

by the Bureau of Mines. During the past fiscal year representatives of the bureau attended and investigated 77 accidents throughout the country, and in 22 instances the bureau's men wore breathing apparatus in rescue and recovery work.

On March 6, 1915, under the direction of the State mine inspectors of West Virginia, a rescue crew of the Bureau of Mines assisted a volunteer crew of the United States Coal & Coke Co. from Gary, W. Va., and local miners and officials of the New River & Pocahontas Consolidated Coal & Coke Co., in the rescue of 42 men imprisoned by an explosion at the Layland mine in West Virginia, on March 2. The work by the crew from Gary deserves the highest praise. On receiving news of the explosion the general superintendent, Edward O'Toole, at once sent the crew to Layland, 275 miles distant. The crew, consisting of 11 men, was in charge of the chief chemist of the United States Coal & Coke Co., Vitus Klier, and carried its own breathing apparatus and supplies.

There were two fatalities during the fiscal year among trained men wearing breathing apparatus. March 2, 1915, at Black Hawk, Utah, Grant S. Miller, a member of the Black Hawk Coal Co.'s rescue crew, was overcome while fighting a mine fire, and died in spite of courageous efforts of his comrades to save his life. May 24, 1915, at Johnstown, Pa., Gomer Phillips, captain of the Cambria Steel Co.'s apparatus crew, died while leading his crew in recovery work after an explosion in the Smokeless No. 1 mine.

During the past four years three rescue men of the Bureau of Mines, Joseph Evans, John Ferrell, and Edward Evans, have lost their lives while wearing breathing apparatus.

The bureau's engineers investigated the causes leading to the deaths of Grant S. Miller and Gomer Phillips, and the facts obtained emphasized the extreme care necessary in the use of all types of breathing apparatus.

Following are summarized accounts of 21 accidents in which lives were saved:

JULY 21, 1914, POWDER SMOKE IN BANOVICH SILVER MINE, NEAR TONOPAH, NEV.

Two men overcome by powder smoke at the bottom of a 95-foot shaft were brought out by two Bureau of Mines men from car 5. The rescuers descended the shaft, tied ropes under the armpits of the unconscious miners, and had them hoisted to the surface, where oxygen and artificial respiration were used for two hours. One miner fully recovered, but no sign of life appeared in the other miner.

AUGUST 1, 1914, FIRE IN MILBY DOW MINE, DOW, OKLA.

Following the fire, the top of the 40-foot shaft had been sealed for 30 days. A Bureau of Mines crew from McAlester, Okla., assisted by three company men, opened the fire area after six days' work, while wearing breathing apparatus. On the third exploration one apparatus man was overcome at the bottom of the slope, and the Bureau of Mines crew conveyed him to the shaft bottom (1,000 feet), where all were hoisted to the top in safety. This man's life was probably saved by the crew captain adjusting the breathing apparatus so as to supply more oxygen.

SEPTEMBER 1, 1914, EXPLOSION IN ROCKWOOD MINE, ROCKWOOD, TENN.

The explosion killed one miner, and another miner was overcome while trying to escape. An apparatus crew of four company men several hours later advanced 1,000 feet, rescued this miner, and carried him to fresh air, where he quickly revived.

SEPTEMBER 17, 1914, CAVE-IN AT CENTENNIAL GOLD MINE, EUREKA, UTAH.

Twelve men were imprisoned. One man was rescued by company men, who, in seven hours, drove drift 15 feet in country rock without shooting.

OCTOBER 5, 1914, EXPLOSION IN MULGA MINE, MULGA, ALA.

Sixteen men were killed and 12 were rescued by parties led by company officials.

OCTOBER 25, 1914, EXPLOSION AT PATTERSON No. 2 MINE, ELIZABETH, PA.

Following the explosion the superintendent and the pump man were overcome by afterdamp. A rescue party in charge of the mine foreman carried the unconscious men to fresh air. The superintendent soon recovered, but the pump man could not be revived. Breathing apparatus was not used.

OCTOBER 27, 1914, EXPLOSION AT ROYALTON MINE, ROYALTON, ILL.

Fifty men were killed; one miner was rescued by the Illinois State crew from the Benton rescue station.

