

The news this past year has been filled with reports of floods and the general problem of wet ground, particularly in vulnerable sites. Some aspects of local landforms and history relevant to this topic have already been discussed in this series and, at the risk of some repetition; it is worth reviewing the situation in Bicton with the 'parish plan' in mind.

The River Severn, of course, is one major local feature, where, like other major rivers, there is a 'flood plain', which is very obvious even in its 'dry' state. Flows fluctuate because heavy rainfall in the Welsh hills runs off the hard mudstones very quickly, leaving little to supply the river in dry spells (this was the reason for the Clewedog dam). At 'bank full', the flow past Bicton amounts to 200 cubic metres per second (think of this in terms of wheelie bin loads) and it is this most common peak flow which moulds the capacity of the channel. Excess overflows on to the adjacent floodplain. In such a well balanced natural system engineers should beware of interfering too much.

For generations, communities have lived with this situation, mainly by siting settlements clear of the floodplain, as at Montford Bridge. Elsewhere problems arise when this simple principle has been ignored, as where commerce has demanded a riverside location, or modern planning has been poor.

The more unusual aspect of the past year has been constantly saturated ground caused by the wet summer and autumn, which has led to problems with smaller watercourses. In a normal summer, vegetation draws water from the soil faster than it is supplied by the rain, so little remains to flow into streams or seep to them through the soil. Only after autumn leaf-fall and lower temperatures is there surplus available to 'recharge' the groundwater and allow streams to flow again in response to rainy spells. Significantly, engineers taking measurements use an October –October 'hydrological year'.

In the past year, some areas have experienced water flowing over the surface on the way to established streams, rather than just slow seepage through the soil. It is therefore always wise to take a careful look at surface configuration and its drainage.

Here in Bicton, the whole of the parish away from the narrow incised valley of the Severn is made up of thick glacial deposits left by Welsh ice some 15-20 thousand years ago. The material consists of 'boulder clay' of a 'silty sandy' nature, retentive of moisture, along with patches of freer draining sand and gravel. Solid sandstone only 'peeps' out from beneath all this in three small places along the river bed.

The surface is largely as the ice left it and is dominated by a crescent-shaped 'terminal moraine', whose origin can be readily appreciated when one looks west from its crest towards the Welsh hills. Just imagine the glacier filling the view! Significantly this ridge provides the best sites for the ancient settlements of Bicton, Calcott, Onslow and Dinthill. Even where the soil here is 'heavy', the outward slopes facilitated drainage for arable land.

To the east of this, a slightly lower plateau of mainly boulder clay stretches towards Shrewsbury. Within this, a zone of pools and peat bogs runs from Preston Montford to Shelton where ice blocks buried in the thick infill of a hidden glacial channel have melted out to deform the surface 'kettles holes'. Clearly it is an area unsuited to ancient settlement and instead the story is of heathland and cottage settlement occupying some drier mounds between the hollows, as at Lower Calcott. (Sept. 07)

The streams which drain this area pick their way from hollow to hollow rather than flow in recognisable valleys. In places they are helped by culverts and drainage ditches draining former pools and peat bogs. (Feb. 11) Much of the artificial drainage only came in the eighteenth and early nineteenth centuries in an age of agricultural 'improvement', after the 'inclosure' of Bicton Heath and the enlargement of the Onslow estate. Today, modern sewerage systems must negotiate the same irregular surfaces, needing pumping stations in places. In the last year several old pools have reappeared, including along the route of the proposed N.W. relief road. If the section by-passing Bicton Heath is actually built, the engineers will have practical problems to deal with!

By contrast, the original Welshpool road has managed to find a route with fewer problems along the local watershed between the headwaters of the Bicton and Bow brooks (Rad brook). West of the moraine, however, it must cross the Preston Montford brook at Chavel, where the old pub name 'Pavement Gates' records both the 'gates' between local common land at the parish boundary and a causeway over damp ground.

One result of artificial drainage has been the improvement of farmland upstream, but the increased risk of sudden floods downstream, because natural 'storage' in the system has been reduced. Urban development and modern highways can aggravate this situation, something inhabitants further down the Rad brook have already noticed. Fortunately developers and road engineers are becoming more aware of this problem, as can be seen, for example, in a 'pond' at the Oxon Business Park.

The north east of the Parish in the Isle and Rossall there is less risk of this problem, thanks to thick beds of porous glacial sand filling another buried channel. (Nov. 09) It runs from N.N.W. to S.E. towards Shrewsbury and in the closing stages of the Ice Age took vast quantities of meltwater at the junction between the northern and Welsh ice sheets. There are no real streams and early historians were puzzled when the Isle estate appeared to possess a mill. It was actually at Yeaton on the River Perry and remained part of the Isle estate until at least the seventeenth century. On stream systems of Bicton the nearest evidence for a mill comes from a field name by the site of the Rad Brook hotel in Crowmeole