

VIII.

NOTES ON AN OLD COAL-WORKING AND A WOODEN SHOVEL FROM ORMISTON, EAST LOTHIAN. BY KENNETH M. WHITE, M.Inst.M.E.

Read March 29, 1941.

During the working of the Four Feet Seam from Limeylands Colliery, Ormiston, by the Ormiston Coal Company Ltd., a number of "Rooms" (*i.e.* roadways of the Stoop-and-Room method of working) communicated with old uncharted coal-workings of the same seam during March 1938. It is impossible to state the precise date of these old workings, since no plans or other dated records regarding them exist. It is possible only to approximate to the time by historical references and from the evidence of the workings themselves; both sources suggest the coal-workings to be about two hundred years old. The *Letters* of John Cockburn (p. 97) prove that miners lived and worked in Ormiston in 1727, and in the same *Letters* (p. 38) it is mentioned that about 1730 the manager of the coal

mine at Ormiston "was to inform Cockburn how many fathoms of rock were to be cut through; was to give an estimate of the time necessary to do the work, and was afterwards to report progress."

The seams then worked were naturally those most easily reached, and since the Tranent Splint, Four Feet, and No. 1 Diamond Seams outcrop or come very near to the surface in the vicinity of Ormiston, these seams have been worked during the eighteenth and nineteenth centuries, and their "wastes" have been encountered frequently by more recent workings.

The position of the old Four Feet workings, where the wooden coal shovel was found, may be fixed by reference to the 6-inch Geological Survey Sheet, Edinburghshire IVa, S.W., or Haddingtonshire IX, S.W. The workings lie about midway between the farm buildings of North Mains and the Monktonhall, Ormiston, and Macmerry Branch of the London and North-Eastern Railway. In the valley now occupied by the railway and along which the Bellyford Burn flows, the Four Feet Seam is only some 15 feet below the surface. No superficial evidence now exists to mark the entrance to this old working, but entry was by a short stair-pit at a point near the present railway. The bottom of this old pit was encountered recently in the course of working the seam.

The underground evidence shows that the workings have been entirely filled or flooded with water, until recent mineral operations caused this water to "seep" to a lower level. It is probable therefore that the Bellyford Burn flooded into the workings (this burn even at the present time often overflows its banks during excessive rain) causing the involuntary abandonment of the mine. Involuntary it must have been, as the old "faces" are standing on good coal, which to-day is being worked. Although the old workings are haphazard and irregular in their layout, it is evident that some care has been given to the support of the roof and sides. The galleries are so near the surface that no great roof pressure could be experienced. But precautions had to be taken against any fall of roof, as this would cause a hole or "sit" on the surface, especially as the "cover" is only a few feet of soft rocks and about 10 to 12 feet of surface clay and gravel. For this reason, the system was designed to uphold the surface, without the use of timber for its support. To keep the roof secure, the roadways have been driven about $3\frac{1}{2}$ feet wide, and cut in the shape of an elliptical arch about 3 feet 3 inches high. It is interesting to note that in present-day coal-mining, where considerable roof or side pressures have to be overcome, the circular and elliptical arched roadway is being extensively used, as being the strongest. The section of the seam is shown in fig. 1. The "holeing" has been done in the centre of the seam, the top coal dropped, and then the bottom coal lifted, exactly as is being done in this seam by the miners at the present time. The stoops left in

to support the roof are irregular, and many approximate only 3 feet square.

The height of the roadways has prevented the employment of "bearers," *i.e.* women who carried out the coal on their backs in baskets

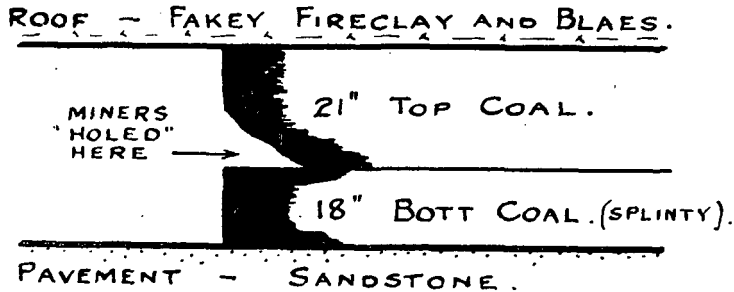


Fig. 1. Section of Four Feet Seam.

or creels. No rails have been used in the roadways, and the coal has been pulled, probably by women, along the pavement in "slypes" or sleds, by a light harness fastened to the shoulders of the "drawers" (fig. 2).

