

## ARCHAEOLOGICAL NOTES

### NATURAL SINKHOLES AFFECTING THE PRIDDY CIRCLES, MENDIP

by

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#### ABSTRACT

Many of the surface depressions in and around the Priddy Circles (Neolithic henge monuments) are shown to be natural sinkholes, not mine workings as had been assumed. The construction of Circle no. 3 involved levelling several pre-existing sinkholes, but the ground remained liable to subsidence. Unsatisfactory ground conditions may have been one of the factors that led to the abandonment of the whole ceremonial site before the Circles were completed.

The Priddy Circles, four large Neolithic henge monuments, were described by Tratman (1967) following excavations by the Society, 1956 to 1961. In his paper Tratman often referred to pits and hollows close to the Circles, in some cases affecting the actual earthworks, as being the work of miners. He did not cite evidence in support of this assumption, nor did he mention the possibility that some of the hollows might be natural. Probably he accepted the opinion of local landowners that miners were responsible for almost any hollow in the ground surface of that part of the Mendip plateau.

The present writer carried out a field by field survey of surface topography in the Chancellor's Farm orefield (Stanton, 1982, Fig. 2) from 1984 to 1985 and extended it into adjacent areas. Within the orefield itself some of the existing depressions appear to be natural hollows, not the work of miners. The evidence for this assertion includes the smooth rounded forms of the depressions, the absence of tip heaps and the presence of complex snail holes (Stanton, 1986) in limestone outcrops low down in the depressions. The possibility that the depressions might be mine workings smoothed off by reclamation is negated by the fact that one typical large depression is entered by a line of 'gruffs' (minshafts following a vein) that only slightly modify its original shape. A shaft in the wide floor of this depression is open and is in limestone beneath 3m of stony clay. Shot-holes indicate its 17th or 18th century age.

Eastward from the orefield towards the Priddy Circles the mine workings become fewer and then only occasional, but the natural depressions become more common. Close to Circle no. 3 (Tratman's numbering) the natural depressions are closely spaced (2 to 3 per hectare, excluding depressions now lost by levelling of the ground) and up to 7m deep. Several are actively enlarging through subsidence at or near their deepest points.

Historical records (e.g. Tratman, 1967, p. 101) and ground inspection show that much land near the Castle of Comfort and north of the Kennels was levelled long ago. The fields containing only a few wide shallow depressions of uncertain origin (FIG. 1) may have been subjected to intensive levelling operations in the past.

The writer could find no evidence that mining played any part in the formation of depressions near Circle no. 3. Minor landslips and erosion by livestock have produced exposures in the sides of many depressions that show no made ground or mineral traces, only clay subsoil carrying scattered siliceous stones including small pieces of chert and larger blocks and boulders of Harptree Beds lithology. The only useful material that the depressions could have yielded is clay, and their random distribution and the total lack of spoil heaps and ramps to facilitate clay extraction argues strongly against this hypothesis.

Evidently there is a layer of leached residual clay up to at least 10m thick blanketing the solid limestones of Lower Lias age (Green & Welch, 1965, p. 102) in the vicinity of Circle no. 3. It is under these conditions, where rainwater cannot percolate freely into the limestone but is concentrated at points where the clay cover leaks, that natural sinkholes are most extensively developed in the Mendips (Barrington & Stanton, 1977, p. 223). In a depression 4m deep, 250m ESE of Circle no. 3, the clay floor collapsed following heavy rain in 1959 and a small natural cave in the limestone was revealed (Castle Farm Swallet; Barrington & Stanton, 1977, p. 49). This depression is now completely infilled. Other recent ground subsidences in the vicinity are indicated on FIG. 1. They usually appear after heavy rain or beneath the wheels of a heavy farm vehicle. The cases examined by the writer affected previously uncontaminated subsoil, not backfilled mine workings.

By the same arguments that the depressions close to Circle no. 3 are of natural origin, the six sinkholes up to 6m deep that cut into the earthwork itself (FIG. 1) are also natural. They have developed in the 4000 years or thereabouts since the Circles were built. Considerable lengths of bank and ditch have been engulfed into them.

