

ENGINEERING

Fireless Blasting Methods For Coal Protect Miners

➤ FIRELESS, sparkless blasts of compressed air are jarring loose coal in one of America's newest and safest mines. The mine is the New Kathleen mine near Du Quoin, Ill., where more than a million tons of coal a year will be mined with modern safety and efficiency.

In addition to the air blasting, other safety features of the mine include a slope entrance instead of a vertical shaft with a hoist, conveyor belts to carry coal to the tipple and spraying both with rock dust on the walls and ceiling and water during some of the operations to cut down the dust.

Air blasting without fire is more expensive but reduces the possibility of explosions and is less likely to result in cave-ins than conventional blasting powder operations, mine officials declare.

Most of the mining processes use electricity in this mine which is owned and operated by a subsidiary of the Union Electric Company of Missouri. The new \$2,000,000 mine was put into operation this summer in the same Illinois coal field as the original Kathleen mine, which closed down in 1946 after 30 years of operation.

A water spray plays on the coal as bits on a revolving chain cut under the coal. Machines with two drills instead of the conventional one, carve out holes in the coal wall. These holes are sprayed with oil solution to reduce the dust before blasting.

Into these holes goes an airdox shell with a copper tube trailing back to a safe distance from the blasting. Air at a pressure of 10,000 pounds per square inch is shot into the shell through the tube. At a safe distance the operator releases the charge of air at high pressure into the holes.

There is no fire or blast powder, but the rush of compressed air breaks down an average fall of 35 tons of coal. A miner with a safety lamp inspects each fall to detect any methane gas present, but none has been found in the new mine.

After the coal is broken down by the air blast, an electrical car with heavy metal arms scoops in the coal and carries it to the conveyor belt where it is dumped for the ride to the high tipple. At the tipple, small bits of coal are sorted out for use in steam electric plants of the Union Electric Company. Larger coal is sold commercially.

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AIR BLASTING—A new safety feature in mines is this modern air-blast shell which a miner is inserting into a wall of coal. The air shoots into the shell through the copper tube which leads back a safe distance from the site of the blast and will send about 35 tons of coal crashing out of the vein.

OPHTHALMOLOGY

Improve Cataract Surgery

New procedure of cauterizing the leaking area after a cataract has been removed may hasten patient's recovery and increase chances of good vision.

➤ A NEW surgical treatment to stop "leaks" after cataract operations was reported by Dr. Victor A. Byrnes of the Aviation School of Medicine, Randolph Field, Tex., at the third Pan American Congress of Ophthalmology in Havana.

Cases in which the new procedure would help are those in which the fluid filling the front part of the eye leaks out or does not refill the space after the cataracts have been removed. The cornea is left flat against the iris in such cases.

To remedy this, Dr. Byrnes reopens the wound and cauterizes the leaking area. In two of the five cases reported slightly more complicated procedures were used. One 84-year-old woman had to undergo three operations before her eye returned to normal.

Dr. Byrnes emphasized that the procedure had been tried in only a few

cases, but his experience indicated that the patient's recovery was hastened, his comfort was increased and the chance of securing good vision was improved. He expressed the hope that others would try his method so that its value might be determined.

Altitude Affects Eyesight

➤ HIGH altitudes affect eyesight even among permanent inhabitants of mountain regions who have become acclimated to the oxygen-scarce air, it appears from a report by Dr. Jorge Valdeavellano of Lima, Peru.

A fifth of the persons he examined who lived in a town slightly above 15,000 feet in the Andes had only two-thirds the normal visual acuity.

There was no apparent reason for the