In these abandoned workings, the wooden coal shovel already referred to had been left at the face of what was the Main Road. On breaking

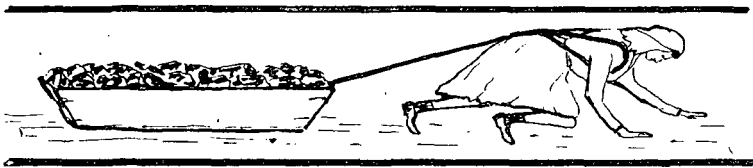


Fig. 2. Drawer.

through on this face the shovel was discovered. It was coated with a thick wet oxidized scum or yellow ochre, which, together with long immersion in water, accounts for the excellent preservation of the wood.

The shovel (fig. 3) has been carved from one solid piece of beech wood, and is 35 inches long overall. *The handle* is carved like the handle of an ordinary garden spade, but the curved shoulders show that the implement has been designed for lifting only, and not for digging. *The shaft* is rounded and tapers from $1\frac{3}{8}$ inch at handle to $1\frac{7}{8}$ inch at shovel end. *The shovelling part* is 9 inches long and has been about 8 inches wide, but about $1\frac{1}{2}$ inch on one side has split off and is missing. The shovel was at one time shod with iron, as is shown by nail holes, and it is just possible that when the part split off, the iron shod or shoe was removed for fitting to another shovel.

It is also possible that other "graith" or coal implements have been left in the old workings, but when the roads were opened to the action of the fresh air, numerous falls of roof occurred within a few days, preventing further exploration.

A comparison of the shovel with other old wooden shovels is interesting. In the Scottish National Museum of Antiquities in Edinburgh there are a number of wooden shovels, yet only one that is said to be from a coal mine (fig. 4). On comparing it with a pointed peat spade having square shoulders for pressing down into the peat with the foot, one is inclined to doubt if this shovel was a type which could be used in practical mining—even the primitive mining of the beginning of the eighteenth century. To shovel coal with this so-called coal shovel would seem to be a misuse of its function as signified by its shape. The old wooden shovel discovered at Ormiston has rounded shoulders and true shovel shape, which definitely supports its claim to be a coal shovel.

In order to define the age of the old wooden shovel, it is interesting to note that at the beginning of the nineteenth century no "small coal" was allowed to be filled by the miners. The market then demanded coal no smaller than 2 inches to 3 inches, and to secure this with expedition and certainty the miners were required to use "brander" or "brandered" shovels, these being iron shovels with wooden handles, the shovel part being composed of prongs or bars set 2 inches to 3 inches apart (fig. 5). The smaller coal dropped through these bars as the coal was being filled. But no small coal, such as would have accumulated if these had been used, was found in the old workings. Similar "brander" shovels may be seen at coal depots at the present time, and are used in filling coal bags from wagons so as to leave out the "smalls."

Confirmation for the foregoing inferences is provided by the following extract from a contract, dated 11th March 1811, between Messrs Landers & J. Durie, the lessees of the coal on the lands of Elphinstone in Tranent Parish, which bounds Ormiston Parish, and a number of colliers. This contract stipulates that "the coals are to be filled at the pit bottom with brandered shovels 2 inches wide" (McNeil's *Tranent*, p. 174) and shows that this type of shovel was in common use near Ormiston at that time.

