Nemestown Shore

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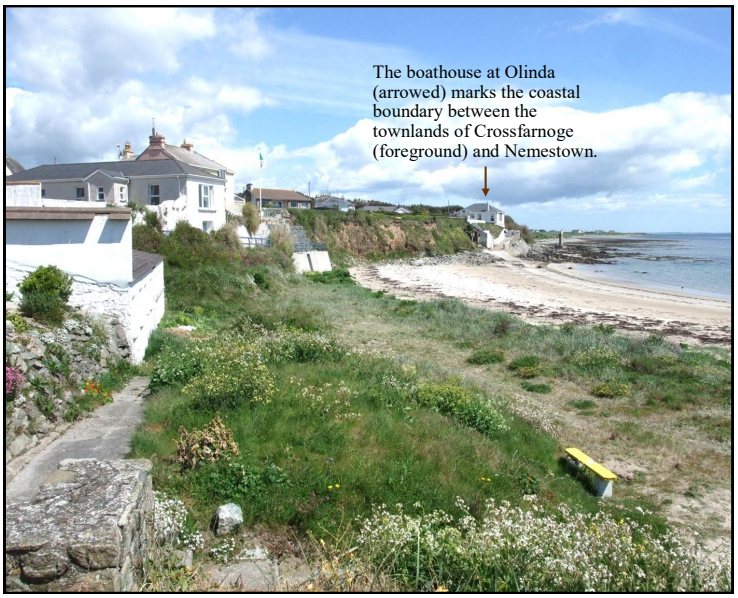
Till cliff: part of the local glacial legacy

Introduction

Nemestown is the coastal townland that forms part of the eastern fringe of the seaside village of Kilmore Quay[1 & 2].

The south-western boundary of the townland extends eastwards from the boathouse at Olinda (arrowed right).

It is believed that the townland is named after members of Neame families who settled in the area. Thomas Neame is recorded as having been born in Nemestown about the year 1400[3]. His family were tanners: converters of cow hides into leather. Thomas moved from Wexford to Kent in the south of England where his descendants became part of the Shepherd Neame group of very extensive pub owners and Britain's oldest brewers of cask ale[4].



The Ordnance Survey renders the townland name as Nemestown; the preferred local spelling is Neamestown with an 'a' as in the Neame family name. However, there is a local tradition that the placename is a corruption of the Irish 'Baile Naomh' (Saint Town) possibly a reference to the area's association with St Patrick.

Foundation of rock

Most of the bedrock exposed on the seashore at Crossfarnoge and Nemestown is a banded rock type called gneiss[5]. The age of the rock is unknown but it is believed to be at least 620 million years old with minerals in it possibly up to 1,821 million years old[16]. Over time the rock was highly deformed by high temperatures and pressures. The rock was originally formed from sediments on an ancient micro-continent called Avalonia at a time in the very distant past when Nemestown was located close to the South Pole.

In places, bands or dykes of dark, fine-grained basalt intrude into the paler, coarser-grained gneiss[5]. One such dyke may be seen at the foot of the slipway at Olinda. A small outcrop of the 436 million-year-old Saltee Islands granite is located near the base of St Patrick's Bridge but it is very seldom exposed.

Freshwater well

When walking along the seashore at Nemestown at low water, it is not unusual to see water bubbling out of the sand especially after periods of prolonged heavy rain. This is freshwater in the form of ground-water travelling seawards. Points of issue may be located by watching for places where gulls are drinking on the foreshore. In the past this resource was tapped as evidenced by the remains of a well (pictured right) built on the seashore to serve the former Coast Guard Station at Olinda. The first lifeboat stationed at Kilmore Quay was housed in the coast guard boathouse[6].

Sunny South East

The extreme south-east corner of County Wexford, including the Nemestown shore, enjoys the highest number of hours of bright sunshine per year (>1,600 hours) of anywhere in Ireland[7].

