THREE AGRICULTURAL CHALK MINES IN NORTH-WEST KENT

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COURT WOOD

In September 1982 a set of chalk tunnels in Court Wood, Southfleet, was brought to the attention of the Kent Underground Research Group by Mrs. Smith of New Barn Road.

The tunnels are entered via a shallow crater-like hollow on the northern edge of the wood at N.G.R. TQ 6205 6992. The 7.5 m. diameter depression was created by the collapse of the original shaft and adjoining adits. The roof level of the tunnels lies only 1.7 m. below the surface, an unusual and unstable arrangement.

In 1971, when the earthworks of Court Wood were surveyed by J.E.L. Caiger,[1] three small openings were visible at the above N.G.R., but were much obscured with rubbish thrown in to fill the pit-fall. Since that time the entrances have been cleared enough to gain access, probably through the activities of local children who know the site as 'the caves'.

A survey was made of the tunnels on 5th September, 1982, and the resulting plan and sections were reproduced in Fig. 1. The chalk had been worked on one level with the longest remaining gallery measuring 12.5 m. long and 1.7 m. high. Unlike the majority of deneholes or chalkwells, where the excavated material was hauled up the shaft directly from the working face, the length of the Southfleet adits indicates that the chalk was transported to the base of the shaft in barrows.

In comparison with a medieval double trefoil denehole, the galleries have been crudely cut with little care being taken to trim the walls or roof. Despite the chalk being discoloured with smoke from

[1] *Arch. Cant.*, lxxxvi (1971), 205–7.

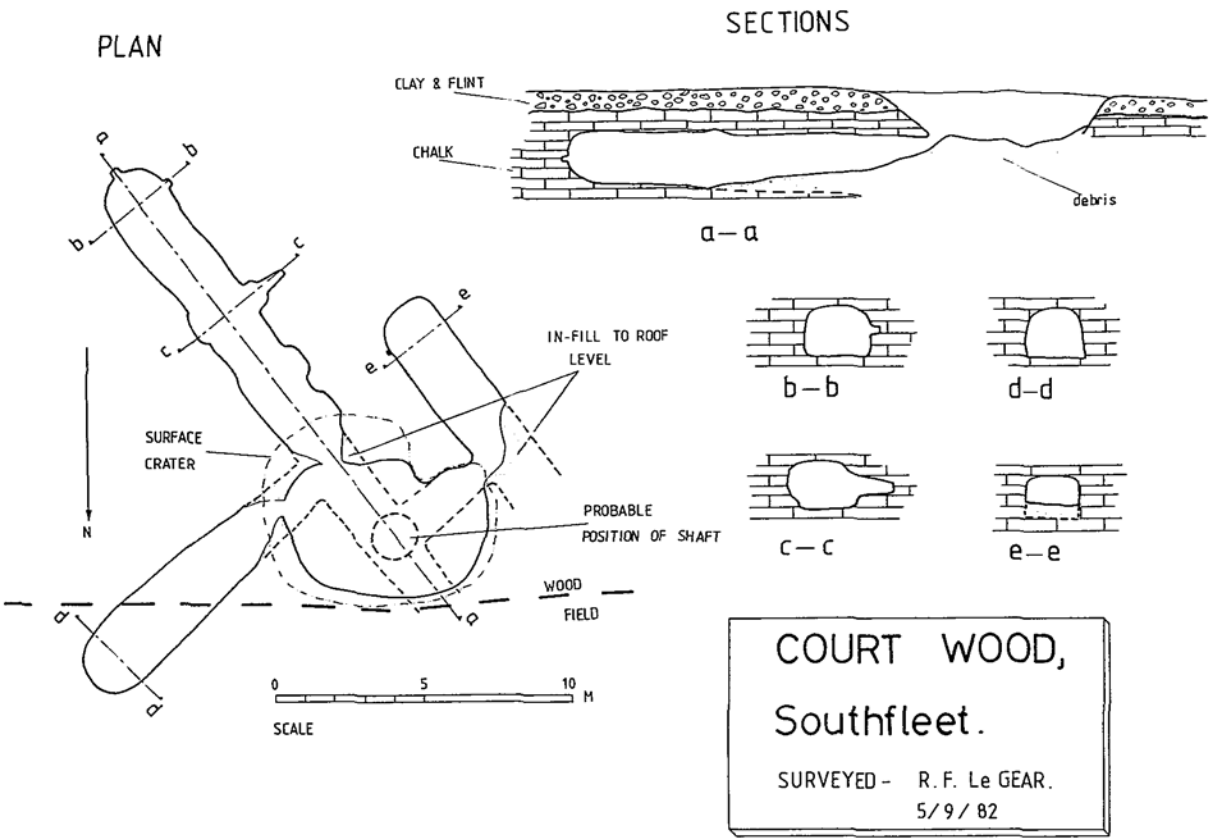

Fig. 1. Court Wood Chalk Mine: Plan and Sections.

the numerous fires that children have made in the tunnels, many pick marks could be seen, and the indentations show them to have been made with the miner's traditional tool – the short headed iron pick.

