

West Berkshire Countryside Society

West Berkshire Countryside Society was formed in January 2012 to provide an umbrella group for four long-established environmental groups. These were The Friends of the Pang, Kennet & Lambourn Valleys, The Bucklebury Heathland Conservation Group, The Pang Valley Conservation Volunteers and The Pang Valley Barn Owl Group.

Our remit is to continue their work of improving and promoting the landscape of West Berkshire by practical conservation work and by introducing people to the countryside, its work, history and wildlife, through the medium of talks and conducted walks – of which this is one.

Members of West Berkshire Countryside Society currently pay a £15 annual subscription for individual and family membership to provide a financial resource. Those members who wish to, make up volunteer working parties to undertake practical conservation tasks.

Non-members are very welcome to join our tasks and our conducted walks for which we make no charge. Non-members are also welcome at our talks for which we make a small charge.

If you would like more information about our activities or would like to join us and help with our work, please visit our website:

www.westberkscountryside.org.uk

The Berkshire RIGS Group

(Regionally Important Geological and Geomorphological Sites)

The Berkshire RIGS Group are a volunteer group which aims to work with local authorities, landowners and the general public to safeguard our special landscape for future generations and to promote understanding of this its geology and geodiversity.

We designate sites of significance within the county so that these can be conserved and enhanced where appropriate.

Over the year we have a regular programme of walks to areas of interest and anyone is most welcome along on these. We are always happy to give talks to local groups about the area.

For more information about the group and how you can become involved in conservation of sites or simply join our walks please contact Lesley Dunlop on 01993 814147 or Website

www.berkshirerigs.org.uk

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West Berkshire
Countryside Society



WEST BERKSHIRE COUNTRYSIDE SOCIETY
&
BERKSHIRE R.I.G.S GROUP

‘DOWN THE PANG’

A walk around Bradfield Parish to look at the
interaction between geology, wildlife and human
history.

Starting and finishing at Rushall Manor Farm

About 4½ miles or 7 km.

Ordnance Survey Explorer Map
159 – ‘Reading’ will be useful

There are two modest hills on this walk and surfaces can be
uneven and muddy.

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revised 2014
revised 2017

View from the Black Barn – General Geology

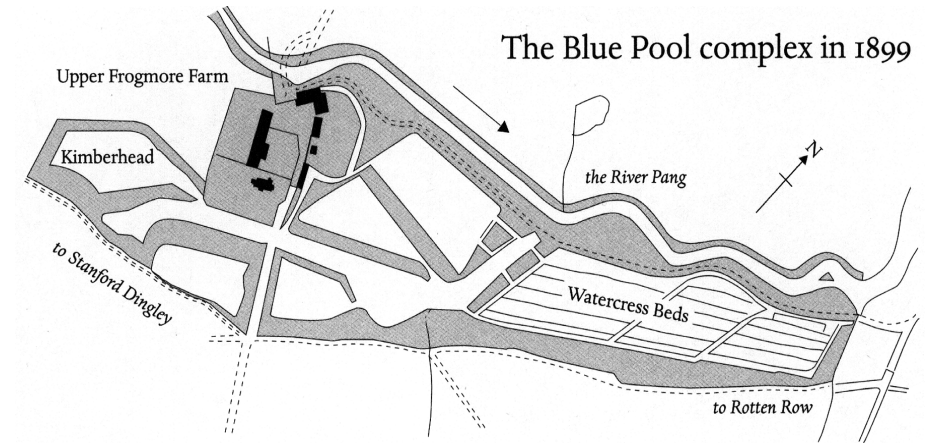
Looking to the south of the Black Barn the most obvious feature to be seen are the hills beyond the River Pang. These hills are comprised of **chalk** at the base which is overlain by sands and clays deposited during the Palaeogene about 60 to 40 million years ago. The hills are capped by gravels layed down about 500,000 years ago. These gravels were part of large outwash rivers and streams associated with glaciated areas to the north. Berkshire was never covered by ice but at times the ground would have been frozen.

The valley itself is much larger than would be expected from the present day river and demonstrates that at one time water flow was much greater than it is today. These valleys are often called 'misfit' valleys. The youngest deposits are those in the valley floor which represent gravels layed down about 10,000 years ago as the river cut down through the existing rock and these have in turn been overlayed by recent alluvium. The geology of the valley leads to very differing soils and therefore to a wide range of land usage.