Coastal erosion

The Ballyhealy embayment extends from Kilmore Quay to Carnsore Point. The embayment is a sediment compartment that is regularly left deficient in sediment when sediment on the seabed is moved offshore. To meet the deficit, the sea withdraws fresh sediment from the soft cliffs of glacial deposits on the mainland. That withdrawal results in coastal erosion and the erosion results in consequent shoreline retreat. Coastal erosion is not significant at Kilmore Quay as the village is located on a rocky headland. However, the problem becomes worst as one moves eastwards along the soft coastline. Erosion increases dramatically outside of the zone that enjoys the protection of the wave shadow effect of the Saltee Islands from the prevailing weather south-westerly weather systems. The sea erodes the

Text and photos: Jim Hurley, SWC Promotions, Grange, Kilmore, Co Wexford Y35 YN35.
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SWC Promotions: promoting the natural heritage resource values of the South Wexford Coast.

base of the soft cliffs and the cliff face collapses when it is under-mined. The sea removes the collapsed material and the process repeats itself.

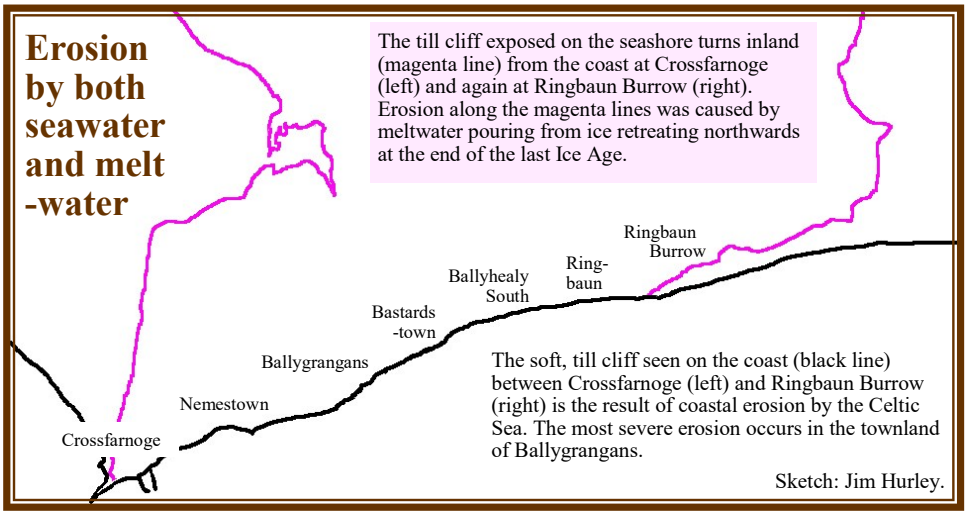
The mean rate of shoreline retreat east of Kilmore Quay has been quantified at 0.45m per year[8].

The soft cliffs

The tall, soft cliff that backs the shore at Crossfarnoge and Nemestown is known locally as 'the bank'. The bank exhibits the following succession of six distinct units.

Unit 1: Bedrock platform. The local 620+ million-years-old gneiss rock is eroded into a raised platform (horizontal dashed line below). The platform can be traced along the south coast of Ireland from west Cork to Carnsore Point[9].

Away from Kilmore Quay, the platform is, of course, composed of rock types other than gneiss. Possibly wave-cut or ice-cut, the platform lies 3-5m above modern sea level.



Unit 2: Courtmacsherry Raised Beach. An ancient beach sits on top of the rock platform. Raised above the reach of the tide, the former beach is now preserved like a fossil. The beach is composed of horizontally bedded, rounded shingle in a matrix of rusty-coloured sand.

The beach has been dated to be about 70,000 years old[9]. Consequently, there is a significant gap in the record from 70,000 years ago when the beach was formed to 620+ million years ago when the rock platform that the beach sits on was formed. As with the rock platform, the raised beach can be traced along the south coast of Ireland from west Cork to Carnsore Point. It was first described and is best developed at Courtmacsherry Bay in west Cork and is therefore named after that location[20].

