

necessary to put the entries in good order be immediately set, and to allow no blasting except at stated periods, when all the men except those actually needed to fire the shots are out of the mine. I also recommended an electric bell or gong in the steam engine house for the purpose of signaling. In case they continued to use steam for pumping purposes I recommended that the present steam pipe covering be removed, and, if the pipes must be covered to keep down condensation, to have them covered with an asbestos composition. I also suggested the use of compressed air for pumping purposes. I requested Mr. Hericke when ready to resume work and the aforesaid improvements were made, to notify me so that I might examine the general condition of the mine.

Our present mode of the detection of gas is too crude, and as there is now on the market a reliable and very sensitive mechanical instrument by which small percentages of gas in air may be detected (namely Shaw's Gas Testing Machine), I think the Mine Inspector should possess one so as to enable him to find the percentage of gas in the air currents of our gaseous mines and have the air currents regulated accordingly. Furthermore, every superintendent of a gaseous mine should have one of these machines so that daily tests can be made of the return air currents and a record thereof be kept in the local office.

In regard to the use of explosives I would recommend the following rules for use in dusty and gaseous mines:

First—The powder should be of that brand known as the least productive of flame.

Second—All holes should be drilled under the supervision of a competent person.

Third—All holes should be charged, tamped and fired by men selected for that purpose. The charge should be in accordance with the burden of the hole, etc., and the tamping should be of material not productive of flame. Before firing the surroundings should be carefully examined as to the presence of dust and gas.

Fourth—No shots to be fired or powder detonated anywhere in the mine except at a specified time, and all men to be out of the mine except those actually required for the purpose of firing.

LIST OF KILLED AT EXPLOSION AT VULCAN MINE.

No. 1. Ed. Welsh, aged 24; occupation, rope rider; nationality, American; hurt February 18, 1896, at 11:30 a. m.; died 1:45 p. m., February 18,

1896; married, no children; had a fractured skull, bled from both ears, burned about face and head; buried, New Castle; wife, two brothers and two sisters.

No. 2. Joe Dore, aged about 20; occupation, bell-boy; nationality, American; single; killed February 18, 1896, 11:30 a. m.; recovered February 19, 1896, 2:30 a. m.; buried, New Castle.

No. 3. Frank Simonsic, aged about 35; occupation carpenter; nationality, Prussian; single; killed February 18, 1896, 11:30 a. m.; recovered February 19, 1896, 3:30 a. m.; buried, New Castle.

No. 4. Able Dore, Jr., aged about 17; occupation, rustler; nationality, American; single; killed February 18, 1896, 11:30 a. m.; recovered February 19, 1896, 9:30 a. m.; buried, New Castle.

No. 5. Nick Ross, aged about 28; occupation, rustler; nationality, Italian; single; killed February 18, 1896, 11:30 a. m.; recovered February 20, 1896, 7:00 a. m.; buried New Castle.

No. 6. Wm. Dore, aged about 15; occupation trapper; nationality, American; single; killed February 18, 1896, 11:30 a. m.; recovered February 20, 1896, 7:00 a. m.; buried New Castle.

No. 7. Emile Funke, aged 13; occupation, trapper; nationality, American, German descent; single; killed February 18, 1896, 11:30 a. m.; recovered February 20, 1896, 7:00 a. m.; body shipped to Frontinac, Kansas.

No. 8. Robert Cottle, aged 21; occupation, miner; nationality, American; single; killed February 18, 1896, 11:30 a. m.; recovered February 20, 1896, 7:00 a. m.; body shipped to McAllister, Indian Territory. His father worked in the mine.

No. 9. James Harrison, aged 38; occupation, pit boss; nationality, English; married, leaves a wife and four children, two boys and two girls between ages of 12 and infancy; killed February 18, 1896, 11:30 a. m.; recovered February 20, 1896, 3 p. m.; body shipped to Rockvale, Colo. Was a Mason, Odd Fellow and K. of P.

No. 10. Toney Tapro, aged 23; occupation, loader; nationality, Italian; single; killed February 18, 1896, 11:30 a. m.; recovered February 20, 1896, 3:00 p. m.; buried New Castle. Has a mother here; belonged to Sons of Columbus.

No. 11. Jno. Gumbord, aged 30; occupation, loader; nationality, Austrian; single; killed February 18, 1896, 11:30 a. m.; recovered February 20, 1896, 3:00 p. m.; buried, New Castle.

No. 12. Chas. Merchant, aged 24; occupation, loader; nationality, American; single; killed February 18, 1896, 11:30 a. m.; recovered February 20, 1896, 3:00 p. m.; buried, New Castle. Father and mother in Rosaland, B. C., a placer camp.

No. 13. Christ. Brugger, aged 30; occupation, driver; nationality, German; married, leaves widow, no children; killed February 18, 1896, 11:30 a. m.; recovered February 21, 1896, 6:00 a. m.; buried New Castle. Was an Odd Fellow. Owned a ranch between New Castle and Glenwood Springs.