How the geology has affected the human history.

There are signs of human habitation in the area, particularly in the Kennet valley where strong evidence of **Mesolithic** settlement has been found dating from about 12,000 years ago. This date coincides with some of the gravel deposition and it is interesting to think that at the same time as the some of the youngest deposits there was human activity in the area. From earliest times and in the **Roman Period** settlements were dotted along the valley at regular intervals, often under modern villages. In the **Saxon Period** the valley was part of the Royal estates and was subdivided so that each sub-estate had a share of the various terrains from the river to the hill tops. The flat alluvium along the river provided hay meadows for early farmers which allowed them to keep stock alive during the winter. The gravel terraces provided pasture and arable land whilst the acid clay and gravel up-lands provided wood pasture and woodland products.

Towards the end of the 9th century the estate owners built the **first churches**. They positioned them next to their 'manor' houses. The costs, and a donation to the mother church, were funded from the tithe - a tax of a tenth of the increase of the land, every tenth sheaf of corn, tenth lamb etc. – paid by the owner's tenants. Thus the boundaries of the estate became the first **parish boundaries**. The features used to define the boundary were often pre-existing ditches and banks and so may be much older than the Saxon estate. These estate centres and boundaries are still visible in the landscape, for example at Hampstead Norreys and Stanford Dingley where the manor house still stands next to an ancient church.



Arable crops, particularly cereals, will not grow unless the pH of the soil is at least as high as 7.0. Many local soils have a pH of 4.5. Lime made with magnesium limestone is now used to raise the pH but in the past raw chalk was quarried and left on the field surface to weather and break down before being ploughed in to sweeten the soil. Chalk, however, can cause health problems in sheep if the land is subsequently grassed and used for grazing, hence the move to magnesium limestone. The Owl Pit was a chalk quarry and similar quarries can be found in many woods and fields.

The Owl Pit

The oldest rocks in the area are those of the chalk which is Cretaceous in age (about 85 millions years old). This is entirely made up of microorganisms called coccoliths. The chalk was layed down when shallow, warm, quiet seas covered the area. Britain at the time was further south than today. The upper level of chalk in the quarry shows evidence of erosion before deposition of the overlying beds were deposited. **This is called an unconformity.** Fissures and infill can be seen running down into the chalk. The unconformity which is shown in the face represents a missing record covering about 30 million years. Following this period of erosion the area was again covered by water about 55 million years ago. This resulted in the deposition of sands and clays, initially in a marine environment but then in a river environment. The lowest beds contain pebbles coated by the mineral glauconite which give them a green colour. Glauconite indicates seawater conditions.

The youngest deposits in the area are the gravels which were layed down during the Quaternary over the last 500,000 years. At this time Britain was experiencing repeated glaciation in the north and Berkshire received much outwash gravel when the ice melted.

5. Jennetshill Wood. This track is an ancient road which is shown on the earliest maps. It provides an excellent view over the valley. Look for horsetail, sorrel, herb Robert.. The flora shows that the wood is ancient. Look for bluebells, wood mellick, wood sedge, bluebell, wood spurge ...

6. Rotten Row. The name may mean *Riders Row* and seems to apply to the string of ancient settlement along the edge of Bradfield Hall Park. This string is probably a medieval green settlement on the edge of the former Bradfield Common that was situated around Bradfield Southend. A Primitive Methodist chapel existed here before 1830 and in 1851 attracted 96 people to its evening meeting. 'Slipper Cottage' and 'Farthings' were both pubs and 'Farthings' housed a shoemaker who employed three men. Note the Victorian letterbox – still in use. **Bradfield Hall** was built in 1773 by John Barrington – an illegitimate son of George III – for his eldest son – also illegitimate – on condition that he too never married!

7. Wet meadows. Now planted with poplars and managed by grazing. These are on the alluvium and would have been used to produce hay.

8. Mill Leat. This is an artificial channel dug at an early date as part of the watermill complex. It carries water along the contour to the mill and thus creates a head of water to drive the water wheel.