The fact that the beach is raised 3-5m above present sea level suggests that either sea level was higher or land level was lower when the beach was formed. Other exposures of the fossil beach on the South Wexford Coast may be seen at Wood Village (S8006) near Fethard, and at Carnsore Point (T1203).

Unit 3: Head. Head is the third unit that makes up the sequence of six layers exhibited in the soft cliff face. Head is fossil soil and other deposits that were present at Kilmore Quay before the last ice age. These remnants of the penultimate glaciation slumped down slope onto the beach due to freeze-thaw action during periods of intense cold weather.

The image below left shows a section of the pebbly Courtmacsherry Raised Beach sandwiched between the rock platform below and the head on top.

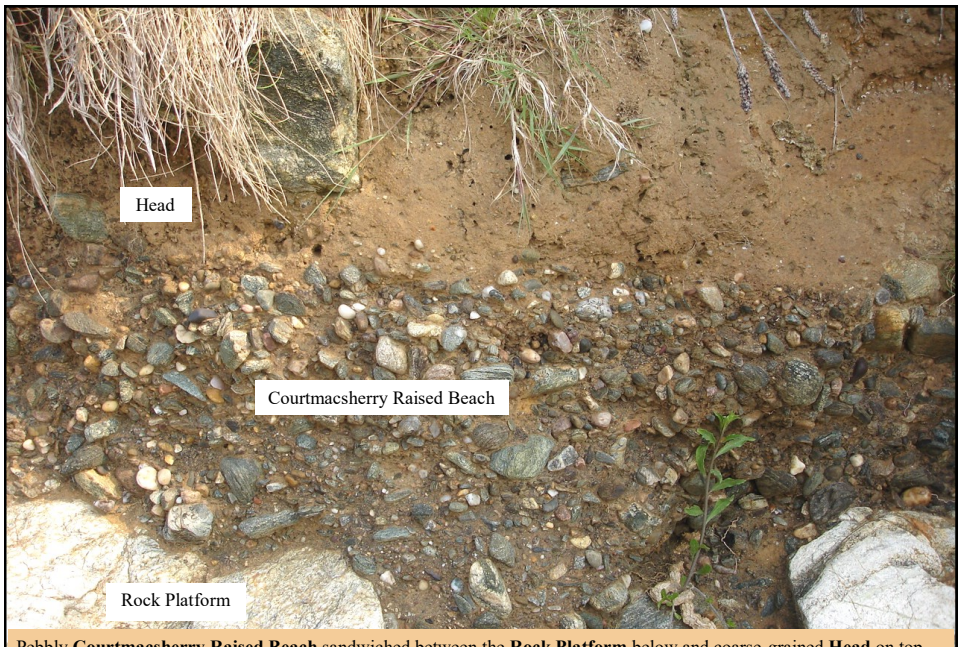
Unit 4: Irish Sea Till. This is the fourth layer that makes up the sequence of six layers exhibited in the soft cliff face. Till is unsorted material dropped by ice when it melted. Shelly and muddy material from the seafloor was carried onshore and deposited there by an ice stream moving inland from the Irish Sea basin. Irish Sea till is muddy and featureless in appearance and is largely free of stones (pictured above).

At Kilmore Quay, the youngest seashells found in this till were dated to be 29,930±350 years old. It is believed that the till was formed during a short-lived ice advance about 24,000 years ago[9].

Unit 5: Outwash. Outwash is the fifth layer that makes up the sequence of six layers exhibited in the soft cliff face. Outwash is material sorted by meltwater as opposed to till that is unsorted material left behind by melting ice. Outwash may be graded gravels, sands and/or silts sorted by rivers of meltwater flowing from melting ice or layers of fine material deposited on the bed of a temporary lake of meltwater trapped between a number a number of ice sheets. Outwash is not well represented at Crossfarnoge and Nemestown but is very well represented farther east at Ballygrangans.