This fact metaphorically throws our old wooden shovel back into the

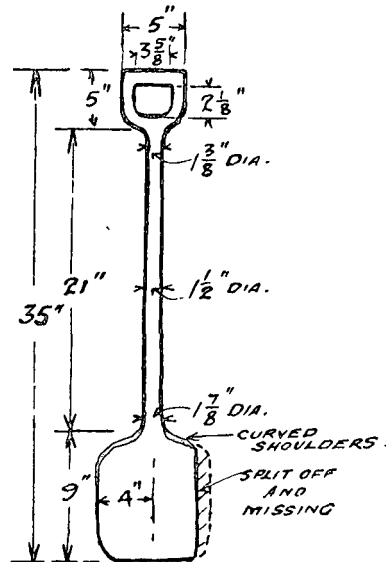
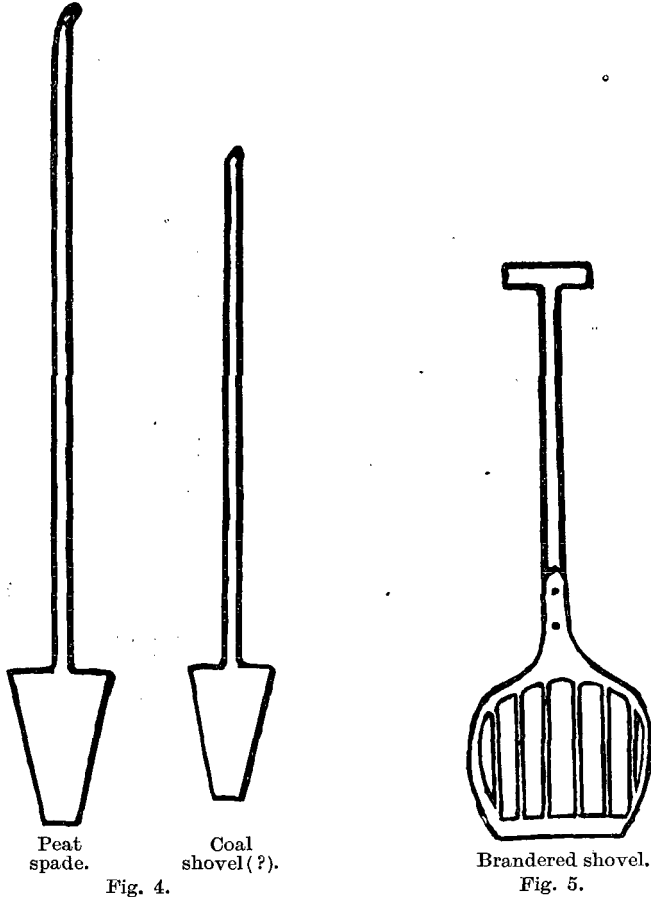


Fig. 3. Sketch of old wooden shovel.

eighteenth century. Now it is known that for a period between about 1745 and the beginning of the nineteenth century, mining in Ormiston ceased, and that the old class of slave miners had removed from the district. It seems reasonable to suppose they removed to Tranent district where mining was the chief occupation of the inhabitants, while in



Ormiston with its numerous market gardens the inhabitants mostly followed agricultural pursuits. In any case, this temporary cessation of mining in Ormiston is not difficult to understand, as the strata there are undulating and considerably faulted. Thus, coal worked at the outcrops would soon meet with faults which would require proper tools and machinery to cross, and when crossed would need, among other things, pumping-plant to deal with water. It was not then considered worth while to expend capital on such work, and not until the nineteenth century did coal-mining in the district again become a trade. It would seem, then,

that the wooden shovel belongs to the period to which Cockburn's *Letters* relate, and one is forced to conclude that it belongs to about 1730, which makes it therefore over two hundred years old.

The Directors of the Ormiston Coal Co. Ltd., realising the historical value of their discovery, decided to present the shovel to the Scottish National Museum of Antiquities in Edinburgh, in the knowledge that it would be preserved in the best possible way.

An even higher antiquity might be deduced from a discovery made since the foregoing notes were written. A shaft sunk from the surface to the Four Feet Seam was encountered about 50 yards from the shaft used in the old workings, and it is somewhat puzzling to present-day mining folks to find that no coal has been worked from this shaft. Now Prof. Granville Poole, in his researches into the development of underground haulage, states that "during the *seventeenth century* 60 yards was considered the maximum distance to extend the workings from any shaft, due to the expense and laborious method of drawing the coal underground. It was, therefore, the custom to have another *shaft sunk in advance*." Thus these old workings might very well belong to the seventeenth century, but as no records have yet been found to prove that there were coal workings in Ormiston at that time, the date must be assumed the eighteenth.