



## **Trench Inclined Plane, Shrewsbury Canal**

### **Features of the Canal – Number 4 – Trench Inclined Plane**

When the Shrewsbury Canal was being planned the Company purchased part of the Wombridge Canal in order to give them direct access to the Donnington Wood and Shropshire Canals. However, the Shrewsbury Canal was 75 feet below the level of the Wombridge Canal and rather than a flight of locks, with the inevitable water supply problem, an inclined plane was planned to connect the two. This was not a new idea for there were several already operating in the area. Indeed the minute book of the Company of 6 July 1793 records that 'an Engine similar to the one at Donnington Wood be erected at the Head of the intended Inclined Plane at Wombridge and that Mr. William Reynolds be requested to order the Engine from the Coalbrookdale Company'.

Basically the plane consisted of a double railway, 223 yards long, on which tub-boats were

conveyed on large wooden carriages called "cradles". To ensure that the boats remained in a horizontal position on the incline the wheels on the lower end of the cradle were larger. At the top side of the cradle there were two vertical posts between which a "bridle chain" was slung. The long rope which hauled the cradles was attached to bridle chains.

As most of the trade was coal, which was going down the plane (mostly wheat for the local mill went up), the cradles worked by counterbalance. At the lower end the rails went into the water so that the boats could easily be floated on and off the submerged cradle.

The complication was at the top where the cradle had to negotiate a sill, without upsetting the boat.

The engine house was at the top of the incline, its roof extending out over the sill. Under this roof was a large drum onto which the rope which hauled the cradle, wound on and off. Behind the drum was a pair of wheels, or "sheaves", which the rope passed over and under before going on to the drum.

The rope drum was supported by three stone piers, the cradles passing into the docks of the top basin on either side of the centre pier. This pier housed the brake which controlled the speed of the cradle, and to this pier were attached two heavy "winding chains". To both sides of each dock there were long pieces of wood, slightly tilted towards the water, which served as rails.

As the ascending cradle approached the sill the brake would be applied. A winding chain was then attached to the cradle and the engine really came in to play, hauling the cradle over the sill. At that point the main rope and bridle chains would fall slack, a third set of wheels on the side of the cradle would run along the wooden rails attached to the side of the dock, taking over support from the smaller wheels on the cradle. The winding chain would prevent the cradle going too far. One boat could then be floated off and another on.

The process was then reversed with the winding chain being used to pull the boat over the sill before the cradle was stopped to allow it to be removed.

Modifications to the plane were carried out in the early 1840s. Edge rails set in chairs fastened to stone sleepers were used and a new engine of the Cornish type installed, also bought from the Coalbrookdale Company, at a cost of £400.

Outliving even the Foxton inclined plane that had only opened in 1900, the Trench plane became the last inclined plane working in Britain. It finally closed on 31 August 1921.

*From an article in S&N News February 2002 cont'd...*

## Features of the Canal – Trench Inclined Plane (continued)

Following on from the previous article on the Trench Inclined Plane, a couple of items have been received which add to the story. First, member Alex Bielecki has forwarded a copy of an article from the Journal of Industrial Archaeology (1965) which provides further information about the plane.

The article clarifies that the plane was used before the whole canal was opened.

“At the end of August 1794, almost three years before the completion of the canal, Emanuel Galiere was appointed ‘to superintend the fire-engine at the inclined plane’. Amongst the earliest items to pass down the plane would be sections of the world's first cast-iron aqueduct, for erection on this canal at Longdon- on-Tern.”

As to the later modifications made to the plane, the article suggests that the timber sleepers may not after all have been replaced with stone ones, as “wooden sleepers were in use at the time the incline was abandoned”. Or were the stone ones found to be less effective and a reversion made to timber? “At the same time a new rope was ordered for the incline from Duncan Rowett & Co. of Liverpool. Sixteen months later ‘Two patent wire ropes of 300 yards each and ½in. thick, from S. Newill & Co., Dundee’. A further rope was ordered in September 1842, 306 yards long and 1 in. thick”. Did they keep breaking? These purchases and the installation of the new steam engine for £400 early in 1842 and two years later of an iron cradle costing £90, both ordered from the Coalbrookdale Co. were undoubtedly occasioned by the extra activity on the canal since the opening in the mid 1830's of the Newport Branch.

The article also describes the state of the plane in 1965. “The heavy sandstone sill is still clearly visible, as are the docks which lead into the top basin. The latter are now cluttered with the masonry which formally supported the rope-sheaves.

Along one of the dock walls one can just determine the position of one of the wooden rails. Only the foundations of the incline engine house remain. The top basin is all but filled with builder's rubbish, and away round an old pit mound winds the dry bed of almost the last vestige of the old Wombridge Canal”.

And our President, Tom Manning, has sent a personal recollection: “Many years ago before the Pumping Engine house above the basin at the top of Trench incline was demolished, I was having a look around when I noticed, close to where the emplacements for the boilers were, some weathered bits of wood sticking out of the ground. Each piece of wood had a short length of rusty chain attached to it. The penny dropped after a while and I realised I had stumbled upon a Tub-boat graveyard.” He adds “I have not been there since”.

Unfortunately Tom there is now no vestige of the plane apart from a street name.

*Unless anyone knows differently!*

*From an article in S&N News May 2002*