

Day trip to Barns Ness and Charlestown Fife

11th May 2013
Leader Dr. Al McGowan
Participants 17
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Barns Ness holds an abundance of fossils, probably the largest in Scotland. Many of the limestones are in fact coral reefs, preserved in three dimensions.

These were laid down in the Carboniferous, 320 Million years ago when Scotland lay at the Equator giving rise to warm and moist temperatures. Evidence of raised beaches can also be seen indicating the rise and fall of sea level. We proceeded along White Sands and began searching for fossils.

An extensive area of basin-shaped hollows which are about one metre across and 30-60 cm deep could be seen extending out into the Forth. This is the most impressive Geological feature of this trail. Close inspection of the hollows revealed *Stigmara*, roots of the *Lepidodendron*, an ancient ancestor of the mangrove tree. The *Lepidodendrons* grew in harmony with the coral as they do today in equatorial climates, another feature which would encourage the growth of the trees would be the delta that brought in muds with the coming and going of the tides.

The last major glaciation reached its peak 20,000 years ago leaving evidence of erratics [dolerite, fragments of Old Red Sandstone and Highland metamorphic and igneous rocks] which had been carried down the Valley of the Forth. The sea level has been at or close to its present height for about 35000 years.

The Catcraig lime kiln came into view as we left the beach on our way back to the bus.

We next visited the village of Charlestown at Scottish Lime Centre, where we were given an excellent presentation on the workings of the lime kilns which were built to produce lime for improving soil and mortar for the building trade. The limestone roasted in the kilns was broken down to give carbon dioxide and calcium oxide known as quicklime. Adding water to quicklime gives calcium hydroxide or slaked lime. This improves the soil condition; the soil becomes more friable and can be worked more easily. Today the Dunbar limestones are used to make cement.

Finally we walked down to the Forth river shoreline to view the massive lime kilns of the past, which had been in production many years ago and became aware that this was a dangerous and labour intensive process.

Names of Fossils viewed.

Body Fossil: Colonial coral. *Siphonodendron*. -->

Body Fossil: Solitary coral

Body Fossil: Crinoid *Parazeacrinites* Sea Lily.

Trace Fossil: *Zoophycos*.

Trace Fossil: *Rhizocora llium* [burrow]

Trace Fossil: *Thalassinoides* [burrow]

Rare Fossils: *Chaetetes*. Close to Headland, a common reef-building organism.