In 1983 land drains were laid to discharge into the big sinkhole that cuts the SE side of Circle no. 3. Renewed floor subsidence and slope erosion followed.

Inside Circle no. 3 there are four minor depressions less than 1m deep. The remaining ground is flat except for one large and four small shallow clay-floored ponds which fill in wet weather and dry out in drought. Ponds of this kind are rare outside the Circle, the nearest being 250m ESE of its centre.

The coincidence, that within the 1.8 hectare area of Circle no. 3 are five ponds, whereas outside the Circle in a similar area of valley bottom (unlike the other circles which are on sloping ground) are five depressions on average but no ponds, is so great that a novel possibility, that the ponds are infilled depressions, may be entertained. The artificial filling of a sinkhole with clay dug from the vicinity, followed by natural compaction, would certainly result in the formation of a saucer shaped hollow with an impermeable floor that could hold water in wet weather.

Few people, other than the builders of a circle, would have had a special interest in restoring a flat ground surface inside that circle and not outside it.

For the above reasons it is here proposed that the Neolithic builders of the Priddy Circles, having chosen a site that already 4000 years ago was pitted by sinkholes, filled in those that occurred within the ceremonial area. Probably the builders soon realised that the stability of the ground in and around their monument was suspect. It is curious that the ponds were not finally reclaimed as level dry ground, and in this context Tratman's findings that the Circles show no signs of prolonged use and that the north circle (no. 4) was definitely never completed, are significant. Tratman considered (1967, p. 118) that something happened which caused all work to stop. He speculated that invading Beaker people might have changed the religious customs of the Neolithic natives. Another possibility is that the builders became convinced that the site was treacherous, because the ground gave way under their feet, and abandoned it.

Whatever the truth may be, it is relevant to remember, when researching the history of the Circles, that their environment is one that has always suffered from unpredictable ground subsidence. Some of the nearby sinkholes may contain archaeological material. Investigation of the ground beneath the ponds could also prove fruitful and could, of course, discover whether or not they are filled sinkholes.

Some of the depressions in the vicinity have recently been used for agricultural tipping, and levelled off, in the belief that they are only 'old mining holes'. The writer is convinced that this belief is incorrect. The Priddy Circles were constructed on ground pockmarked with natural sinkholes, which must remain in their natural state for this unique monument to be seen and interpreted in its true context.

