

surface until the hole in section presented a bell-shaped figure. The coal thus got was hauled up in a basket, and the mine when exhausted was abandoned and a new hole made a few yards away.

These very primitive mines were only possible in cases of a true outcrop. It soon became necessary to follow the seam to a lower depth, and immediately the difficulty of drainage presented itself. Thereupon these early miners developed the aqueduct or adit system of working—a method which is still practised in some very small and shallow mines to-day.

We find in the lease granted in 1364 by Bishop Hatfield to burgesses of Newcastle and Gateshead, the first reference clearly indicative of the fact that mining was then being done by means of pits and adits, or water-gates as they were then called. The method was simple and effective where the mining was being conducted above the level of free drainage, but was impossible otherwise. It consisted in sinking a shaft on to the seam, which would be known from the outcrop, and then working up the seam towards the outcrop, at the same time cutting a tunnel or adit from the shaft rather more than at right angles to it and continuing the shaft until the outside air was reached. The water was then simply drained away and all the many difficulties connected with flooding were eliminated.

The adit system of drainage entirely depended, however, on the working being above the level of