No. 14. Peter Becker, aged 25; occupation, loader; nationality, German; single; killed February 18, 1896, 11:30 a. m.; recovered February 23, 1896, 6:30 a. m.; buried New Castle.

No. 15. Anton Martino, aged 52; occupation miner; nationality, Austrian; single; killed February 18, 1896, 11:30 a. m.; recovered February 25, 1896, 9:45 a. m.; buried New Castle. Found snuff-box and menthol inhaler.

No. 16. Wm. Webb, aged 23; occupation, miner; nationality, American; married, leaves widow, no children; killed February 18, 1896, 11:30 a. m.; recovered February 25, 1896, 2:00 p. m.; buried, New Castle. Sam. Walters, his father-in-law, has charge of his effects.

No. 17. Sampson Jones, aged 38; occupation, pipeman; nationality, English; married, leaves widow and two infant children; killed February

18, 1896, 11:30 a. m.; recovered February 25, 1896, 2:00 p. m.; body shipped to Harvard, Illinois. Found one lamp key; watch found in Leadville, Colo.; "S. J." on back.

No. 18. Fred. Seigmund, aged 35; occupation, miner; nationality, German; single; killed February 18, 1896, 11:30 a. m.; recovered February 25, 1896, 3:00 p. m.; buried New Castle. Body badly mutilated.

No. 19. Daniel Morris, aged 34; occupation, miner; nationality, Welch; single; killed February 18, 1896, 11:30 a. m.; recovered February 25, 1896, 3:00 p. m.; buried New Castle. Wm. Trimble, of New Castle, appointed administrator of his estate; has brother in Wales.

No. 20. Jack Jenkins, aged 27; occupation, miner; nationality, American; single; killed February 18, 1896, 11:30 a. m.; recovered February 25, 1896, 3:00 p. m.; body shipped to Carbonado, Washington. J. W. Smart, New Castle, has charge of his effects.

No. 21. Fred. Rodensky, aged 40; occupation, miner; nationality, German; married, leaves widow and nine children in Gilchrist, Ills.; killed February 18, 1896, 11:30 a. m.; recovered February 25, 1896, 3:00 p. m.; buried, New Castle.

No. 22. Alex. Scaife, aged 17; occupation, miner; nationality, American; single; killed February 18, 1896, 11:30 a. m.; recovered February 26, 1896, 5:30 a. m.; buried New Castle.

No. 23. Angelo Petrie, aged 26; occupation loader; nationality, Italian; single; killed February 18, 1896, 11:30 a. m.; recovered February 26, 1896, 5:30 a. m.; buried New Castle.

No. 24. Robt. Steiger, aged 42; occupation, trackman; nationality, German; married, no children; killed February 18, 1896, 11:30 a. m.; recovered February 28, 1896, 3:00 p. m.; buried New Castle. Nick-named "Bicycle Bob." Found silver watch and \$130.

No. 25. August Mateve, aged 35; occupation, miner; nationality, Italian; married, old country; killed February 18, 1896, 11:30 a. m.; recovered March 1, 1896, 9:00 a. m.; buried New Castle. Belonged to American Order of Forresters; brother in Spring Gulch, Colo., named John; found \$7.00 in coin.

No. 26. Tim. Carney, aged 36; occupation, miner; nationality, Irish; single; killed February 18, 1896, 11:30 a. m.; recovered March 1, 1896, 9:00 a. m.; buried New Castle. Has brother, Peter Carney, at Cripple Creek, Colo.

No. 27. Andy Rolando, aged 30; occupation, miner; nationality, Italian; single; killed February 18, 1896, 11:30 a. m.; recovered March 1, 1896, 3:30 p. m.; buried New Castle. Belonged to Sons of Columbus.

No. 28. Jas. Ferineo, aged 35; occupation, miner; nationality, Italian; married, old country; killed February 18, 1896, 11:30 a. m.; recovered March 2, 1896, 9:00 a. m.; buried New Castle. Belonged to Sons of Columbus. Cousin, Peter Farineo, lives at New Castle.

No. 29. Louis Cinotto, aged 40; occupation, miner; nationality, Italian; married, old country; killed February 18, 1896, 11:30 a. m.; recovered March 3, 1896, 11:00 a. m.; buried New Castle. Belonged to Odd Fellows; found on body, lamp-key, \$26.00; trunk and effects in charge of Odd Fellows' Lodge at New Castle.

No. 30. Anton Petricio, aged 28; occupation, miner; nationality, Italian; wife and four children in Italy; killed February 18, 1896, 11:30 a. m.; recovered March 3, 1896, 3:00 p. m.; buried, New Castle. Has mother in New Castle; effects in charge of his cousin, James Gleese, New Castle.

No. 31. Joe. Otteno, aged 40; occupation, miner; nationality, Italian; married, wife and five children in New Castle; killed February 18, 1896, 11:30 a. m.; recovered March 3, 1896, 3:00 p. m.; buried New Castle.

