

beyond any shadow of doubt, in a large percentage of gold being lost, going out over the plates with the tailings, and being ultimately deposited in the lakes and swamps. I may say also that Nova Scotia has not escaped the consequences of reckless, incompetent and dishonest management. Perhaps we have had more than our share of such here.

Chiefly because of the reasons I have enumerated here, Nova Scotians have become discouraged, and capitalists abroad have become suspicious that our mines are not of a permanent character, and that they are too expensive to work.

I do not believe such conclusions are justifiable, and I trust, and believe, the two foreign companies now operating here, one in an eastern district and the other in a western district, will fully demonstrate the error of such conclusions. They have both adopted the modern cyaniding system of saving gold.

I believe there is yet a prosperous future for gold mining in Nova Scotia. We must, however, have faith sufficient to do more underground exploration work, and we must divest ourselves of the too prevalent idea that all pay zones in all lodes crop to the surface somewhere; operations in the past have practically been confined to lodes discovered by such out-croppings.

We must also take advantage of the numerous water powers now running to waste, and install electric plants that will make us less dependent upon the fuel situation.

Truro, N.S., Feb. 20, 1907.

THE LONG WALL SYSTEM OF COAL MINING

By T. W. GRAY, Glace Bay, N. S.

The Emery seam, which lies at a depth of about 160 feet below the Phalen seam in the Glace Bay coal field, is being worked by the Dominion Coal Company at their reserve mines on the long-wall extraction method, for which it is admirably suited. The seam has a good strong roof, which breaks well, and consists of about four feet six inches of clean, hard, bright coal of good quality, very suitable for domestic or steam-raising purposes.

"Long wall" is somewhat of a novelty in Cape Breton, at least in the Glace Bay district, and the native miner, who has been used to board and pillar workings in seams from six to nine feet high, does not take very kindly to the more confined areas of a four foot six inch seam. As a result, the Emery mine at reserve has become more or less of an "old countryman's mine," long wall being almost universal on the other side of the water. Quite a number of continental miners are employed here, particularly Belgians, who are good men for the work, and, after the tortuous and heated workings to which they have been accustomed, they find agreeable conditions in the cool and shallow mines here.

The coal is undercut five feet six inches with a compressed air disc coal-cutting machine, made by the Diamond Coal-Cutter Company, of Wakefield, England. The Coal Company have about half a dozen of these machines.

At present there are only two short faces, five hundred and two hundred and fifty feet long respectively, producing about three hundred tons a day, but they are being rapidly extended.

The product of long wall operations is very blocky and strong. It is not powder-shaken, because the roof weight is sufficient to break down the undercut coal with the expenditure of very little or no powder.

A portion of the Phalen seam at No. 6 colliery (Big Glace Bay) is also being worked on the long wall plan, with marked success. There can be no doubt that these are only the beginnings of a more extended use of this method, as the thicker seams, which do not lend themselves to long wall, become exhausted, and the development of long wall work in Cape Breton will be followed with great interest by mining men, as it will involve radical changes in present conditions, both technical and economic.

In England, the use of long wall coal cutters, combined with conveyor belt systems along the face, has rendered it possible to profitably work seams as thin as 16 inches.

T. W. GRAY.

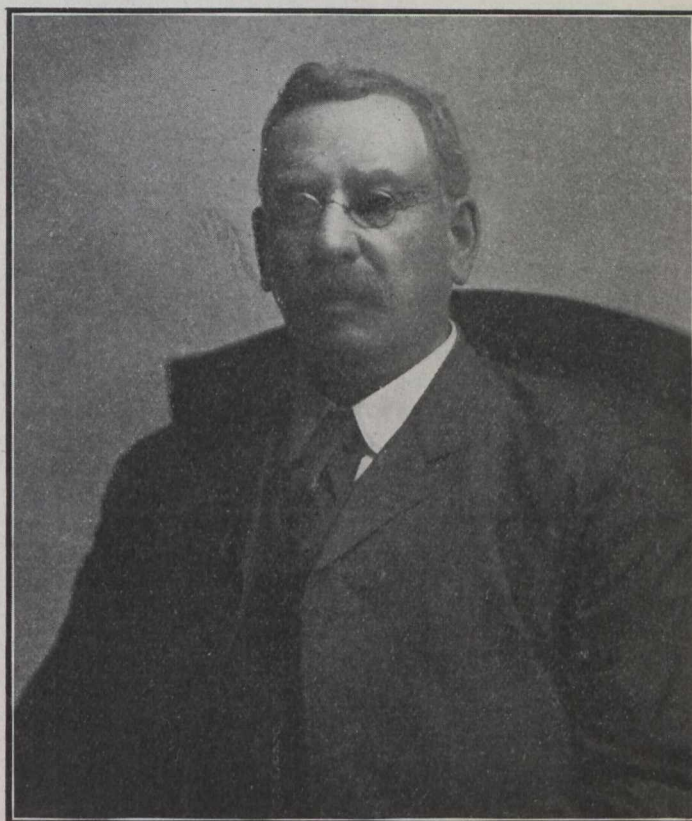
Glace Bay, N.S.

INDUSTRIAL PIONEERS OF CANADA

Born in New Glasgow, in 1846, Mr. Fraser showed early in his career a decided leaning towards mechanical work.

As an apprentice he worked for some years at blacksmithing in Providence, R. I.

After marrying Miss Charlotte Dicks, of Pictou, he returned to his native town. His first important work resulted from securing a contract for the iron work of the wooden vessels then being built by Mr. Carmichael.



GRAHAM FRASER.

In 1872, Mr. Fraser, along with Mr. G. F. McKay, established the Hope Iron Works, with a capital of \$4,000.

After a year of successful work, a steam hammer was added to their equipment. Then another steam hammer was acquired, and the name of the firm was changed to the Nova Scotia Forge Company. In 1878 the forge works were removed to the present site of the steel works at Trenton, near New Glasgow.

In 1882 Mr. Fraser issued the prospectus of the Nova Scotia Steel & Coal Company, and, until December, 1903, he was the vice-president and managing director of that sound and flourishing enterprise. From that date until January 1st, 1904, he filled the offices of director and director of works for the Dominion Iron & Steel Company, of Sydney, N.S. Mr. Fraser resigned this important position as soon as he had accomplished the task of re-organizing the Steel Company. Since then he has not taken any active part in business.

To Mr. Fraser belongs the credit of having first conceived the idea of establishing a great iron and steel plant at Sydney. Asso-