Further along the beach evidence of ripple marks and cross-bedding can be seen on the surface of blocks showing wave or current action in shallow water. Other evidence of a shallow marine environment is oolitic limestone, which now forms in the shallow marine environments of locations such as the Bahamas. If you reach Redcliff Point there is a change to Oxford Clay (due to faulting) which contains many oyster type fossils especially Gryphaea, a large and thick shelled form.

On the way back to Bowleaze Cove you will be able to see excellent examples of rotational slip type mass movement caused by water percolating through limestone into the underlying clay. The clay flows down slope and the overlying limestone slips down. As the blocks move they tilt towards the cliff as seen in the photograph on the front cover. Movement has been considerable since 2016 The cliff top on either side of Redcliff Point provides an excellent viewpoint to see the mass movement.

USEFUL RESOURCES:

Maps: Ordnance Survey 1:25,000 Outdoor Leisure 15, Purbeck and South Dorset.

British Geological Survey Map Sheet 342 Weymouth.

Books: Geology of the Dorset. John C.W. Cope. Geologists' Association Guide No 22.

Coast and Country Geological Walks in and around Dorset CD. DGAG

Mesozoic Fossils. British Museum (Natural History). This book is very useful for identifying many of the fossils found along the Dorset Coast.

Websites:

dorsetgeologistsassociation.org

jurassiccoast.org

southampton.ac.uk/~imw



View looking east from Redcliff Point to Osmington Mills with further landslips in the foreground and minor fold structures in the distance.

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BOWLEAZE COVE

MASS MOVEMENT AND TRACE FOSSILS.



Cliff top view showing rotational slip between Bowleaze Cove and Redcliff Point.

WHAT'S SPECIAL ABOUT THE COAST AT BOWLEAZE COVE?

The beach east of Bowleaze Cove shows a range of interesting features especially many and varied trace fossils, where marine creatures have lived rather than the organisms themselves. There are many types of trails and burrows to be seen on the surfaces of the boulders on the beach. The cliffs also show outstanding examples of mass movement with clay flows and rotational slip.

HOW TO GET THERE:

1. Location: East of Bowleaze Cove to Redcliff Point and back from GR SY 703818 to GR SY 712816 although you may have to walk on to SY717818 to easily return to the coastal footpath back to Bowleaze Cove.

2. Access is gained via the minor road (Bowleaze Cove Way) off the A353 at Overcombe Corner, Preston east of Weymouth GR SY696817. Follow Bowleaze Cove Way until you reach the holiday camp and amusements. You can park on the road and then make your way down onto the beach. If the tides are not ideal the coast footpath can be followed from the end of the road and views over the landslip area can be seen. A low spring tide is best to reach Redcliff Point.

3. Facilities. There is a seasonal café on the grassy area before you reach Bowleaze Cove. The Spyglass Inn has an extensive menu of competitively priced food. The

nearest public toilets are at Overcombe Corner where there are also shops and a café.

HEALTH & SAFETY:

The cliffs are liable to mass movement with rock falls and clay flows. The beach is covered with large blocks of rock which have slipped from above making the beach rough to walk on. It is also best to walk along the beach with a falling tide and not walk immediately below the cliffs. Access round Redcliff Point at high tide is difficult.

The large blocks of rock on the beach absorb much of the wave energy so unless the weather is very bad waves should not be a problem.

In dry conditions your return to the cliff path at Redcliff Point may be possible with care, otherwise walk along the beach to WWII concrete structure on the beach at SY717818 and follow the path up to the cliff top and follow the coast path back towards Bowleaze Cove.

THE GEOLOGY

The rocks exposed east of Bowleaze Cove are marine Jurassic sediments, part of what is known as the Corallian formed about 155 million years ago. Sandstone, limestone and clay makes up the sequence and the combination of permeable sandstone and limestone with impermeable clay causes mass movement. The sandstone and limestone have abundant trace fossils, burrows of various marine creatures, living on the sea floor when the sediment was being deposited. It is not always clear what type of organisms formed the trace fossils because they were not preserved. Organisms such as worms and crustaceans burrowed through the sediment looking for food or they were protecting themselves hidden in their burrows. The first

evidence you are likely to see are Thalassinoides burrows, broad flattened tubes on the surfaces of the sandstone. blocks.



A second type of solitary burrow called Skolithos is also commonly seen.



There are also U-shaped burrows called Diplocraterion seen below. The parallel lines represent movement of the burrow up and down in the sediment below the sea floor.