9. Water-meadows. These fields are visibly lower than the leat. They were carefully flooded each spring to warm and fertilise the soil to provide an early crop of grass for lambing ewes. They had fallen into disuse by the early 20th century and were ploughed up during World War II. Water-meadows were carefully engineered with flooding

channels, drains and sluices which allowed a controlled film of water to run over the ground. They produced rich crops of hay and rents were high, but they were labour intensive and went out of use during the late 19th century agricultural depression.

10. Mill By-pass Sluices. This overfall and sluice allowed water to by-pass the mill when it was not required to drive the wheel.

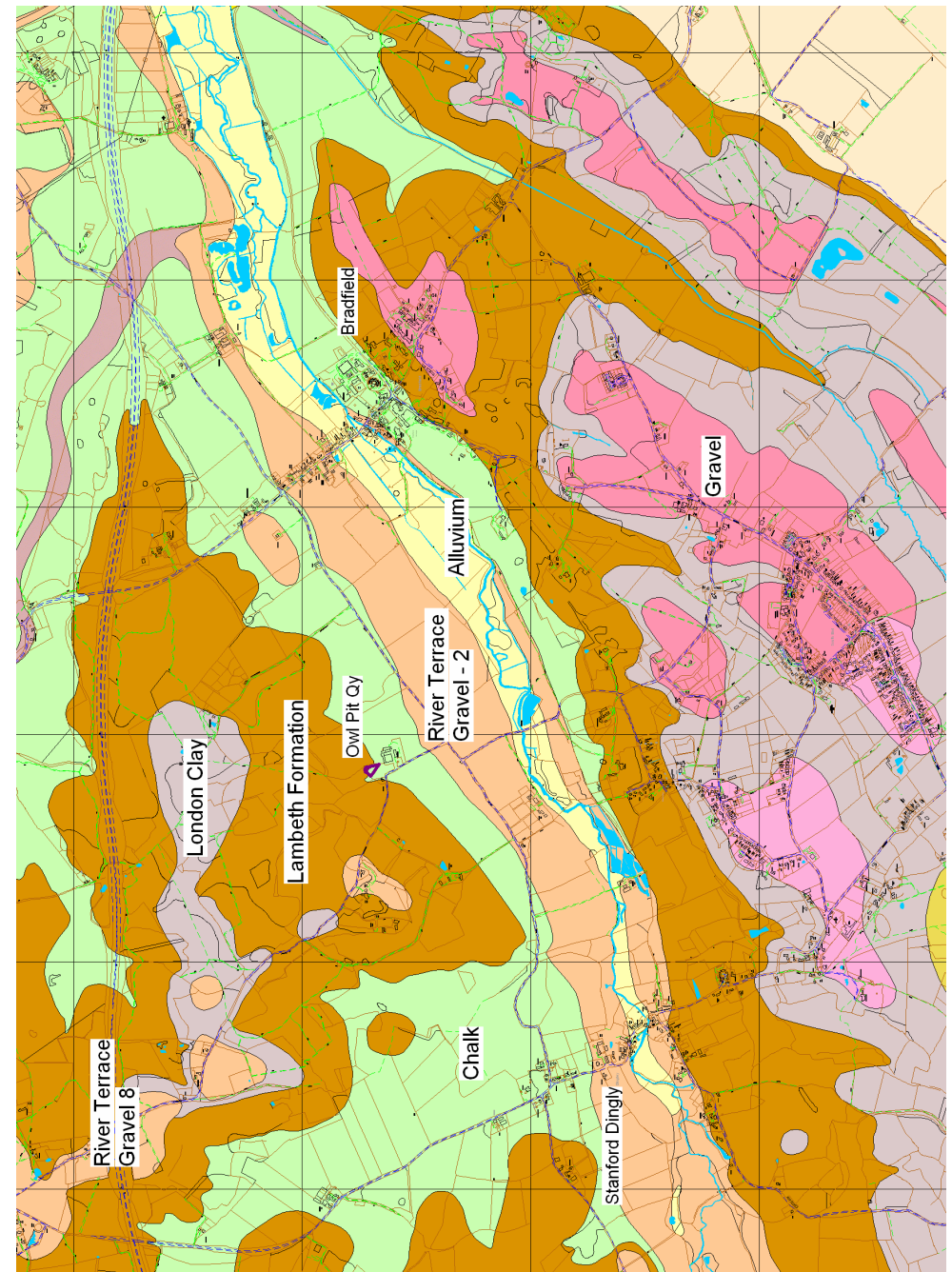
11. Bradfield Mill. A mill is recorded in Domesday Book (1086) but the present building is Victorian. It was built when the watermill was enlarged and converted from being a corn mill to being a pumping station supplying water from St Andrew's Well to the College, village and workhouse. In the 1870's an attempt was made to install a turbine to power refrigeration plant. The attempt failed.