NOVEMBER 8, 1914, FALL OF TOP ROCK AT WEST BROOKSIDE MINE, POTTSVILLE, PA.

Two men were imprisoned for four days, when they were rescued by a party led by company officials.

NOVEMBER 9, 1914, CAVE-IN AT SIBLEY IRON MINE, ELY, MINN.

Six men were entombed. One man was rescued after 112 hours by parties in charge of company officials.

NOVEMBER 28, 1914, POWDER SMOKE IN BONAR MINE, EAST BERNSTADT, KY.

Three men were overcome. They were rescued by the State mine inspector and the mine superintendent. One miner was revived by artificial respiration; the other two died.

JANUARY 4, 1914, CAVE-IN AT BLACK DIAMOND MINE, LUZERNE, PA.

Four miners were rescued after seven hours by parties in charge of company officials.

FEBRUARY 6, 1915, EXPLOSION AT CARLISLE MINE, CARLISLE, W. VA.

Twenty men were killed and four were rescued by parties in charge of company officials.

FEBRUARY 17, 1915, EXPLOSION AT PROSPECT MINE, WILKES-BARRE, PA.

Eight men were killed. Six others were burned, but were rescued by parties in charge of company officials.

FEBRUARY 26, 1915, EXPLOSION AT No. 18 WESTERN MINE, FRANKLIN, KANS.

A shot firer was badly burned, but was rescued by a party in charge of the mine superintendent.

MARCH 2, 1915, FIRE AT BLACK HAWK MINE, BLACK HAWK, UTAH.

The Bureau of Mines crew from car 2 and 28 company men worked with breathing apparatus for a total of 40 days and extinguished the fire after a hazardous fight. Grant S. Miller lost his life while wearing the apparatus during an exploration 1,120 feet from fresh air on March 2, and two other men were overcome. One of these was rescued and carried to the drift mouth by Bureau of Mines men, and the other man was rescued by apparatus men of the company.

MARCH 2, 1915, EXPLOSION IN LAYLAND No. 3 MINE, LAYLAND, W. VA.

The explosion occurred on the morning of March 2, resulting in the loss of 115 lives. On the morning of March 6, 42 miners were discovered behind barricades in the tenth left entry 7,000 feet from the drift mouth, having been imprisoned for four days. They were rescued by the Gary (W. Va.) apparatus men, Bureau of Mines apparatus men, the State mine inspectors, company officials, and volunteer rescuers from other mines.

MARCH 4, 1915, FIRE IN SPRING CREEK MINE, SPRINGFIELD, ILL.

The fire was extinguished by apparatus crews from the Springfield rescue station. Three men were overcome by the fumes, but were carried to safety by the Springfield apparatus men.

MARCH 17, 1915, EXPLOSION AT CITIZENS' "B" MINE, SPRINGFIELD, ILL.

Two shot firers were burned and overcome by afterdamp. They were rescued by a party in charge of the mine manager; however, both men died the following day.

APRIL 5, 1915, EXPLOSION AT SHOAL CREEK No. 1 MINE, PANAMA, ILL.

Eleven miners were killed, but two were rescued alive 15 minutes after the explosion by parties in charge of the company officials.

MAY 24, 1915, EXPLOSION AT SMOKELESS No. 1 MINE, JOHNSTOWN, PA.

Eight men were killed. In apparatus exploration that followed Gomer Phillips, rescue foreman of the Cambria Steel Co., lost his life. Another apparatus man was overcome, but was rescued by State mine inspectors, company officials, and Cambria Steel Co. officials, who accomplished some rapid brattice work and made a courageous rescue.

JUNE 10, 1915, RUSH OF MUD AND WATER INTO LONGACRE-CHAPMAN ZINC MINE, NECK CITY, MO.

Six men were imprisoned. Four were rescued alive after 120 hours of difficult work by company men, volunteers, State mine inspectors, and Bureau of Mines men. Two men found were dead on the fourteenth day following the accident.

ACCIDENTS INVESTIGATED DURING THE YEAR.

As shown by the following table, in the 77 accidents investigated by bureau employees there were 363 men killed, 1,177 escaped unassisted, and 107 were rescued through the efforts of volunteer miners, company officials, State mine inspectors, company rescue crews, State of Illinois rescue crews, and Bureau of Mines rescue crews.