



# DAY 2: CORK HARBOUR CORK & WATERFORD FIELD EXPEDITION SEPTEMBER 23 2012



**W**e were greeted by Dr. Betty Higgs and Rosemary, Veronica and Dermott from the Cork Geology Association, in the harbour town of Church Bay. Rosemary provided us all a most comprehensive hand out on the Geology of Cork harbour.

## Old Red Sandstone

The geology of the area is predominantly Upper Devonian and Carboniferous rocks

which preserve a record of changing environmental conditions over a 40 million year period. The oldest rocks in Co. Cork are the Old Red Sandstone (ORS). They are Upper Devonian in age (c. 380-360 Ma). They were deposited in the subsiding Munster Basin and are up to 7 km thick in the depocentre, West Kerry. The ORS succession is characterised by continental deposits of predominantly fluvial and coastal plain setting, in

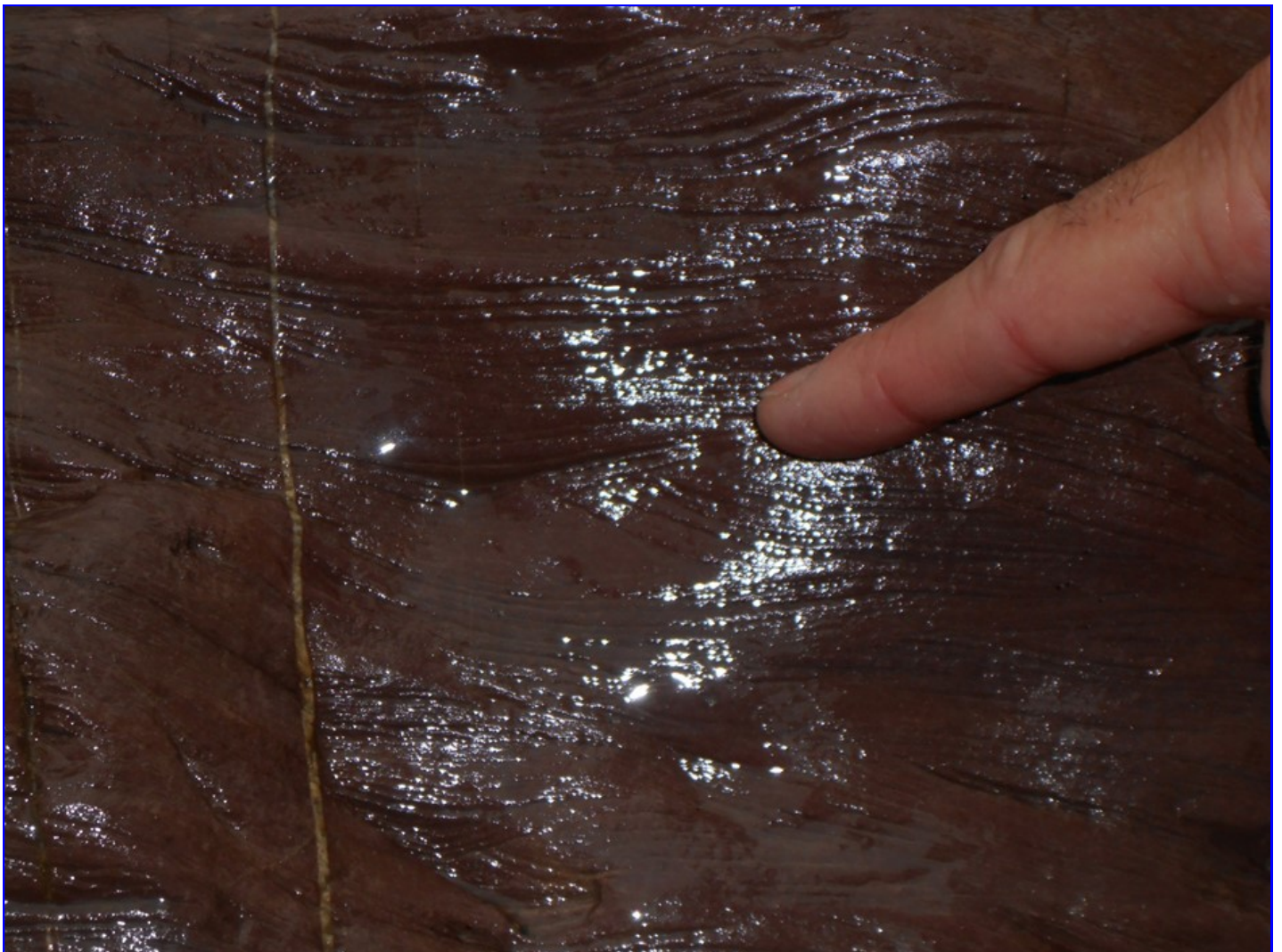


which progymnosperm and lycopod plants and early vertebrates evolved. (Ballytrasna and Gyleen Formations). Near the end of the Devonian there was a sea level rise which resulted northerly transgression onto the ORS continent. Large estuaries and tidal flats developed along the coast (Old Head Sandstone Formation). This was the beginning of marine sedimentation in the newly subsiding South Munster Basin.

### Church Bay

We travelled the short distance to Church Bay which is the core of the eponymous anticline. The oldest ORS formation in the area is the Ballytrasna Formation although the same age as the rocks in English county of Devon, these were

formed further north and were continental rather than marine as in Devon. The anticline was formed during the Variscan orogeny towards the end of the Carboniferous period 300 Mya, during the Rheic Closure to the south. The direction of the folds shows the force was N-S with both large and small folds striking E-NE. These rocks continue on the other side of the harbour although are slightly displaced due to an inverse fault which runs down the harbour. The bedrock is Devonian from a fluvial environment of flood plains and river channels. The grains size varies according to the carrying capacity of the depositing river. As we studied the rocks exposed on the sea shore it was difficult to pick out the bedding as the joints, cleavage







and faults make it appear vertical when it is in fact horizontal.

We were asked to look for the change in grain size and colour to see the

original sedimentary layers. The more cleaved: the finer the grain; less cleaved: the coarser the grain. The fact that the cleavage is steeper than the



bedding tells us the beds are the right way up. There were joints in the beds caused by deformation and erosion but no major faults. We saw ripple marks on the rocks which give the direction of flow of the water and the truncated tops of ripples shows which way up the beds were.

**filed by**  
**Kate Vandersteen.**

