

amount of rock dust bears out previous statements that mines are not being rock-dusted adequately. Recent investigation of a number of individual rock-dusted mines in various parts of the country revealed that as much as 4.5 pounds of rock dust per ton of coal mined have been used by certain mines for 1 year.

The quantity of rock dust necessary per linear foot of entry depends on the cross-sectional area of the entry. In the investigation referred to, it was found that 3.5 pounds of rock dust per linear foot was being used in one mine with entries 55 feet in cross-sectional area; while another mine, with an entry area of 72 feet, was using 6.9 pounds per linear foot of entry.

ROCK-DUST BARRIERS

Rock-dust barriers have been recommended by the Bureau of Mines as a secondary means of defense and not as a substitute for general rock-dusting. Before development of a machine for coating trackless entries, barriers were fairly generally thought to be necessary, especially at the entrances to panels and side entries.

Concentrated types of barriers have been recommended by the Bureau of Mines, but few if any are used in commercial mines. V-trough barriers were adopted to some extent shortly after 1924 but generally were placed in little-traveled parts of the mine, and the absorption of moisture caused the rock dust to cake or even to become soaked with moisture, and dispersion in event of an explosion was doubtful in some cases and impossible in others. Material spalling from the ribs frequently fouled the end of the troughs, and fallen roof often was found on top of the barriers. When practical and economical rock-dusting of open areas was developed, most of the mining companies abandoned the use of barriers.

At present a company in Washington, one in Utah, and a mine in Illinois have a new V-trough barrier, and a few are to be found in mines in West Virginia and other coal-mining States.

A barrier using rock dust in bags was developed and installed recently by a large coal-mining company in Illinois. Details of the barrier are given in Bureau of Mines Report of Investigations 3411 (1938), "Tests of a Barrier Using Rock Dust in Paper Bags."

The attitude taken by most of the large coal-mining companies is that the barriers may become ineffective at any time, due to falls of roof or rib, and no longer afford protection; consequently rock-dusting of open areas is held to be the most effective practice at the present time.