

David Pannett's History of Bicton part 31

Controlling the River

Part 11 of this series (Jan 08) discussed the river Severn around Bicton following wild ideas about flood prevention appearing in the press, which included the flood control barrage on the proposed N.W. relief road. Alarming such an idea has since been taken up by Environment Agency and therefore yet further comment is now needed.

That original essay explained how the local Severn valley had developed during the closing stages of the last Ice Age. A meltwater river, seasonally large and heavily charged with gravel, carved the winding valley through thick glacial deposits. Then, it shrank to its present size in our post-glacial climate, filling unwanted channel with silt to form a floodplain and leaving its old gravel deposits 'high and dry' as terraces on the inside of those bends. Boreholes for the new A5 clearly revealed the relationship between these features at Montford Bridge. Both here and elsewhere on the Shropshire Plain, such boreholes were also revealing a hidden network of buried sand-filled channels, one of which would give Relief Road engineers quite enough trouble without getting mixed up with a flood barrage.

Pressure for some action comes from a vocal anti-flood lobby in Shrewsbury. Once their cry was 'dredge the river', no doubt upon being alarmed by silt deposits visible at the English Bridge (ie on the inside of a bend where rivers normally do such things!) For decades authorities have been keen to clear rivers of perceived obstructions to help free passage of floodwater. On the Tern, for instance, nineteenth century botanists recorded a range of plants which are no longer found there since the river has been changed from a chain of mill ponds to a deep drain. Locally, the Perry has received similar treatment in order to lower the outlet of Baggy Moor. Here in Bicton, the construction of the new A5 prompted clearance along the brook rather than excavation of ponds to catch sudden run off, thus continuing the story of land drainage in the old heath area. (Sept 07).

The Clywedog dam was popularly believed to cure floods, but it was designed to be kept full in normal years in order to 'top up' the flow in drought years. Its neighbouring agricultural valleys, meanwhile, have the usual field drains and cleared watercourses designed to rid the area of water as quickly as possible. This is fine for this farmland, but a bit rough for areas downstream.

With this problem in mind, the idea of impounding floodwater upstream has been given more thought and some embanked floodplains above Melferley are already being allowed to flood again. In this context a flood barrage looks attractive.

In order to be effective, it would have to hold back a substantial volume of water, not only filling the floodplain but also spilling on to the terraces where crops grow and people live. Thanks to the river's low gradient (just over 1 foot per mile) the effect of this would reach upstream towards Montford Bridge. The structure would need to be large and sit on good natural foundations, but, as luck would have it, the Ice Age deposits have not provided one.

Meltwater trapped under thick ice sheets can carve channels in the underlying bedrock, even rising and falling thanks to the hydrostatic pressure inside the confined tunnel. As ice thinned, they became ice-walled open channels which the meltwater filled in with fine sand to achieve a normal gradient. When both ice and meltwater finally disappeared, this sand filling often remained hidden until discovered by engineers seeking water supplies or good foundations.

Our local example passes under Walford, The Isle and Rossall and then under the present river by Shelton, where it curves around towards Shrewsbury. Perhaps for this reason its cross-section here is asymmetrical, gentle to the north and steep to the south not unlike a normal river. Its sandy filling, which extends to about 25 metres below the river, is well exposed in the cliffs below Shelton. At Shrewsbury it becomes deeper and narrower between The Quarry and Castlefields, descending to sea level, 50 metres below the river level.

Here, the Darwin Centre needed foundation piles 30 metres long! Significantly, beyond here, new bridges over the Reabrook on the inner relief road are tubes set in earth embankments avoiding piles altogether.

The fine sand is also an 'aquifer' allowing the slow passage of water, and this property has been exploited for abstraction at Shelton Waterworks.

Meanwhile, the Environment Agency has been busy with successful flood protection walls in parts of Shrewsbury, thereby undermining the need for works upstream. If one is really needed, how about a site just below Shrawardine, where the narrow valley exposes a solid rock base? A barrage here could hold back a large volume in the old glacial lake basin upstream, but it would also upset a lot of people in Pentre and Melferley!

THE SEVERN VALLEY and the buried channel under Shrewsbury

