

## OBSERVATIONS ON HISTORIC AND MODERN CHALK EXPOSURES IN THE PARISH OF FRAMPTON, WEST DORSET, UK

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Historical and temporary exposures in the Chalk around Frampton village, West Dorset, UK are described. As well as Chalk, sand and gravel deposits and Clay-With-Flints were found, partly *in situ* and partly as disturbed, downslope solifluction and slip deposits. Use of the rock and soil materials since Roman times to the present day is also described. The way in which the landscape has been modified by human activity is illustrated.

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### INTRODUCTION

The recording of observations in the present study was prompted by the new build Tunnel House [SY 632 949], in the village of Frampton, in 2003. This involved a deep cut into the hillside north of the A356 road through the village and revealed several unexpected geological features. The late Hugh Prudden advised these observations should be 'written up' preferably with any other relevant information previously obtained. Revisiting sites observed over a period of some 30 years added further information. Long-term residents involved in agriculture provided confirmation and descriptions of original excavations which are no longer visible or had been redeveloped. Tracing the course of a Roman aqueduct to Dorchester provided possible explanations for some observed effects to the hillside south of the village. The railway from Yeovil to Weymouth, running across and through the hillside on the northern side, was responsible for the most obvious change in the landscape.

Frampton lies along the northern edge of the floodplain of the River Frome c. 5 miles north-west of the County town of Dorchester. The hamlet of Southover and the area of Frampton Park occupy the southern edge of the floodplain. From 1566 to the 1930s, Frampton was the centre of an eventual 6-7,000 acre estate owned by the Browne family (Miller, 1999) and inherited by the Sheridans for the final 100 years (Fletcher, 1931). The parish has evidence of human occupation of more than 4,000 years with Bronze Age barrows and Iron Age fields (Royal Commission on Historical Monuments, England, 1952). The Romans, a Benedictine Priory, the last of the Browne family, the Sheridan family and a railway all played a part in physically changing the landscape. Smaller excavations, such as two pits south of the river, provided the materials for estate cottages, farmhouses and barns. Modern roads, public and private, made their mark and, like the pits, provided direct information on the geological succession. British Geological Survey maps at scales of 1:50,000 (Sheet 327, Bridport, 2005) and 1:10,000 (SY69SW, 2001) were a source of valuable information on the observed variations in the chalk. Papers on the fossil sea urchin *Micraster* sp. were also consulted although there is still some difficulty in identifying which *Micraster* species are present (Nichols, 1955; Stokes, 1977; Smith and Batten, 2002). Features in the disturbed chalk in two of the excavations studied are

perhaps historical rather than geological in origin. A map showing the location of sites investigated in this study is presented in Figure 1 and the stratigraphy of the Chalk in the Frampton area is described in Table 1.

### INVESTIGATED SITES

#### *Littlewood Farm and environs*

The dairy complex at Littlewood Farm [SY 632 942] has been considerably developed over the last 30 years. The floor of a silage pit excavated in the early 1980s revealed a mixture of sands, gravels and occasional clay patches. The sand and gravel was loose and varied in colour. There was no obvious sign of solifluction in the faces of the pit, but periglacial processes might account for this material. During the 1990s a second silage pit and three barns extended the dairy complex further west along the same line. Here, although the floor again comprised sands and gravels (P. Gillam and G. Holmes pers. comm., 2015), the steep back face revealed sedimentary structures more typical of a solifluction flow (Figure 2a). The face was approximately 4 m high with channels up to 1.5 m cut into the chalk which were filled with clay and unsorted, scattered flints. There was no exposure of the gravels beneath the barns. By 1995 a gap had been created between the barns and the back face to allow access from the rear. The gravel from the floor area was excavated and re-deposited up slope and could be seen to be similar to the material observed in the first silage pit. In 2015, extensions to a slurry pit to the east of the complex produced similar material (Figure 2b). The Roman aqueduct was traced along the 85m contour and recorded as 'lost in gravels below Littlewood Farm Dairy' (B. Putnam pers. comm., 1996). Table 2, constructed from a percussion drilling log from a borehole sunk by Saxton Deep Drillers in 1993 in search of a water supply close to the line of the aqueduct, provides details of the subsurface geology at Littlewood Dairy.

Putnam's work on tracing the course of the Roman aqueduct to Dorchester (Putnam, 1998) explained puzzling details in Metlands Valley [SY 626 943] and in the Littlewood farmyard (Figure 3a). The valley has spurs running down the hillsides