involves washing gold-bearing material through a sluice box, typically a wooden trough eight or ten feet long, with riffles (low narrow pieces of wood) placed crossways to the flow of water. The gold, being heavier than the dirt and gravel, sinks to the bottom of the sluice box and is trapped in the riffles. Every so often the flow of water is stopped and the gold scraped off the riffles. Hydraulic mining is a larger scale version of this process. With simple placer mining, the gold-bearing material is dug with shovels into the sluice box (in the Yukon, this was done during the winter), but hydraulic mining employs jets of water under high pressure to wash away the overburden. This, in turn, requires a good supply of water, which, in the case of the Bullion Mine, was provided through damming local lakes and feeding the water through long ditches. At the Bullion Mine, explosives were also used to break up the ground preliminary to the hydraulic operations.

Hydraulic mining is impressive to watch, and films taken at the Bullion Mine in the late 1930s show the scale of the operations. The water was directed at the overburden through a “monitor”—a large cast iron nozzle on a

pivot, counterweighted at the rear to enable a single man to operate it. The terrific force of the water is vividly shown in a shot of a man sitting on the monitor; he is throwing rocks that must weigh thirty kilos into the stream emerging from the front of the monitor and, instead of falling through the stream, they are being hurled forward like rifle bullets. Thousands of cubic metres of mud and gravel could be washed away in a fairly short time.

As well as being impressive, however, large-scale hydraulic mining, or "hydraulicking," as the miners called it, was often spectacularly damaging to the environment. One astonished observer recorded its effect on a California hillside:

The effect of this continuous stream of water coming with such force must be seen to be appreciated; wherever it struck it tore away earth, gravel and boulders...[it] is not an aesthetic pursuit; the regions where it is practised may be, before the miner's advent, like the garden of the Lord for beauty; but after his work is completed, they bear no resemblance to anything, except...chaos.... It is impossible to conceive of anything more desolate, more utterly forbidding, than a region which has been subjected to this hydraulic mining treatment.⁴

It is not known who discovered gold on the site of the Bullion Mine, nor exactly when, although it is very likely that the discoverers were Chinese miners. Large scale operations, however, began in 1894, when the property was bought by J.B. Hobson, a mining engineer, on behalf of the Cariboo Hydraulic Mining Company. The first order of business was to secure a water supply for mid- to late-season work (early-season work was done using spring runoff and water from nearby creeks). Two nearby lakes, Polley and Bootjack, were dammed at their outlets to raise their levels, then seventeen miles of ditches were dug to bring their water to the Bullion site. Though called ditches, they were really more like small canals, six or seven feet deep and of a similar width. These produced enough water to operate the mine twenty-four hours a day from the end of April until August. After that, until the end of October, when operations ceased for the winter, it was run only a few hours a day, but further ditching and damming was planned to make longer days possible in the late summer and fall. Eventually Morehead Creek was dammed, creating the present-day Morehead Lake, and another ditch eleven miles long was dug to bring its water to the mine. The gold-bearing ground lay under a thick clay overburden, which added considerably to the cost of mining, and required massive quantities of water, and apparently some blasting powder, to get rid of it.

A great deal of information on the Bullion Mine was printed in the Annual Report of the Provincial Minister of Mines. The first real description of the Bullion Mine appeared in the report for 1897, in which it was stated that the property consisted of eight mining leases totalling about 446 acres, on

the western side of the south fork of the Quesnel River, extending about 1.7 miles back from the river, about three miles from the town of Likely (then called Quesnelle Dam). The gold-bearing gravels were deposited along an ancient riverbed, with the gravels deep beneath a layer of clay. The heavy clay needed water under high pressure to wash it away, and thus the major start-up cost for the mine was the construction involved in securing a supply. An additional cost arose from the fact that the site was sixty miles from the Cariboo wagon road, and the heavy equipment had to be brought in over primitive forest roads. In 1894, when the mine was being developed, the nearest rail head was at Ashcroft, three hundred kilometres to the south. It was not until the Grand Trunk Pacific railway came through Prince George to the north that there was a railway any closer, and not until the 1920s that the region had roads good enough to carry heavy truck traffic.

By 1897 the company had built twenty-one miles of ditches, all dug by hand of course, and two years later the ditching system was complete, with thirty-three miles having been built. Twelve cabins had been built along the ditches for the use of the men who operated the gates at the reservoirs and who kept the ditches in order. These cabins were connected to the main camp by a private telephone system, which extended throughout the mine property, and which permitted the manager to give orders to regulate the flow of water. Although hydraulic operations ceased with the onset of winter, the company kept thirty men working throughout the winter. One task was building sluice boxes. The boxes were made of two layers of lumber, and were seven feet wide and four feet deep. A total of 2,380 feet of them were in use, which must have taken a crew of men a fair time to build.

In the 1899 mining season, the company focused on the site, which the original Chinese miners had worked in the 1870s, reworking the original tailings and hydraulicking fresh ground. Over \$92,000 worth of gold was recovered. The company discharged its tailings into the South Fork of the Quesnel River, by no means a minor stream, so much so that they dammed it, preventing another company working nearby from getting enough water to operate.