No. 32. Gabriel Gleese, aged 34; occupation, miner; nationality, Italian; single, killed February 18, 1896, 11:30 a. m.; recovered March 3, 1896, 3:00 p. m.; buried New Castle. Found on the body, Vulcan pay check, \$63.58.

No. 33. Babtiste Chowkett, aged 28; occupation, miner; nationality, Italian; married, old country; killed February 18, 1896, 11:30 a. m.; recovered March 4, 1896, 5:30 p. m.; buried New Castle. Father in New Castle.

No. 34. Frank Russia, aged 30; occupation, miner; nationality, Italian; single; killed February 18, 1896, 11:30 a. m.; recovered March 4, 1896, 6:00 p. m.

No. 35. Dominic Ozzello, aged 24; occupation, loader; nationality, Italian; single; killed February 18, 1896, 11:30 a. m.; recovered March 3, 1896, 11:00 p. m.; buried New Castle. Found on his body, finger-ring and pocket-knife.

No. 36. Philip Recla, aged 28; occupation, miner; nationality, Austrian; single; killed February 18, 1896, 11:30 a. m.; recovered March 7, 1896, 4:00 p. m.; buried New Castle. Found on his person, Vulcan Fuel Co.'s statement for month of January, 1896; has brother at Sheppton, Pa., named R. Recla, general merchant.

No. 37. Jno Scaife, aged 45; occupation, miner; nationality, Welch; married, leaves widow and two children; killed February 18, 1896, 11:30 a. m.; recovered March 7, 1896, 10:00 p. m.; buried New Castle. Found silver watch and pocket knife.

No. 38. Peter Patrico, aged 35; occupation, miner; nationality, Italian; married; wife in Italy, one son and one daughter in New York, just landed; killed February 18, 1896, 11:30 a. m.; recovered March 8, 1896, 7:30 a. m.; buried, New Castle. Found on his person, one pocket book, filled with papers, and a lamp key; effects in charge of Jas. Gleese, at New Castle, his cousin.

No. 39. John Funke, aged 42; occupation, assistant pit boss; nationality, German; married, leaves wife and five children, two boys and three girls. Killed February 18, 1896, 11:30 a. m.; recovered, March 11, 1896, 5 a. m. Body shipped to Frontinac, Kan., care Henry Shurman.

No. 40. Dom. Rosetti, aged 24; occupation, loader; nationality, Italian; single. Killed February 18, 1896, 11:30 a. m.; recovered March 11, 1896, 5 a. m.; buried, New Castle. Sister, Mrs. Thos. Borghetti, at New Castle.

No. 41. Thos. Larrigan, aged ; occupation, fire boss; nationality, Scotch; married, leaves widow and two children at New Castle. Killed February 18, 1896, 11:30 a. m.; recovered March 11, 1896, 5 a. m.; buried, New Castle.

No. 42. Frank McGourty, aged 22; occupation, loader; nationality, American; single. Killed February 18, 1896, 11:30 a. m.; recovered March 11, 1896, 5 a. m.; buried, New Castle.

No. 43. David P. Davis, aged 28; occupation, loader; nationality, Welch; single. Killed February 18, 1896, 11:30 a. m.; recovered March 11, 1896, 5 a. m.; buried, New Castle. Has brother living in Wales. Effects in charge of Belonged to Odd Fellows.

No. 44. Thos. Addison, aged 25; occupation, loader; nationality, English; single. Killed February 18, 1896, 11:30 a. m.; recovered March 11, 1896, 9:15 p. m.; buried, New Castle. Belonged to Knights of Pythias. Myras Stephenson, Rouse, Colo., his brother-in-law.

No. 45. John Coughlin, aged 22; occupation, driver; nationality, American; single. Killed February 18, 1896, 11:30 a. m.; recovered March 11, 1896, 9:15 p. m.; buried, New Castle. Belonged to Knights of Pythias.

No. 46. Alphonse Baldis, aged 24; occupation, miner; nationality, Austrian; single. Killed February 18, 1896, 11:30 a. m.; recovered March 12, 1896, 4 a. m.; buried, New Castle.

No. 47. Peter Tapro, aged 30; occupation, loader; nationality, Italian; single; killed February 18, 1896, 11:30 a. m.; recovered March 12, 1896, 9:30 a. m.; buried, New Castle.

No. 48. Wm. Haggerty, aged 40; occupation, miner; nationality, Irish; married, leaves widow and two children, living on ranch a couple of miles northwest of New Castle; killed February 18, 1896, 11:30 a. m.; recovered March 15, 1896, 5 a. m.; buried, New Castle.

No. 49. Alex. Reno, aged —; occupation, miner; nationality, French; single; killed February 18, 1896, 11:30 a. m.; recovered March 15, 1896, 10 a. m.; buried, New Castle.