

Wallis, in his history of Northumberland, gives an account of a fire happening in the High Main coal-bed about 140 years ago, on the Town Moor and Fenham estates, which continued to burn for 30 years. It began at Benwell, about a quarter of a mile north of the Tyne, and at last extended itself northward into the grounds of Fenham, nearly a mile from where it first appeared. There were eruptions at Fenham in nearly twenty places; sulphur and sal ammoniac were sublimed from the apertures; but no stones of magnitude were ejected. Red ashes and burnt clay, the relics of this pseudo-volcano, are still to be seen on the western declivity of Benwell hill; and it is credibly reported that the soil in some part of the Fenham estate has been rendered unproductive by the action of the fire.

The *'choak-damp*, the *fire-damp*, and *after-damp* or *stythe*, are the miners terms for the gasses with which the coal mines are affected, and of these the second, both from its immediate violence and as occasioning the other kinds of damp, is the most to be dreaded. The accidents arising from it have become more common of late years; but it should not for a moment be supposed that they arise from any want of skill or attention in the professional surveyors of the mines. The following seem to be the causes in which the gas originates.

1st. The coal appears to part with a portion of carburetted hydrogen, when newly exposed to the atmosphere; a fact rendered probable by the well known circumstance of the coal being more inflammable when fresh from the pit, than after long exposure to the air. 2nd. The pyritous shales that form the floors of the coal seams, decompose the water that lodges in them, and this process is constantly operating on a great scale in the extensive waste of old mines. In whatever mode we suppose the gas to be generated, it is disengaged abundantly from the High Main, but more particularly from the Low Main coal-seam, and in a quantity and with a rapidity that are truly surprising. It is well known that the gas frequently fires in a shaft, long before the coal-seam is reached by the sinkers; and that the pit-men occasionally open with their picks, crevices in the coal or shale, which emit 700 hogsheads of fire-damp in a minute. These blowers (as they are termed) continue in a state of activity for many months together, and seem to derive their energy from communicating with immense reservoirs of air. All these causes unfortunately unite in the deep and valuable collieries situated between the great north road and the sea. Their air-courses are 30 or 40 miles in length, and here, as might be expected, the most tremendous explosions ensue.

The after-damp or stythe, which follows these blasts, is a