### References

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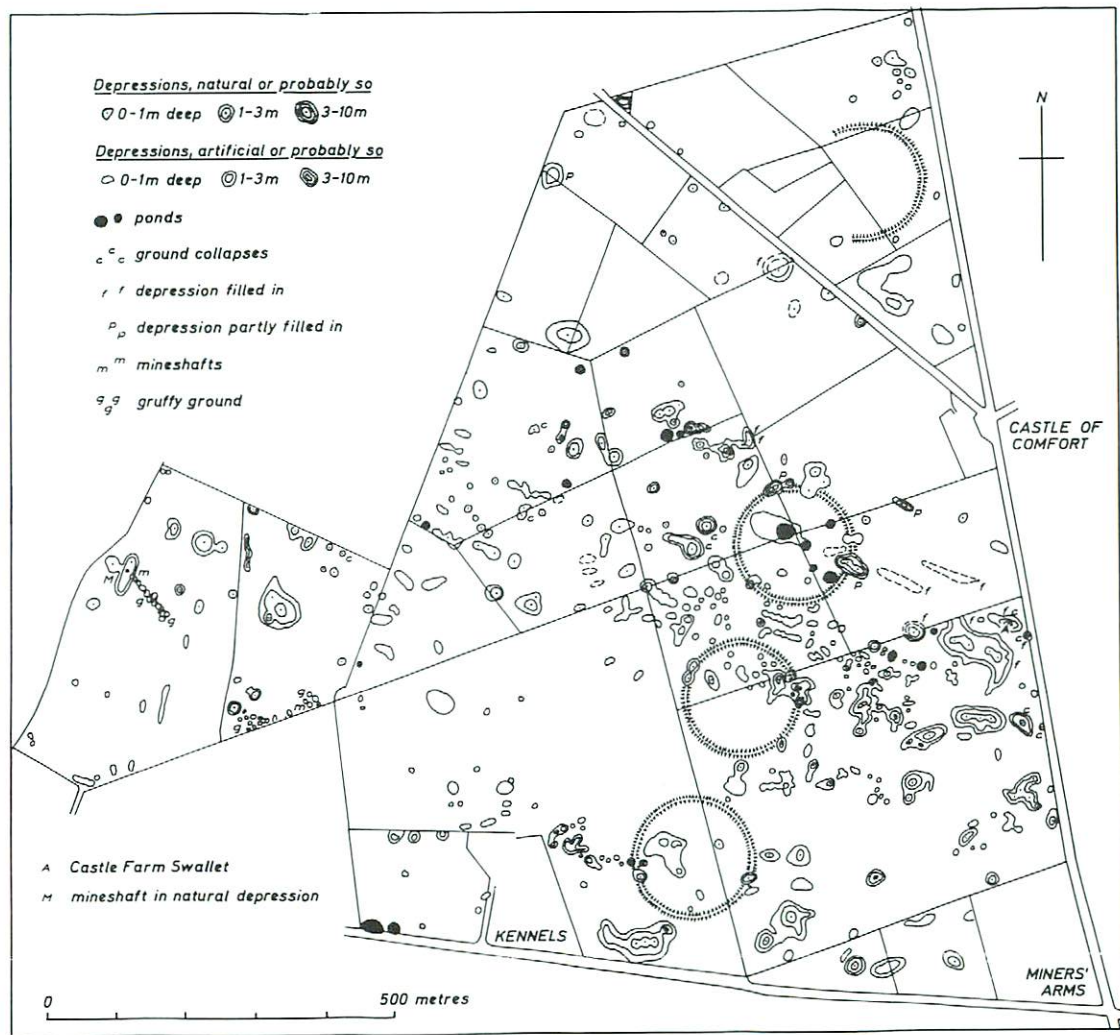


FIG. 1 — SINKHOLES AND OTHER DEPRESSIONS NEAR THE PRIDDY CIRCLES, MAPPED BETWEEN 1963 AND 1986.

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## RECENTLY INTRODUCED FLINT NODULES ON THE MENDIP HILLS, SOMERSET

by

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### ABSTRACT

Material containing flints, spread on fields at Westbury-sub-Mendip, is not of local origin.

The purpose of this note is to avert the possibility of confusion for future geologists or archaeologists working in the area to which this note relates. Justification for recording the occurrence may be recognized by the parallel with the long-running controversy which arose concerning the finding of 'picrite blocks' near Wookey Hole. Picrite, like flint, was considered not to be naturally derived on the Mendip Hills (Evens, 1958).

In the spring of 1982, a number of lorry loads of foreign material were distributed on a field at Westbury-sub-Mendip. This was undertaken following the removal from the field of '150mm' of commercial topsoil. The foreign material was levelled, and the field was subsequently sown for long-term grass. On an area of the field covering approximately 0.4 hectares, centred on NGR ST 51475023, at 260m OD, there is now a surface scatter of rolled flint nodules of up to 125mm (5 inch) size. The farmer concerned supplied the information that the material introduced had been brought from Chepstow.

Foreign material from an unknown source was introduced at a later date on to the surface of the adjoining field to the west of the site recorded above.

It may be of interest to record here that occasionally quite large nodules of flint, originating in Wiltshire, arrive on Mendip in bales of hay brought as fodder.

### Reference

- EVENS, E. D. 1958. Origin of picrite blocks near Wells. *Geol. Mag.*, **95**, 511.

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### MORE ON R. F. PARRY

Dr W. I. Stanton has identified the location of the photograph of R. F. Parry (opposite p. 120 in the last issue of *Proceedings*) as being on Walton Hill near Street, not Barton Hill. The renovated windmill behind is diagnostic.