

result of this survey has been published^{4/} with maps of the coal fields of the United States showing locations of quarries and giving names and addresses of companies operating quarries. The survey shows that limestone or gypsum is readily accessible to all the coal fields of the country; suitable rock-dusting material is more readily available today than when this survey was made.

INSTANCES WHERE ROCK DUST IS BELIEVED TO HAVE STOPPED OR LIMITED EXPLOSIONS

Notwithstanding the inadequacy of rock-dusting in most of the mines of the United States, numerous instances are on record indicating the well-founded basis of the claims regarding the effectiveness of rock dust in stopping the propagation of explosions.

Bureau of Mines records during the past 3 years show that in 60 rock-dusted mines where explosions occurred, rock dust is credited with stopping or limiting the explosions in 26 of them. In several instances the element of luck unquestionably was present, in that the explosion happened to occur in one of the few sections of the mine where rock-dusting had been done. No accurate figure is available on the number of lives saved in these 26 explosions, but it is almost certain that several hundred were saved and much property damage avoided because of the rock dust used in these mines.

CONCLUSIONS

1. Although the number of mines using rock dust is increasing and more rock dust is being used, rock-dusting practices in the United States fall far short of giving absolute protection against coal-dust explosions.

2. State laws regulating the safety of mines are, in general, entirely inadequate with respect to rock-dusting.

3. The Bureau of Mines recommends that all coal mines except anthracite be rock-dusted in every part and that rock-dust barriers be used as a secondary precaution but not in lieu of general rock-dusting.

4. Machinery for distributing rock dust, as well as analytical equipment for inspection purposes, has reached a fairly advanced stage of development.

5. Limestone or gypsum is readily accessible to all coal fields of the United States, and this material can be delivered to the mines for rock-dusting purposes at a reasonable cost.

^{4/} Bowles, Oliver, Sources of Limestone, Gypsum, and Anhydrite for Dusting Coal Mines to Prevent Explosions: Bureau of Mines Bull. 247, 1925, 70 pp.