

THE SPRINGHILL MINES EXPLOSION

By F. W. GRAY

THE employment of oxygen breathing-apparatus, following the Springhill Mines explosion on All Saints Day, 1956, has drawn Dominion-wide attention to one part of our not easy Provincial life and economy, never far from anxious thought; even become entwined in our Nova Scotian folklore.

At Springhill, in the hands of men physically tested by strenuous exercises in smoke-galleries, under competent instructors, practiced in resuscitation and first-aid, in stretcher carriage, in the strait, uneven, confined passages of an explosion-swept mine, the apparatus enabled men to work in the restoration of mine ventilation, fire-fighting, the guidance and extrication of half-conscious and delirious men from perilous situations.

Notable work indeed, informed and assisted by the sacrificing tradition of the miner's freemasonry, not a cult alone, but truly widows' sons in common danger. It is a continuation of the saga of the miners' heroism extending over a century of coal mining in Nova Scotia.

The invention of oxygen breathing-apparatus by Henry Fleuss, of Newcastle-on-Tyne, in 1880, was itself a work of great personal bravery, enabling the flooded Severn Tunnel to be recovered. Fleuss explained the principle of his arrangement as follows:—

“The wearer breaths his own breath over and over again, the carbonic acid being absorbed from it at each expiration, and the requisite amount of oxygen being restored, the re-vivified air is fit to be inhaled again in the form of pure air.”

This description would serve very well for the standard apparatus of today.

A group of members of the Federated Institution of Mining Engineers of London, Eng.—of which the writer is a member of fifty years standing—became interested in systematised coal mine rescue work, concentrating on coal-dust explosions. and led by W. E. Garforth, of Normanton Collieries, Yorks., at a time when the explosibility of coal-dust was not universally conceded, nor was it understood how in mine-air carrying even small quantities of methane the presence of coal-dust increased the hazard of explosion. This dangerous fallacy was not removed until Mr. Garforth's “Gallery” experiments gave indubitable proof and cited scientific measurements of the

precise constitution and range of influence of an explosive mixture. It is difficult to conceive that such a state of ignorance existed only sixty years ago when the United Kingdom was producing over two hundred million long tons of coal annually.

The real advent of oxygen breathing-apparatus dates from the epochal disaster of Courrieres, in the Pas de Calais Coalfield, in 1906 where 1,100 men died, giving opportunity for the spectacular despatch of a German apparatus corps from Hibernia Mine at Essen, Rhenish Westphalia. No underground workers exposed to the monoxide of the "afterdamp" survived. The Hibernia Corps was helpful in recovery of the workings and especially in removing the decomposed remains of the dead.

Between 1903 and 1906 the Dominion Coal Company suffered severe financial losses from mine fires, not involving loss of life, but always with that hazard. Necessity for more efficient fire-fighting equipment, and for better training and brigade organization became evident. In 1907, the writer, in the company's service, was commissioned to visit the United Kingdom and the Continent to look over oxygen breathing-apparatus with a view to purchase, primarily, because of their experience, for the fighting of underground fires at the point of origin. Small fires of local underground origin had spread beyond control because of inaccessibility.

At the Hub Colliery (Dominion No. 7) at Table Head, Glace Bay, a lighted oil-flare was set down on a bench in the pit-bottom cabin, behind a barred door, setting fire to the roof and the whole pit-bottom. Recovery of the mine forced flooding of the workings, all below the pit-bottom and under the ocean, with consequent financial losses by pumping and long idleness. At Dominion No. I Mine in 1903, a similar fire originating in gross carelessness, had spread and also forced flooding the workings. In each instance provision of trained men and apparatus could have avoided loss.

Consequently early attack on fire at the point of origin was a main consideration in choice of equipment. But there was some scepticism among coal-mining engineers on the likelihood of saving of life in the aftermath of coaldust-methane explosions such as they had personally experienced, and there were new conditions created by more efficient ventilation with larger volumes of air forced through mine roads and even through wastes causing greater suspension of dust in the haulage roads. The passage of a coaldust-methane detonation creates a turbulence that can develop into vibratory to-and-fro shattering action, wrecking the roadways, sweeping out the roof and side supports, and killing all in its path.

Prevention and removal of explosion hazards, as managements well know, opens up a wide subject, quite beyond the scope of this brief and non-technical essay, sought to be limited to a topical story of the coming and development of oxygen-alkali breathing apparatus. Experienced mining engineers know the hazards underground excavations entail. In Canada they are indeed legion, there being few countries with mining conditions so varied, at such great depths, carried out under arctic conditions of perma-frost, and so generally hazardous. Or we may add, so rewarding.

Devices for supporting life in irrespirable atmospheres and under water are part of our modern life, incorporated in and required by law in fire-brigades, not only in mines but in municipal affairs, on shipboard, especially in oil-tankers, in sewers, in marine salvage-tugs and submarines.

It has an aspect now comic to recall that so little was known of oxygen breathing-apparatus just fifty years ago, that the Atlantic liner in which the narrator wished to bring a charged apparatus from Liverpool to Halifax refused ocean transport because it was dangerous, and accepted it only if it were placed on the upper boat-deck!

Compare the preparedness of Halifax Dockyard when the Springhill emergency presented itself. The Navy, Air force, the Army, with motor-transport, ambulances, nursing sisters, doctors and civil-defence forces were at the disposal of the Provincial Government, the sole owner of the coal resources of Nova Scotia, and responsible for the safety of the coal mines and the workers in and about them. How well they responded! Our newspapers, our national broadcasting network have told the story.

May one be permitted to quote verses written about the time of Vimy Ridge? These have a happier connotation to the veterans among the Springhill rescue-squads than when penned:

“
When through the timbered ways and dusty inclines of the mine,
Swift sweeps the detonated dust, blazing a ghastly track;
Hard on the heels of that reverberating blast there creeps,
Twin, viewless, formless death; the “white-damp” and the “black.”

“Bringing to maimèd men the final anodyne of pain,
To tortured lungs and shattered limbs the Euthanasia sweet,
Imprinting on the unstiffened form the rosy tinge of life,
So that to say the miner slept would seem a word more meet.”