The three tunnels are the remains of a small mine dug for chalk to apply to the local fields as a top dressing. This process, known as marling (or chalking), has been carried out in the County for many centuries, the ubiquitous deneholes and chalk-wells being a common method of obtaining the raw material.

No dating evidence was found during the survey, but it is interesting to note that the collapse has occurred at the junction of two of the field banks plotted by Caiger and noted by him as being possibly medieval. It is tempting to suggest that the construction of the banks and ditches had weakened the roofs of previously excavated tunnels. It is much more probable, however, that miners of a much more recent period chose to sink their shaft close to the already old boundaries as it happened to be a convenient spot that would not interfere with subsequent ploughing operations.

There are a number of other depressions and hollows in the wood, some of which may mark the site of similar excavations.

During his investigations of deneholes and chalkwells, J.E.L. Caiger surveyed many underground structures in the County including the following two examples that are somewhat similar to the Court Wood mine.

THONG

In 1959 when the Gravesend Airport site was being developed for housing, a set of tunnels were discovered by workmen. (Fig. 2) Caiger's field notes are as follows:

> 'This chalkwell was found on a building estate on the old Gravesend Airport at Thong. Footings of a semi-detached house had broken into this excavation and it was reported to the Borough Librarian on 23/6/1959.
>
> The excavators of this chalk-well had encountered chalk at a depth of three feet and had commenced their heading at a depth of about six feet. There is a slight sub-soil here of 1 ft. 6 in. of clay. The height of the chambers was approx. 7 ft. from the floor, although this level had been shortened due to roof falls. Much broken chalk from the roof lay on the floor. Pick impressions were rather sparse, this was also due to the crumbly nature of the chalk which disintegrates readily. The sketch plan shows how one chamber was extended to 22 ft. and an attempt to form a pillar can be seen at the right-angled distant chamber. Approx. 200 tons of chalk had been removed from this well. The land formerly belonged to the Earl of Darnley.'

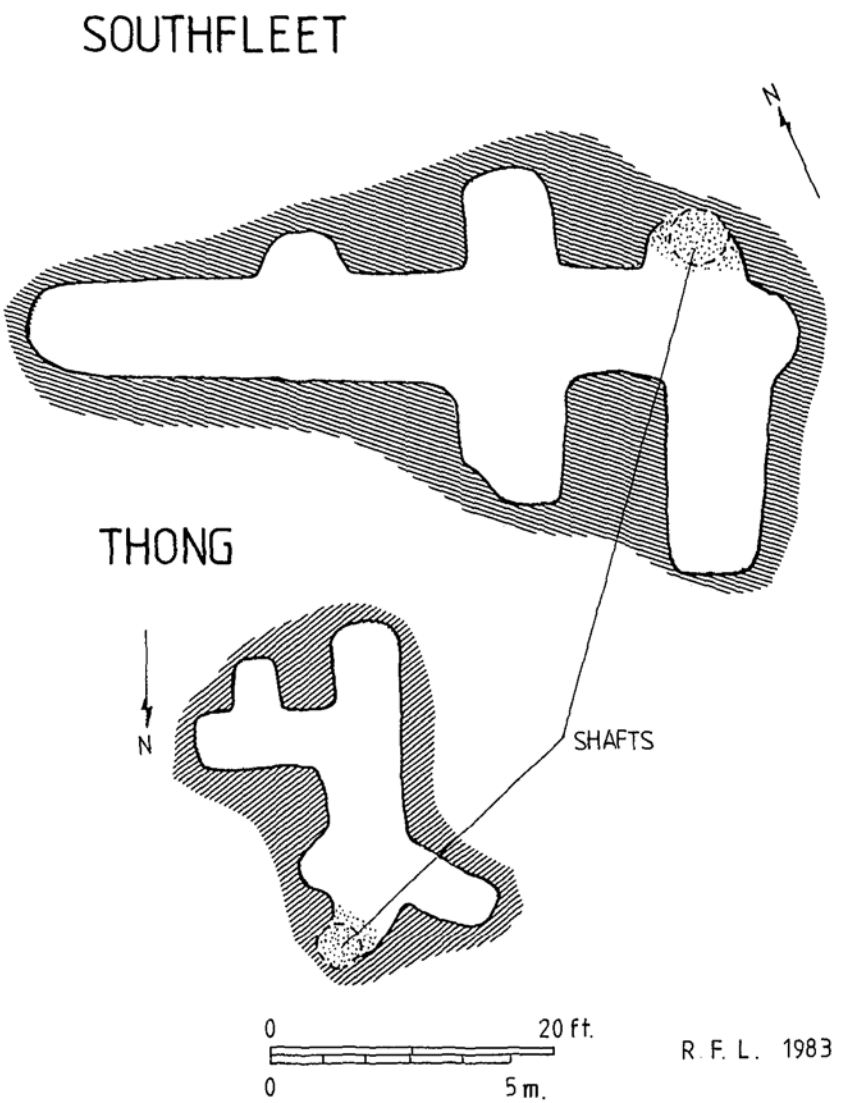

Fig. 2. Agricultural Chalk Mines at Southfleet and Thong (*after J.E.L. Caiger*).

