

Before it undertook to establish a list of permissible motors the bureau made a large number of preliminary tests. No motors were approved as a result of this preliminary investigation, for none of the motors tested was considered to possess the characteristics of permissibility. As a direct result of these preliminary tests, however, the bureau decided to make tests to establish a list of permissible explosion-proof motors, and issued its Schedule 2, "Fees for Testing Explosion-proof Motors." This schedule gave the general conditions under which motors could be submitted for test and the fees to be charged for making such tests. Technical Paper 101 sets forth more fully than Schedule 2, the details that the bureau considers essential to satisfactory explosion-proof motor construction.

The Bureau of Mines considers a motor to be permissible when it is the same in all respects as the sample motor that passed certain tests made by the bureau and when it is installed and used in accordance with the conditions prescribed by the bureau.

The paper gives the requirements for approval of motors, outlines the nature of the approval of the bureau and describes the approval of an explosion-proof coal-cutting equipment.

A PRIMER ON EXPLOSIVES

The United States Bureau of Mines, several years ago, issued a primer on explosives for coal miners which has been in considerable demand ever since.

Now the bureau has issued a primer on explosives for metal miners and quarrymen, by Charles E. Munroe and Clarence Hall. The bulletin, which has just come from the printing office, says in its introduction; "In accidents resulting from the use of explosives in metal mines and quarries in the United States more than 130 men were killed and 250 seriously injured during the calendar year 1913. Moreover, an unknown number of miners suffered from the effects of breathing the harmful fumes and gases given off by the burning or the incomplete explosion of some explosive. Consequently, the Federal Bureau of Mines, which is endeavoring to increase safety in mines and to abolish conditions that tend to impair the health of miners, is studying the kinds of explosives used in mining and the conditions under which these explosives can be used with least danger to the miner.

"Inflammable gas or dust is seldom, if ever, found in quarries or metal mines, and the danger from using explosives there is less than in coal mines; but, as the figures show, the number of men killed and injured yearly in accidents caused by explosives prove the need of both miners and mine officials striving to see that none but proper explosives are used and that these are used properly."

The bulletin contains chapters on combustion and explosion; blasting and mine explosives; fuse, detonators, and electric detonators, firing blasts by electricity; the use of explosives in excavation work; the use of explosives in quarrying; the use of explosives in metal mining and tunneling; drilling and blasting methods on New York rapid-transit tunnel; magazines and thaw houses; permissible explosives, etc.

This publication is Bulletin 80 and it may be obtained free of charge by those interested writing to the Director of the Bureau of Mines, Washington, D. C.

The Third Annual Joint Field Meet of the United States Bureau of Mines, the American Mine Safety Association and the California Metal Producers Association will be held at the Panama-Pacific Exposition September 23 and 24. It is expected that there will be a large attendance of mining men, as the joint meet will either precede or follow the annual meetings of a number of institutions allied to the mining interests, such as the American Institute of Mining Engineers, September 17 and 18; The International Engineering Congress, September 20 to 25; the American Mining Congress, September 20 to 22; the California State Mine Rescue and First Aid Contest, September 22; and the National Safety Conference, under the joint auspices of the National Safety Council and the California Industrial Accidents Commission, September 27 to 30.

On September 23, on the athletic field of the Panama-Pacific International Exposition, there will be a mine-rescue demonstration at 10 o'clock; at 2 o'clock in the afternoon there will be a first-aid demonstration; and at 4 o'clock a demonstration of the explosibility of coal dust.

On September 24, at 10 o'clock, will be held a first-aid contest for inter-state supremacy; at 2 in the afternoon a rescue contest for inter-state supremacy; at 4 in the afternoon a rock drilling contest; and at 8 o'clock in the evening, there will be an award of prizes and souvenirs at the Convention Hall.

The establishment of a plant for copper refining will likely take place, following a conference between the Minister of Militia, General Hughes, the chairman of the Shell Committee, Col. Bertram, Col. Carnegie, Dr. Wilson of the Department of Mines, Messrs. W. D. Matthews and Warren of Toronto. It is intended to have every part of the shells which Canada is supplying made in Canada, and as far as possible of Canadian products. According to a despatch from Ottawa the refining of copper in Canada is now considered probable, and the plant will in all probability be located in New Ontario. Canada is now turning out 30,000 shells a day, and Canadian factories are making high explosives as well as shrapnel shells. A very large amount of Canadian lead has been used in the manufacture of munitions for the British army.

The Railway Age Gazette announces that Russia has placed orders for 22,000 cars with concerns in Canada and the United States, divided as follows:

Pressed Steel Car Co., 7,000 cars, Seattle Car & Foundry Co., 7,000, Eastern Car Co. of Canada, 2,000, Nova Scotia Car Co., 2,000, American Car & Foundry Co., 2,000 and Canadian Car & Foundry Co., 2,000.

All of the cars, except those bought from the Seattle concern, will be the regulation two-truck cars; but those built in Seattle will be four-wheeled carriers, purposes.

"Central Station Power in Coal Mines" is the title of a pamphlet just issued by the Westinghouse Electric & Mfg. Co. This pamphlet deals with the subject of electric power for coal mines and shows the advantages to be gained by the operator from using power from central station plants. A number of tables are given showing the cost of operation; curves are also given showing the day and night load in the mine.