

Notes for Silver Lake Basin: A Mining Chronicle

By Larry Godwin

1 Eric Twitty, Historic Mining Resources of San Juan County, Colorado (Washington, DC: U.S. Dept. of the Interior, National Park Service, revised Mar. 1992), 5.

2 Sometimes misspelled "Arastra." An arrastra was a primitive device early prospectors used in the San Juan area around 1871 to crush gold ore. It consisted of a horizontal wooden wheel anchored to the ground by a capstan at the center. Donkeys tied to the wheel slowly turned it in a circle to accomplish the task.

3 Bedrock is the solid rock that underlies loose material, such as soil or clay.

4 Eric Twitty, Basins of Silver (Lake City, CO: Western Reflections Publishing Co., 2009), 70.

5 Twitty, Basins of Silver, 70.

6 Frederick Leslie Ransome, A Report on the Economic Geology of the Silverton Quadrangle, Colorado (Washington, DC: U.S. Geological Survey, 1901), 20.

7 Twitty, Basins of Silver, 70.

8 Allen Nossaman, Many More Mountains, Volume 3: Rails into Silverton (Denver, Sundance Publications Ltd., 1998), 325.

9 Not to be confused with the one of the same name in Royal Tiger Basin to the east.

10 Eric Twitty, Basins of Silver, 89.

11 Cornices are masses of rock projecting over a mountain ridge.

12 Ransome, A Report on the Economic Geology, 147, 150. The Silver Lake Lode, varying from six to twenty feet inwidth, passes under Silver Lake and is probably continuous with the lode of the Royal Tiger Mine.

13 Twitty, Basins of Silver, 122. A surface plant consisted of a shaft collar or tunnel portal to access the underground workings; blacksmith, and often machining and carpentry shops, where tools and equipment were maintained and fabricated; a means, usually involving ore cars, of transporting materials into and waste rock out of the workings; a ventilation system to draw foul air from the workings; and a storage dump area for waste rock.

14 Twitty, Basins of Silver, 122.

15 A sampling works, or sampler, was a combination assay house, smelter, and ore buyer. It specialized in providing assays, testing batches of complex ore to identify the best treatment methods, and buying small lots from producers that needed immediate income. At the sampler, workers segregated the purchased ore into piles by composition and when enough of a single type had accumulated, they smelted the batch in a custom run.

16 Twitty, Basins of Silver, 123.

17 Twitty, Basins of Silver, 123.

18 Twitty, Basins of Silver, 135.

19 Twitty, Basins of Silver, 138.

20 <http://www.infoplease.com/encyclopedia/history/sherman-silver-purchase-act.html>, accessed July 2015.

21 Twitty, Basins of Silver, 146.

22 Twitty, Historic Mining Resources ,73.

23 Karen A. Vendl and Mark A. Vendl, Mines around Silverton (Charleston, SC: Arcadia Publishing, 2015), 34.

24 Twitty, Basins of Silver, 147-148.

25 Ransome, A Report on the Economic Geology, 149.

26 Twitty, Basins of Silver, 149.

27 A mill was a building in which complex machinery reduced or concentrated raw ore for smelting.

28 Ransome, A Report on the Economic Geology, 40, 156.

29 Drill steels were implements miners underground struck with hammers to chisel ore-bearing rock.

30 Twitty, Basins of Silver, 149.

31 Slurry is a thin mixture of water with a fine, insoluble material.

32 Ransome, A Report on the Economic Geology, 94.

33 Twitty, Basins of Silver, 151.

34 Tailings were waste products from milling (not mining).

35 Renee Vardy, The Study of the Effect of Long-Term Water Cover on the Mill Tailings of Silver Lake Mill #1, near Silverton, Colorado (Unpublished Master of Science Thesis, Wichita State University, 2009) 39.

36 Twitty, Basins of Silver, 152.

37 Ransome, A Report on the Economic Geology, 149.

38 Colorado legislators had recently carved San Juan County out of La Plata County.

39 Twitty, Basins of Silver, 153.

40 Twitty, Basins of Silver, 160.

41 Twitty, Historic Mining Resources, 83.

42 Twitty, Basins of Silver, 147, 171, 173.

43 Twitty, Basins of Silver, 166.

44 Ransome, A Report on the Economic Geology, 156.

45 Twitty, Basins of Silver, 172, 174-175.

46 Twitty, Basins of Silver, 174.

47 Twitty, Basins of Silver, 329.

48 Twitty, Basins of Silver, 174.

49 An adit was a horizontal mine entrance.

50 Twitty, Basins of Silver, 177.

51 Twitty, Basins of Silver, 170.

52 A tramway was an aerial, usually gravity-driven means for transporting ore. It consisted of one or two wire ropes suspended over a series of towers. Its contemporary counterpart is the motor-driven ski lift. The Bleichert system, named after its inventor, featured two wires: a stationary track cable fixed to the tower tops, and a lower traction cable that pulled buckets clamped to it and ran in an endless, closed loop.

53 Robert A. Trennert, *Riding the High Wire: Aerial Tramways of the West* (Boulder, CO: University Press of Colorado, 2001), 67.

54 Twitty, *Basins of Silver*, 170-173.

55 Twitty, *Basins of Silver*, 176.

56 Vendl and Vendl, *Mines around Silverton*, 37.

57 Mark A. Vendl, Duane A. Smith, and Karen A. Vendl, *My Home at Present* (Lake City, CO: Western Reflections Publishing Co., 2013), 10-11, 105, 107.

