Location MT21

SO 7511 6115

Quarry Farm House Exposure, Penny Hill

This is long exposure on footpath that runs directly behind a private house. It is very interesting geologically, but only visit it if you are prepared to ask permission from the owners – and their very friendly dogs! You can obtain all the information you need below and the exposure has become overgrown in recent years anyway.

The exposure is a cutting made to create more space for the adjacent property, rather than it being a disused quarry. Look at the rock exposure as a whole. The rock is composed mostly of thin alternating layers of soft and harder material, but the proportion of soft to hard varies in different parts of the exposure. In one area of the exposure, near ground level, the harder rock type is noticeably thicker. At the top of the cutting, another material made up of broken poorly-sorted rock in a soft matrix is present.

* The thinly-layered rock here may belong to the same geological formation as seen at Location MT16 and those on Penny Hill, but this is not yet proved, and it may belong to an underlying formation that is composed mostly of soft muddy sediments, or may show a *transition* between the two. The thicker area of the harder rock near ground level has been analysed and is a 'patch reef'. The poorly-sorted broken rock layer is a deposit formed by processes described at Location MT5 – it is 'head'.

* The presence of much soft rock enables the exposure to become easily weathered and vegetated, but a lot can still be studied. Look closely at the exposure along its length. The layering of hard and soft rock is not aligned everywhere in the same way: in some parts it is gently inclined, and in others it is more or less vertical.

* The layering in the rocks indicate that dips and strikes are highly varied in the exposure. Taking readings of dip and strike here is not easy, especially where soil and vegetation are developing, obscuring the face. Estimating the variable dips and strikes is possible in some parts of the rock face. The cutting runs approximately east-west and measurements of 196 / 20 E at western end, and of 045 / 89W at eastern end have been made.

* The layered rocks in the cutting are in two places deformed into *folds,* both on the right hand part of the cutting. These folds form broad, open curves many metres across. They are anticlines.

* The varying folds and tilts of the rock layers in the cutting do not smoothly join up with each other, but instead change abruptly. What could be the explanation for this? Choose from:
(1) The rock layers were originally deposited in this way.
(2) When the rocks were deformed they not only folded, but broke and moved along geological faults.