12. Original course of the river.

13. The Gas House. Designed by Gilbert Scott and built in 1867 to produce gas to light the College, the church and the Rectory. It stopped production when the Rector became bankrupt in 1881 and for a term the College had to use 500 oil lamps. Electricity was installed 40 years later and the site was converted to a house retaining the Gilbert Scott *façade*.

14. Fields. Presumably these were the 'Broad Fields' from which the village gets its name. Most of the fields from Bradfield to Stanford Dingley are managed organically.

15. Owl Pit Quarry. This was started in 1830 to provide chalk to lime the acid soils of the surrounding fields. It is a Regionally Important Geological Site (RIGS) and is explained by an excellent board.



Solid and Superficial Geology

1. Rushall Manor Farm. The 18th century Black Barn and other old farm buildings have been restored and converted as a centre for the John Simonds Educational Trust. It is used to introduce children and young people to the countryside and receives many school visits and youth camping parties every year. The Trust has a strong religious focus.

2. Species rich hedges.

Please note that the footpath has been officially diverted. The first hedge has at least 10 species. The second, which was a parish boundary, has at least 8. However, bluebells and other woodland plants in the hedge bottoms shows that they are relics of ancient woodland. Ancient hedges are often species rich but so are planted ones! Look for big old coppice stools or plastic tree guards to help you decide. Look for blackthorn, hawthorn, elm, field maple, hazel, briar, dogwood, spindle, oak and ash.

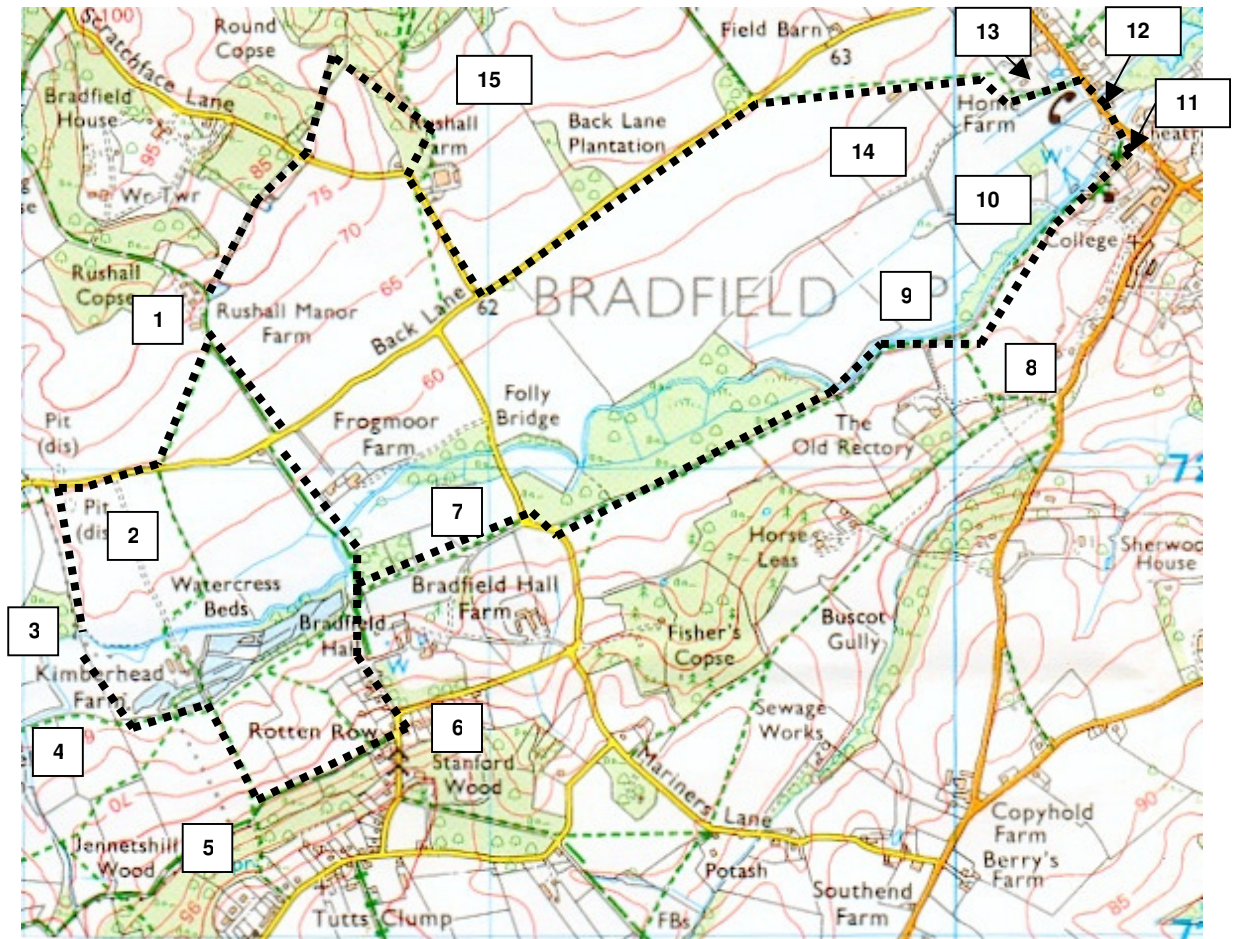
3. River Pang. Note the wet meadows on either side and the raised bank on the south side. Look in the river for water mint, water forgetmenot, water cress.. and on the banks for willow herb, comfrey, silverweed, meadowsweet, hemlock, hedge cranesbill, tufted vetch, great burnet, black medick, marsh bedstraw, yellow vetchling... The Pang is a chalk stream. Chalk only occurs in northern Europe, North America and New Zealand. It absorbs rainfall and releases it