58 Vendl, Smith, and Vendl, *My Home at Present*, 107.

59 Twitty, *Basins of Silver*, 176.

60 Twitty, *Basins of Silver*, 178.

61 Ransome, *A Report on the Economic Geology*, 156.

62 A stope was an area worked vertically between two mine levels.

63 Twitty, *Basins of Silver*, 197.

64 Ransome, *A Report on the Economic Geology*, 156.

65 T. A. Rickard, *Across the San Juan Mountains* (Ouray, CO: Bear Creek Publishing Co., 1980), 66-67. Rickard wrote the book in 1902

66 Twitty, *Basins of Silver*, 193.

67 Twitty, *Basins of Silver*, 203.

68 Twitty, *Basins of Silver*, 187.

- 69 Twitty, Basins of Silver, 205, 211.
- 70 Ransome, A Report on the Economic Geology, 160.
- 71 Not to be confused with the mine of that name on the east slope of Hazelton Mountain
- 72 To stope was to excavate vertically, extracting ore between two tunnel levels.
- 73 Twitty, Basins of Silver, 213, 215-217.
- 74 Ransome, A Report on the Economic Geology, 156.
- 75 Ransome, A Report on the Economic Geology, 161.
- 76 Twitty, Basins of Silver, 218.
- 77 Apparently around \$1,300,000 cash and the remainder in stock.
- 78 Twitty, Basins of Silver, 239.
- 79 Twitty, Historic Mining Resources, 99.
- 80 To pinch out is to diminish to the point it disappears.
- 81 Twitty, Basins of Silver, 242.
- 82 Twitty, Basins of Silver, 244.
- 83 Twitty, Basins of Silver, 220.
- 84 Twitty, Basins of Silver, 245.
- 85 Vendl and Vendl, Mines around Silverton, 43.
- 86 Twitty, Basins of Silver, 245-246.
- 87 Twitty, Basins of Silver, 254-255.
- 88 Twitty, Basins of Silver, 252.
- 89 Twitty, Basins of Silver, 256.
- 90 Twitty, Basins of Silver, 257.

- 91 Twitty, Basins of Silver, 258.
- 92 Twitty, Basins of Silver, 259-261.
- 93 Twitty, Basins of Silver, 245-247.
- 94 Twitty, Basins of Silver, 247.
- 95 Twitty, Basins of Silver, 247.
- 96 Twitty, Basins of Silver, 261.
- 97 Twitty, Basins of Silver, 262.
- 98 A hanging wall was the mass of rock overlying a mineral lode.
- 99 Free gold is that found in a pure state, not combined with other minerals.
- 100 Twitty, Basins of Silver, 262-264.
- 101 Twitty, Basins of Silver, 277-278.
- 102 Twitty, Basins of Silver, 279.
- 103 Twitty, Basins of Silver, 279-280.
- 104 Twitty, Basins of Silver, 287-289.
- 105 Twitty, Basins of Silver, 290.
- 106 Twitty, Historic Mining Resources, 133 107 Twitty, Basins of Silver, 292.
- 108 Twitty, Historic Mining Resources, 134. 109 Twitty, Basins of Silver, 294-295.
- 110 Twitty, Historic Mining Resources, 134. 111 Twitty, Basins of Silver, 308, 323.
- 112 Twitty, Basins of Silver, 333-334.
- 113 Emil Fischer, "Map of Red Mountain and the Mining Region of San Juan, Ouray, San Miguel, and Dolores Counties, Colo.," Chicago: Rand McNally and Co., 1891.

114 Not to be confused with the mine by that name in Dives Basin nor the one located at the base of Sultan Mountain.

115 In his 1905 "Map of the San Juan Triangle," George Samuel Clason referred to this claim as the White Diamond whereas Emil Fischer, on his 1891 map, referred to it simply as the Diamond.

116 Twitty, Basins of Silver, 328.

117 Twitty, Basins of Silver, 342.

118 <http://www.co.pueblo.co.us/cgi-bin/webatrallbroker.wsc/atrpropertysearchall.html>, accessed July 2015.

119 Vardy, The Study of the Effect, v.

120 Vardy, The Study of the Effect, 43.

121 Vardy, The Study of the Effect, 46.

122 Cribbing was a timber framework that lined a mine shaft or, in this case, a steep slope, to contain loose rock.

123 <https://www.durangoutdoors.com/nearby-trails/arrastra-gulch-to-silver-lake.htm>, accessed July 2015.

124 Ransome, A Report on the Economic Geology, 145.

125 Terrance M. Kerwin, e-mails to the author, 12 April and 11 June 2015.

126 The Engineering and Mining Journal, 5 May 1906, 865.

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https://books.google.com/books?id=lgQcAQAAMAAJ&pg=PA271&lpg=PA271&dq=%22edward+G.+Stoiber%22+Gunnison&source=bl&ots=GGGY7dEqJw&sig=YqjNRzbniaaecPP0UDW2z_beMw&hl=en&sa=X&ved=0ahUKEWiy1rLJZPKAhXHMGMKHeoqCJAQ6AEIHDA#v=onepage&q=%22edward%20G.%20Stoiber%22%20Gunnison&f=false, accessed July 2015. This source reported Stoiber lived in Gunnison, Colorado, in 1883.