EXTRACT FROM ENGLISH HERITAGE'S RECORD OF SCHEDULED MONUMENTS

MONUMENT: Watt's Grove Rake lead mines 520m north of Sweetknoll

PARISH: PEAK FOREST

DISTRICT: HIGH PEAK

COUNTY: DERBYSHIRE

NATIONAL MONUMENT NO: 29962

NATIONAL GRID REFERENCE(S): SK10978078 - SK12418085

DESCRIPTION OF THE MONUMENT

The monument includes the earthwork, buried, standing and rock cut remains of Watt's Grove Rake. The monument is linear in shape and runs east to west for approximately 1.45km along the south side of Eldon Hill, on the western slopes of Conies Dale. The continuous line of workings along the vein includes intermediate concentrations of areas of activity associated with Watt's Grove and Jowle, or Joule Grove mines. Linear rake mining of lead was typical in the Peak District.

It is unknown when the rake was first worked, but Dirtlow Rake, from which Watt's Grove Rake branches, is thought to have been worked in the medieval period. The working of Jowle Grove is documented from at least 1789 when it was recorded that Samuel Fox `can drive a level from Jowl Grove to Portaway Mine, seven feet and two feet in size and have all the ore got in driving the said level'. Mining had ceased by the late 19th century when the Ordnance Survey Map of 1880 describes the rake as `old'. Watt's Plantation, which follows the line of the rake, was planted between 1880 and 1922.

The mines would have been worked under the jurisdiction of the Barmote Courts, the legal administrative unit governing Derbyshire lead mining. The Derbyshire system of mining was largely based on local mining customs and consisted of individual groups of miners or small mining companies working relatively short lengths of the vein.

The monument survives as a series of earthwork, buried and standing remains which include belland yard walls (substantial walls built around dressing floors in order to prevent cattle straying and eating grass contaminated by lead), ruined coes (stone built shelters or sheds), open cuts (veins worked open to daylight), a bouse team (a bin into which ore was stored before processing), water channels, washing floors, leats, buddling dam (an earth dam into which was placed the dirt and sludge resulting from the process of separating small sized ore from adhering dirt (buddling)), crushing floor (an area where ore was crushed ready for further treatment), gin circles (remains of horse powered winding apparatus), climbing shafts, water storage pond and engine shaft.

The remains of Jowle Grove mine are located at the eastern end of the monument, in Watt's Plantation, where a group of features mark a concentrated

area of activity. Included within this area is a crushing floor paved with limestone slabs which is, unusually, protected by a low retaining wall. The wall may have acted as a very small belland yard wall. The well preserved remains of an engine shaft and gin circle are also visible although the shaft is now covered with timber baulks. A stone built double coe, now filled with limestone rubble, is thought to house a climbing shaft which provided access to the working places in the mine.

Another concentrated area of activity lies immediately to the west of Jowle Grove but still within Watt's Plantation. This is known as Watt's Grove Mine. The remains of a gin circle and a funnel shaped water storage pond are easily visible. The gin circle has partly collapsed into an open cut but is still clearly discernable on the ground. Part of a small area, in the southern section of the plantation, has been disturbed but the remains of a shaft and the hillocks survive and form an important element in the otherwise undisturbed linearity of the rake.

The rake continues in a westerly direction and is marked by up to three parallel lines of large hillocks made up of limestone deads (waste rock which contain no ore or insufficient quantities to warrant extraction). An area of the rake, centred at national grid reference SK11808065 is enclosed by a belland yard wall which contains the remains of dressing floors, a buddle dam, washing ponds, leats, a water storage pond, a climbing shaft and a main shaft although the latter is now covered in concrete. The water storage pond is known to be at least five feet deep. Also within the enclosed section two of the open cuts contain walls of deads which are built up between the vein walls on bunnings (stagings built across a worked out vein onto which the deads were placed). The dry stone walls provided a convenient way to store waste rock which saved the trouble and expense involved in drawing it to the surface. To the west of the belland yard wall the rake continues a further 760m and ranges in width from 60m to 20m. This section of the rake lies within a plantation and is defined along most of its length by field boundary walls. Along this section there are a lot of examples of individual shafts joined together by well preserved hillocks. These remains demonstrate the vertical working of the rake by mines with access to several meers of the vein at a time (a meer is a linear measurement equivalent to 32 yards). The extraction techniques demonstrated by these existing surface remains illustrate the way that the legal framework governed the working of the lead mines in Derbyshire.

All modern fencing is excluded from the scheduling although the ground beneath these is included.

ASSESSMENT OF IMPORTANCE

Approximately 10,000 lead industry sites are estimated to survive in England, spanning nearly three millennia of mining history from the later Bronze Age (c.1000 BC) until the present day, though before the Roman period it is likely to have been on a small scale. Two hundred and fifty one lead industry sites, representing approximately 2.5% of the estimated national archaeological resource for the industry, have been identified as being of national importance. This selection of nationally important monuments, compiled and assessed through a comprehensive survey of the lead industry, is designed to represent the industry's chronological depth, technological breadth and regional diversity.
The ore works were an essential part of a lead mining site, where the mixture of ore and waste rock extracted from the ground were separated (`dressed') to form a smeltable concentrate. The range of processes used can be summarised as: picking out of clean lumps of ore and waste; breaking down of lumps to smaller size (either by manual hammering or by mechanical crushing); sorting of broken material by size; separation of gravel sized material by shaking on

a sieve in a tub of water (`jigging'); and separation of finer material by washing away the lighter waste in a current of water (`buddling').
The field remains of ore works include the remains of crushing devices, separating structures and tanks, tips of distinctive waste from the various processes, together with associated water supply and power installations, such as wheel pits and, more rarely, steam engine houses.
Simple ore dressing devices had been developed by the 16th century, but the large majority of separate ore works sites date from the 18th and 19th centuries, during which period the technology used evolved rapidly.
Ore works represent an essential stage in the production of metallic lead, an industry in which Britain was a world leader in the 18th and 19th centuries. Sites are common in all lead mining areas and a sample of the best preserved sites (covering the regional, chronological, and typological variety of the class) will merit protection.

The remains of Watt's Grove Rake lead mines 520m north of Sweetknoll are particularly well preserved and include a diverse range of components relating to the mining of this vein. Rake workings of such veins are now rare, and this example is one of the best preserved examples in the Peak District. The standing, earthwork, buried and rock cut remains provide evidence for both the historical and technological development of what was once a far more extensive, multi-period mining landscape. They incorporate a wide range of mining and processing features, which enable the development of the mine working and its chronological range to be reconstructed. The large rake, shafts, hillocks and other extraction features provide evidence for methods of extraction whilst other processing areas will contain deposits showing the effectiveness of these techniques. The mining remains also provide an insight into the Derbyshire Barmote Court system of mining and the constraints this imposed on the miners of the area.

MONUMENT INCLUDED IN THE SCHEDULE ON 14th March 2000