Records at individual mines show conclusively that the number of accidents resulting from falls of roof can be very materially reduced -- perhaps entirely eliminated -- if suitable mining regulations and practices are supported by proper inspection and supervision. Unfortunately, however, such conditions do not prevail generally in the coal mines throughout the United States, as evidenced by more than 1200 fatalities annually from this cause. The fact that many of these deaths, and much of the suffering and loss of wages or time accompanying non-fatal accidents of similar origin, are preventable is a direct challenge to all coal-mine administrative officers because the responsibility for this unnecessary and unwarranted charge against the hazards of mining falls, to a large extent, squarely upon their shoulders. For the benefit of those who may wish to adopt preventive measures, some of the regulations and practices that have proved effective in saving life are summarized in this circular.

Regulations for safe conduct of work are essential in coal mining as in all other industries in which many persons are employed in a class of work involving exposure to hazards. This is recognized by the legislatures of all coal-mining States and has resulted in laws prescribing the manner in which protection against hazards is to be carried out by the mine owner and employee. With respect to preventing accidents from falls of roof, the laws of some States require the employer to provide a safe working place for the employee; those of other States stipulate that no person shall be permitted to work in an unsafe place. In either case, however, if roof-fall accidents are to be prevented, the laws must be supplemented by the adoption and strict enforcement of suitable safety rules and practices. To this end, most of the following provisions have been adopted in substance by the coal-mining companies that have been most successful in reducing accidents from falls of roof.

Regulations for preventing roof-fall accidents

1. It shall be the duty of all company officials to exercise continuous, unremitting efforts to prevent the occurrence of accidents from falls of roof.

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2. The strict observance and enforcement of all rules, regulations, and laws for safety shall be a condition of employment for all underground officials.

3. Disregard of rules, regulations, and laws with respect to roof support shall be cause for dismissal of any employee.

4. The official or foreman in charge of any section of a mine shall be held personally accountable for workmen in his charge who disregard the regulations as to care of roof and timbering.

5. A foreman or face boss shall not be placed in charge of a greater number of working places or men than he can visit with sufficient frequency during a shift to insure observance of the regulations.

6. Strict adherence to a definite system of timbering, adopted by the management as suitable to roof conditions in the particular mine, shall be compulsory. Additional timbers, necessitated by special conditions, shall be placed immediately as determined by the foreman.

7. Upon finding any portion of the roof in need of immediate attention, the foreman shall remain and see that any dangerous material is either taken down or properly supported with timbering; or he shall order the workman to vacate the place at once and shall display a sign of danger at the approach to the place until such time as the roof is made safe.

8. The miners shall be provided with suitable tools for setting timber. The company shall supply an adequate amount of suitable timber reasonably close to the point where the timber must be used.

9. Each accident due to a fall of roof shall be thoroughly investigated by a committee of underground officials, in which the official in charge of the district where the accident occurred is not included. He shall be permitted, however, to submit a statement to the committee. The committee shall prepare a written report discussing the cause of the accident and including detailed sketches of the scene as well as recommendations for means of preventing recurrence. A copy of this report shall be placed upon the mine bulletin board for the information and benefit of all underground workmen.

**Inspection**

The degree of success attainable by the adoption of such regulations depends upon their rigid enforcement; and this, in turn, depends upon an adequate and efficient system of inspection. The mine manager or superintendent can not be expected to be familiar, personally, with daily safety conditions in the mine; he has other major duties which properly occupy a large part of his time and thought. The foremen, of course, are more intimately in touch with details of underground safety features including roof conditions; nevertheless it is highly desirable to
have an independent point of view. Hence, if the mine manager is to be kept properly informed and if the desirable check is to be obtained at mines of any considerable size, the entire time of at least one man should be devoted to inspection of safety conditions and practices. Even at smaller properties where the extent of the mine is not sufficient to justify such a course, an assistant foreman or face boss should be detailed for this duty and the safety engineer or some other official should check and report upon conditions found by personal examination of the working faces at least once each week. It is also an important condition of efficient inspection that observations as to safety conditions be entered in a notebook by the person making the inspection while underground; and these notes should be transferred promptly to a permanent record book (or record sheets) kept in the mine office for study and future reference.

Value of Preventive Measures

Preventive measures, as outlined above, have been used successfully over a period of years in mines that have produced many millions of tons of coal without a fatal accident and with a corresponding marked reduction in non-fatal injuries. But what is more, experience has shown that, all aside from the humanitarian aspects of saving life and preventing suffering, the reduction of accidents from roof falls has a direct economic bearing, through saving in compensation charges which more than pays for the cost of taking extra precautions. Then too, employees who are protected against accident and work under safe conditions become an asset to the operator, while each unprotected hazard is a serious potential liability. Hence, even though a coal-mine manager may not be willing to accept all the implications in the charge of being "his brother's keeper," he should be willing to install and enforce a system that, by preventing costly accidents, aids in efficient and economical production of coal. -- Information Circular, Bureau of Mines, Department of Commerce.