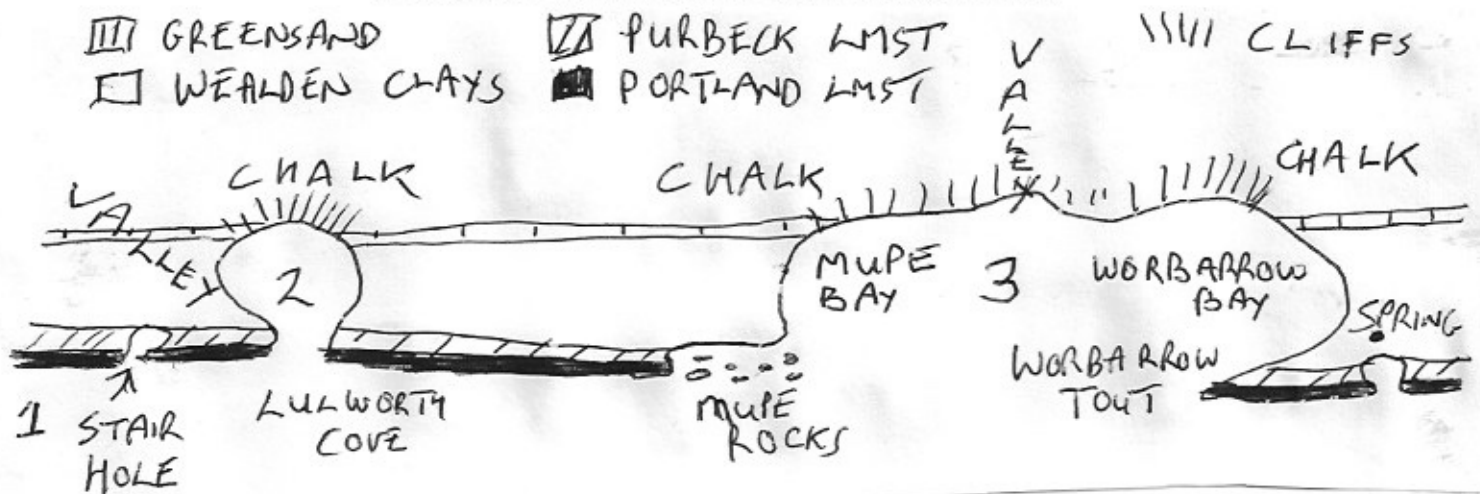


LULWORTH COVE AND WORBARROW BAY - DORSET

AN ERODED CONCORDANT COASTLINE



The rocks on this coastline run parallel to the sea and dip steeply landwards. The coastline shows well the effects of marine erosion on a concordant coastline with rocks of differing strengths.

STAGES OF EROSION

1. The massive resistant Portland beds form a barrier to the sea. The beds dip steeply landwards and a vertical cliff is formed. Above this are the slightly softer Purbeck beds which form a gentler angle to the upper part of the cliff. This is an example of a bevelled cliff. A small breach in the Portland beds has occurred at Stair Hole and a narrow steep sided inlet has been formed in the weaker Purbeck beds. Erosion has not yet reached the softer and weaker Wealden Clay beds found to the rear.
2. At Lulworth cove the sea has cut through to the weak Wealden clay beds to form a laterally eroded cove. The more resistant Portland and Purbeck Limestones have produced a narrow entrance to the cove and to the rear the sea has come up against the more resistant Chalk to form steep cliffs rising to 90 m.
3. Mupe and Worbarrow bays show a more advanced stage of erosion. The only remnants of the pre-existing outer resistant bands of rock are the stacks and stumps to the west (Mupe Rocks) and the corresponding promontory to the east (Worbarrow Tout). A large section of Wealden clay rocks have been excavated by the sea to leave a section of chalk cliffs rising to around 150 m. This feature may have been produced by the amalgamation of two bays.

The relief and drainage of the area suggests that the initial breach of the more resistant Portland and Purbeck beds occurs at a lower and weaker point in these bands of rock. It may be that streams formed these breaching points.

EVIDENCE:-

- A valley enters Lulworth Cove from the west and may have reached the sea near the present mouth of the cove.
- Arish Mell, a dry valley to the rear of Mupe and Worbarrow bays proves that a stream must have entered the sea near where these two bays were initiated.
- A spring is found above Pondfield Cove (to the east of Worbarrow bay) and this may have led to the weakening of the rocks at this point.