The mine's first full year of operation was 1900. It was then that the immense system of reservoirs and canals was fully used. The area of watershed captured by the mine was over sixty square miles in total, including three lakes, one of which (Morehead Lake) had been created by the mine. The total reservoir capacity was just over a billion cubic feet of water. The cumulative ecological impact of this part of the undertaking has never been assessed, but by any measure it was extensive. In hydrological terms it was vast, since it was said that at its peak the mine used more water every day than did the city of Vancouver. The value of gold recovered that year was \$350,000, and would have been more, but for the bad state of the roads,

which prevented a delivery of explosives from Ashcroft for over three weeks at the height of the season. In fact, the amount of gold recovered varied widely from year to year, not so much because there was more in one place than in another, but because of the amount of water available for hydraulic operations was so variable. In dry years much less mining could be done; in 1903, for example, the mine operated for only about two months.

Some years a great deal of gold was recovered, and in other years much less. Some figures for its early years are shown at right. When reading these figures it should be helpful to remember that gold is now worth about twenty times what it was in 1900, so that the figure of \$142,000 for 1901 would be equivalent to about \$3 million today. Of course labour costs and those arising out of environmental regulations are also hugely higher now, so it is difficult to compare the costs and rewards of operating mines then and now. However, the fact that between 1899 and 1905 \$1.23 million of gold (and some silver and platinum) was extracted, worth about \$25 million today, highlights the economic significance of the enterprise.

	Value of gold recovered from the Bullion Pit
1899	\$ 92,678
1900	350,000
1901	142,273
1903	44,943
1905	21,733

Another notable feature of the operation of the Bullion Mine was the frequency with which the property changed hands. It was owned for a time by the Guggenheim Company of New York, which was also a major operator in the Yukon's Klondike region, but it had so many different owners that it is difficult to keep track of them all. This situation, plus the shortage of water, caused the mine to close from time to time. From 1909 to 1913 it did not operate, due apparently to decreasing returns and management difficulties. It opened again in 1914, but closed again that year, remaining closed until 1921, this time apparently due to litigation over ownership of the property. Opening briefly in 1921, it again closed until 1926.

Sporadic work was done on the property throughout the late 1920s, mostly on improving the water supply, and it continued to change hands. It must have been a great consumer of investment capital, with little return on investment in quite a number of years. It operated throughout most of the 1930s, employing between forty and seventy men. It finally shut down for good as a large capital-intensive operation in 1942 when the gold deposits became too thin to show a profit. The British Columbia government estimated that the mine, over its lifetime, had produced 175,644 ounces of gold, worth about \$70 million at the current price of gold. The reason that the mine changed hands so often seems to have to do with undercapitalization—when the gold ran out, temporarily, and large amounts of overburden had to be shifted, substantial amounts of money had to be poured in

until more gold was found, and small operators could not afford to do this (though the Guggenheims certainly could). This is why the mine was eventually shut down: after a string of profitable seasons, the “lead” of gold being mined in 1941 ran out, and the mine’s operator, believing that he knew where the gold-bearing gravel was leading, put a large sum into clearing overburden in a new direction. When he was proved wrong about the gold, the mine simply ran out of money and closed. Since there are still traces of gold in the pit, it continues to be worked sporadically on a small scale.

Before its final closure, the Bullion Mine played an important part in the mining economy of the province, particularly for the northern part. The government agents who reported on its operations often used superlatives, claiming at one point that it was one of the largest hydraulic operations in the world. It certainly was the largest one in the province, if not in Canada. In the years when the mine was not operating, the agents lamented the loss to the provincial economy. The agents did not base their reports on first-hand inspections, since these were not required by provincial regulations; instead, they relied on reports submitted by the mine managers, or sometimes just on oral information supplied by workers or other operators in the region. In keeping with the prevailing practices of the day, no restoration was required when large-scale mining was discontinued on the site.

An observer today standing (carefully) on the brink of the Bullion Pit might well be tempted to fall into the historical sin of “presentism”—that is, judging the past by the standards of the present—and ask how the British Columbia provincial government could have permitted what seems to be such an abuse of the environment. But it did not seem a desecration when the mine began operations in 1894. Not only the miners, but also the officials and virtually everyone else would have seen the pit as only a small scar in a vast landscape with limitless resources. One huge ugly hole more or less made no substantial difference. The mine’s owners were obliged to tell the government what they were doing, but the process was all fairly informal, and the Bullion Mine seems never to have been hindered in its operations by any directive or regulation from the government. Equipment of value was presumably removed and sold, the metal pipes sold for scrap, the buildings left to rot, and the great chasm caused by hydraulic mining left to scar the land.

