

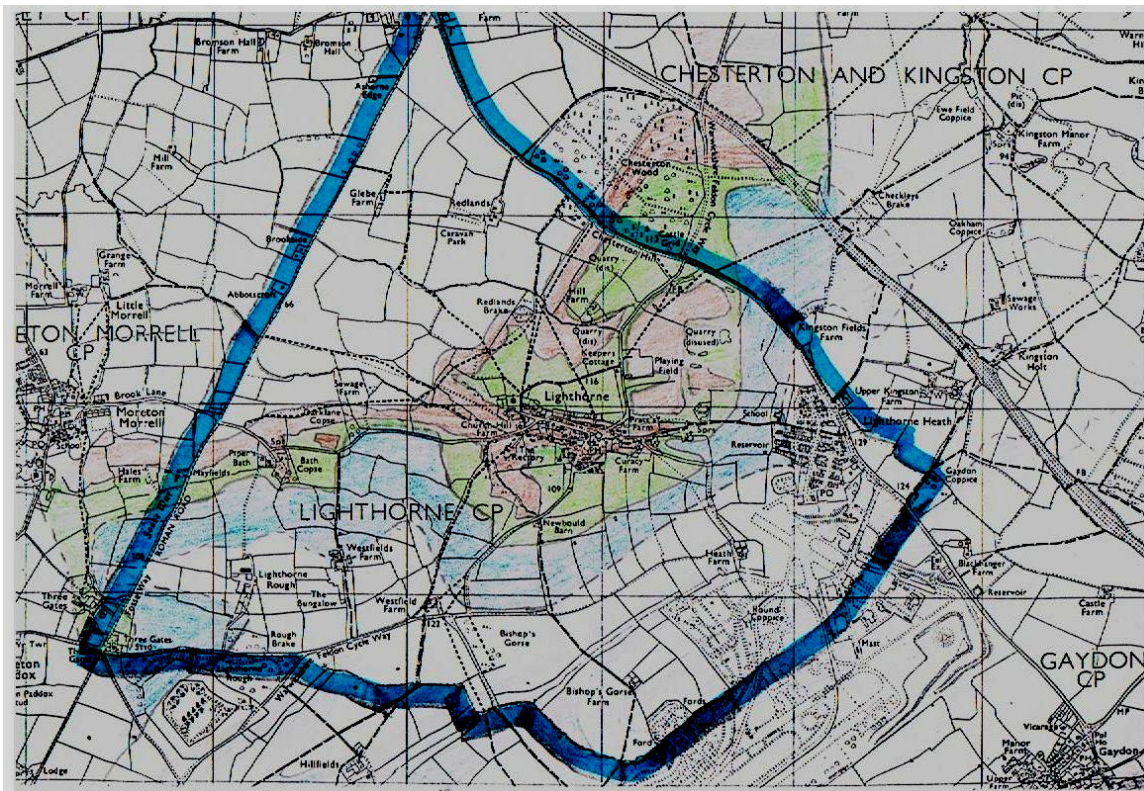
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The Geology of Lighthorne and its Effect on Settlement

by Colin Such (2013)

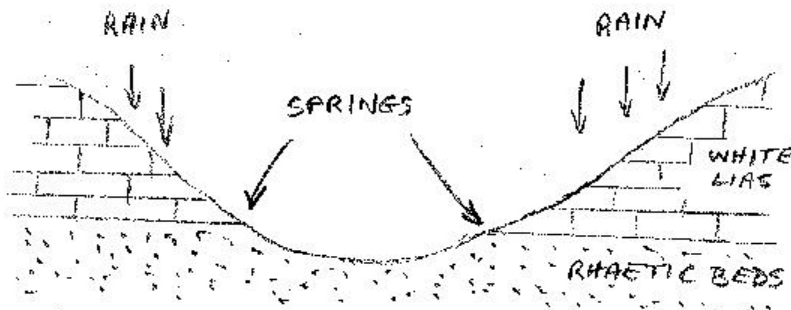
The solid geology of the Lighthorne area consists of marls, mudstones and limestones deposited in a marine environment at the end of the Triassic period, 180 million years ago. The outcrop on the surface of these rocks forms a more or less continuous band from Devon to the Yorkshire coast, dipping gently to the south-east and overlain by the younger limestones and marls of the Jurassic system of the Cotswold Hills.

In the last Ice Age the whole of the Lighthorne area was covered by ice. Much of the surrounding geology is covered by a layer of Boulder Clay – angular rocks, varying in size, scattered in a matrix of clay. The advancing ice sheets tore up material from the floor over which they travelled and re-deposited it as Boulder Clay elsewhere, sometimes far from its source. The composition of the Boulder Clay deposited on top of the White Lias and lower Jurassic rocks in the Lighthorne area indicates that the ice sheets advanced from both the north and the east.



Sketch map to illustrate the solid and drift geology of the parish area, the boundary of which is outlined in dark blue. In the area shaded brown the surface geology is Rhaetic marls and mudstones which in the area shaded green are overlain by White Lias limestone. In the area shaded blue this is further overlain by Boulder Clay, deposited in the Ice Age. To the north-west, unshaded, are the older beds of the Triassic Mercia Mudstone group and to the south-east, unshaded, the Boulder Clay covers younger limestones of the Lower Jurassic.

The older part of the village of Lighthorne is situated within the confines of a steep sided valley of a stream rising in the Lighthorne Heath area, east of the village. This stream has eroded a valley through the permeable White Lias limestone down to the older Rhaetic beds of less permeable mudstones and clays. Not only has the valley afforded shelter to the original settlers of Lighthorne, but in addition the junction of the limestone and the Rhaetic beds on either side of the valley has provided a fresh water supply.



When rainwater sinks into a porous and permeable bed such as limestone, it soaks down until an underlying impervious rock such as clay is reached. If the surface of the junction is inclined, the water flows down the water-tight slope, emerging as a spring where the junction is intercepted by the valley side. Such is the case in Lighthorne. Several of the older cottages on The Bank and on the south side of Post Office Lane are located on the spring line. The junction of the Rhaetic beds and the White Lias, though often obscured on the ground by soil cover, can be inferred by the presence of ground water after periods of rain and by an abrupt change in the slope of the valley side.

Both the White Lias and the Rhaetic beds have proved to be of considerable economic importance to Lighthorne. The White Lias is a pale grey porcellanous calcite-mudstone, weathering cream to pale brown and forms an excellent and attractive non-friable building stone. Most of the older houses and farm buildings are constructed of this stone, as are many walls and several cobbled pavements adjacent to the cottages. The church and several houses, including “Dene Hollow”, have quoins and dressings of Horton Stone – a deep brown iron-rich limestone of the younger Middle Lias, transported probably from the Burton Dassett area.

Old Ordnance Survey maps indicate the presence of limekilns in the area. When heated in a kiln, limestone loses its carbon dioxide and yields quicklime, used for making mortar and also as a fertiliser.

A large quarry was excavated in the 1950s east of the Sports Club and south of the B4100. The limestone was transported to Bishops Itchington for the manufacture of Portland cement.

Despite the abundance of local stone for house building, a clay quarry and brickyard was established at Chesterton Hill, using the clays of the Rhaetic beds. Several older houses in Lighthorne are built of these local bricks, including part of the Old Rectory, “South View” and the two rows of “Bank Cottages” demolished in the 1960s.