SOUTHFLEET

In 1975, and only 1 mile (1.6 km.) north-east of the Court Wood mine, Caiger visited a 'chalk-well' at Southfleet with Messrs. Tilley and Ridgers. Sadly this was to be the last of his surveys and reports as

he died in April of that year. The following is the report that he had prepared for *Arch. Cant.* The location of the site was N.G.R. TQ 6329 7090.

'On the 19th January, 1975, an underground chalk cavern was investigated by E. Tilley, A. Gwynne-Ridgers and the writer. These chalk workings are at Southfleet, on land farmed by Mr. Harris, to whom our thanks are due for promptly reporting the discovery. The accompanying plan [Fig. 2] shows the layout of the chambers and the entrance shaft. It was apparent, that at some much earlier period, the shaft had been deliberately filled up with soil to seal it at ground level. As so often happens soil movement down the shaft into the void of the underground caverns had caused the shaft to become open again.

From an examination of the chalk walls and vaulting it appeared reasonably certain that the workings were a chalk-well excavated at some past period, possibly about 200 years ago, to obtain unpolluted chalk to dress the adjacent fields. Sigificantly, the entrance shaft had been sited close beside an old hedgerow where its presence would not constitute a danger or embarrassment to ploughing. Many pick-axe indentations were visible on the chalk walls and vaulting, and it was observed that these sloped from upper right to lower left, an indication that the pitman was right-handed. The walls of this chalk-well had noticeable fissures both in the vertical and horizontal planes. These natural lines of cleavage would have been an asset to the task of mining the chalk. Due to the large quantities of fallen chalk rubble lying at floor level, it was not possible to ascertain the true height of the vault, but by part measurement and part estimation, it would have been at least 10 ft. when mining ceased and the chalkwell was finally abandoned.

Assuming that a cubic foot of damp chalk weighs 163 pounds, calculations show that at least 400 tons of chalk were excavated from this chalk-well.

These chalk-wells were usually sunk in the late autumn when farm labour was more readily available for such tasks; the chalk was distributed over the fields and left for the winter frosts to break down. Later, in the spring, it would then be ploughed into the soil.

Sometimes chalk-wells were sunk by teams of itinerant diggers who contracted with the farmer to sink the shafts, mine the chalk and distribute it over the fields. In this latter arrangement, they contracted to cart the chalk to a distance of only about 100 yds. from the shaft radially. Should the field be a large one, this practice necessitated the sinking of several chalk-wells in the area to be chalked. It was customary to chalk about six acres from one chalk-well.

An unusual feature in this particular chalk-well is the position of the entrance shaft which is sited at the extreme end of the underground chambers. Normally, the shaft is centrally disposed; however, due to the large amount of earth and rubble entirely blocking one side of the shaft it is possible that other chambers may still exist on its northern blocked side.

Finally, it is interesting to note that members of the Gravesend Historical Society investigated a somewhat similar excavation about a mile south from this chalk-well in 1956.'

DISCUSSION

In the three sites described above the galleries had been driven from the shaft almost as soon as the chalk was reached. This action resulted in very shallow excavations with insufficient roof cover and a

high risk of surface subsidence.

After examining the Court Wood tunnels and studying Caiger's notes on the Thong and Southfleet sites, it would seem that these three unusual mines were probably dug by agricultural labourers when other farm work was slack. The part-time miners, however, had only a very limited knowledge of engineering techniques and appear to have been trying to obtain the maximum amount of chalk from a single shaft with little regard for their own safety or the mines' future stability.

The denehole/chalk-well concept of having the chamber length limited by the friction of the hauling rope on the base of the shaft had been abandoned. Instead, some form of underground transport (probably wheel-barrows) had been used to enable the galleries to be driven for greater distances.

Underground sites of this type are very difficult to date, but the style of mining and the poor level of workmanship displayed would tend to indicate the middle to late nineteenth century.

ACKNOWLEDGEMENTS

The writer would like to express thanks to Mrs. Smith for bringing the Court Wood mine to the attention of the Kent Underground Research Group, and to Mrs. N.V. Caiger who readily made available her late husband's notes and drawings.