Discussion

The fact that the story of the Bullion Pit has not been documented to nearly the degree of other cases leads us to venture several observations. First, relatively few people were affected directly by the mine over its history; in that context, its relative obscurity is unsurprising. Although the operation caused extensive ecological impact, it was not accompanied by social and

economic transformation (as, for example, was the case with the Yukon Gold Rush) and lacked the vivid human angles necessary to capture the imagination of researchers and writers. The operation of the Bullion Pit was capital intensive, but it did not engage or displace the large numbers of people that the more famous gold rushes did. It relied mainly on hydraulic technology and was a more contained and controlled development process than a gold rush, lacking pandemonium and dramatic adventure.

The Bullion Pit's cumulative ecological impact, while extensive, has not necessarily made it more interesting to historians. At least in this case, the magnitude of the ecological impact seems to be less compelling because it occurred at a relatively gradual pace. Slowly but steadily, the Bullion Pit was mined to its present dimensions—a local mega-project developed over decades. It is a notable ecological story in retrospect, but it lacked any single distinguishing event or aspect that would have made it famous beyond its region. Even its claim to have been one of the largest hydraulic mines in the world appears to have generated little interest outside the mining community and the province of British Columbia. From an engineering standpoint, there was nothing innovative about hydraulic mining at the time, so the technology used would not have been notable or highly newsworthy.

The project was not especially controversial at any point in its history. Clearly, this is largely attributable to its location—still a relatively remote place—and to a lack of competing resource users in the area. The clogging of the Quesnel River from the mine's operation might have been expected to cause a regional uproar, but that does not appear to have happened. The tone of the Canadian Broadcasting Corporation documentary about the Bullion Pit, filmed in the early 1960s, is, predictably, purely nostalgic, with no sense of dismay at the environmental damage that was occurring in front of the camera as the clips from the 1930s were shown.

A potentially notable history case may be drowned out or obscured by a neighbouring case. Barkerville, as discussed earlier, is justifiably famous and is synonymous with gold mining in the Cariboo. But it is also true that considerable public and private investment has been made to develop Barkerville as a provincial park and tourist town. Even great stories run the risk of fading if they are not maintained, and Barkerville has stayed on the map largely through this investment. The efforts made to document the story of the Bullion Pit and the nearby ghost town have been left to dedicated local historians, and are very modest by comparison.

A number of other factors appear to have played a role in keeping the story relatively obscure. Its timing worked against it: the operation began about forty years after the gold rush at Yale, making the discovery of gold, if not quite old news, certainly less electrifying. Then, of course, in 1896, two years after it opened, whatever resonance it might have had with the

public was drowned out by the vastly more important discoveries in the Yukon. The enterprise essentially stopped two or three decades before the first wave of modern environmentalism. The intermittent operation of the mine also worked against it becoming a sustained story. The financial gains were gradual and not the sort of bonanza that would fire the public's imagination. The work was labour intensive (thirty-three miles of ditches dug by hand or with rudimentary machines) but not particularly colourful—there was no Chilkoot Pass to negotiate, no Dangerous Dan McGrew shot in a saloon or Sam McGee poetically cremated. Hydraulic mining, for its part, is a tedious, repetitious process that does not make for great storytelling. Another reason may be that when the mine was in operation, there was no injured party to complain, raise a fuss, and sue—no one with ruined crops or poisoned wells to make the mine a public issue.

Considering all these factors, it is not surprising that the Bullion Pit has not been a focus of attention for historians. Largely forgotten in the public imagination, and seldom visited, it is nevertheless a fascinating place. It juxtaposes, on a large scale and more starkly than most places, the speed and intensity of human adventure with the quiet, methodical work of geological processes.

About the Authors

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Endnotes

1. Statistics on mining activity at the Bullion Mine are taken from Province of British Columbia, Annual Report of the Minister of Mines (Victoria: King's Printer, 1893-1942). On the subject of western mining in general, including hydraulic mining, see R.L. Kelley, *Gold vs. Grain, The Hydraulic Mining Controversy in California's Sacramento Valley*; A Chapter in the Decline of the Concept of Laissez Faire (Glendal, CA: A.H. Clark, 1959); R.V. Francaviglia, *Hard Places: Reading the Landscape of America's Historic Mining Districts* (Iowa City, IA: University of Iowa Press, 1991); P.R. May, *Origins of Hydraulic Mining in California*

(Oakland, CA: Holmes Book Co., 1970); Randall E. Rohe, "Hydraulicking in the American West: The Development and Diffusion of a Mining Technique" in *Montana: The Magazine of Western History*, Vol. 35, No. 2 (Spring 1985), 18-35.

2. "History of Gold Mining on the Fraser River," reprint of pages 23-24 of the *British Columbia Department of Mines Bulletin No. 21, 1947*, originally available <http://www.acornwebsales.com/gold/frahist.htm> (September 2002). The web site has since disappeared.
3. <http://wlake.com/hicks/likely.html> (February 2003). The web page has since disappeared.
4. Quoted in Duane A. Smith, *Mining America: The Industry and the Environment, 1800-1980* (Niwot, CO: The University Press of Colorado, 1993), 6.