slowly thus stabilising the temperature and adding calcium. The steep gradient oxygenates the water. This combination results in a rich wildlife.

4. Kimberhead. The place name means *Cyneburg's Spring* and *Cyneburg* is a Saxon woman's name. It was also known as *The Rising* and *The Blue Pool*. The western end, where a view point has been provided, is the original pool. The main notes provide more information. The other ponds were developed for watercress (see overleaf) and the *cottage ornee* was built as a summer refuge from Bradfield Hall in the late 19th century.

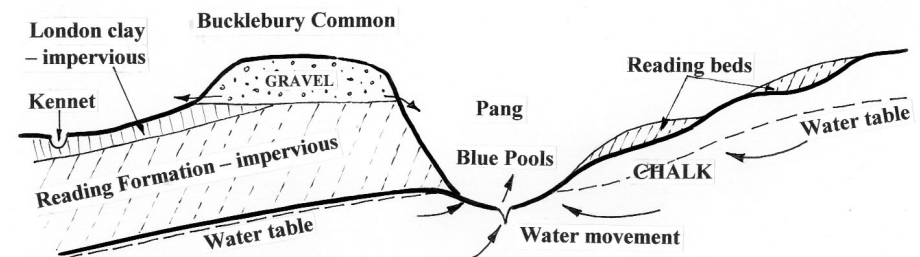
The geology of the springs.

Artesian springs have developed because of the layers of impermeable clay above and below the porous chalk in the area. This causes there to be a build up in downward pressure of water from higher parts of the water table over the Downs. Water is then forced out through fissures. The blue colour is almost certainly derived from the fine particles of a mineral called glauconite which is blue-green in colour and transmits or reflects the light that reaches it in the fine sands on the bed of the pool. Chalk, in common with other rocks of marine origin, contains particles of glauconite which would be insoluble and left on the bed of the pool when soluble elements of the chalk were removed in the water flowing away. The water maintains a constant temperature of about 7-9°C all year.



SOUTH

NORTH



Section through the Pang Valley at the Blue Pools. Acknowledgement to Prof. Peter Worsley.