Unit 6: Inland till. This is the sixth and final layer that makes up the sequence of six layers exhibited in the soft cliff face. This sixth and final layer is, like the fourth layer, composed of till but the till in this case is sourced from the Midlands of Ireland. The Inland Till is stony and coarse as opposed to the Irish Sea Till below it that is muddy and generally fine. The Inland Till is the soil that farmers and gardeners cultivate.

Note that two different ice sheets moved across the South Wexford Coast during the last glaciation: an earlier one that came down the basin of the Irish Sea from Scotland and advanced westwards along the South Wexford Coast and a later one that came from the Midlands of Ireland. Both advanced onto what is now the continental shelf.



Pebbly **Courtmacsherry Raised Beach** sandwiched between the **Rock Platform** below and coarse-grained **Head** on top.

Coarse, stony **Inland Till** from the midlands of Ireland on top of fine, muddy and largely stone-free **Irish Sea Till** from the floor of the Irish Sea.

The Quaternary

The Quaternary is a period of geological time. It started about two million years ago and continues to this day. The distinct time period is characterised by both very significant climate change and repeated glaciations.

A glaciation, or glacial period, is a spell of thousands of years during which the climate was so intensely cold that it was unable to support the growth of forests. Glacial periods were interspersed with interglacial periods, long period during which the climate was mild enough to support the growth of forests. These alternating climatic periods are known as MISs (Marine Isotope Stages).

The period we are living in now is know as MIS 1 (from the present to12,000 years ago), the last glaciation is MIS 2 (12,000-24,000), the interglacial before that is MIS 3 (24,000-50,850) and the glaciation before that is MIS 4 (50,850-70,500). Note that the odd MIS numbers represent interglacial or warm (red) periods, the even MIS numbers glacial or cold (blue) periods. The Irish Sea Till, the outwash and the Inland Till featured above all date from MIS 2, the last glacial or cold period, while the Courtmacsherry Raised Beach and head date from MIS 4-3, the boundary between the penultimate glaciation (MIS 4) and the last interglacial or warm period (MIS 3)[9, 18 and 19].

St Patrick's Bridge

At low water, St Patrick's Bridge (pictured below) is a broad, road-like landform that runs from the mainland at Nemestown towards Saltee Island Little. Local legends hold that St Patrick built the bridge that is named after him[10].

Another bridge, Sebber Bridge, extends towards the mainland from Saltee Island Great. The scientific explanation for the probable origin of these bridges is that they represent the remains of moraines, lines of debris deposited at the margin of a grounded Irish Sea glacier[11]. The bridges are located on the axis of the South Ireland End Moraine, a large and long discontinuous moraine belt that extends from Kilmore Quay north to the Wicklow Mountains before swinging inland and west to the Shannon estuary. It used to be believed that St Patrick's Bridge marked the southern extremity of the advancing ice; the bridge is now interpreted as the remains of a former recessional moraine of the Irish Sea Ice Stream[19].

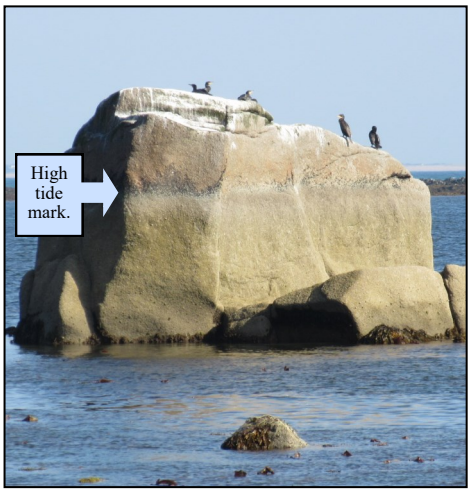
Since sea level was very low at the end of the last Ice Age, the Kilmore Quay moraine would have been on land. Subsequent rising sea level and coastal erosion created the Saltee Islands. Initially, the 'islands' probably remained attached to the mainland by a tombolo or land bridge. If so, that tombolo would also have fallen victim to rising sea level and coastal erosion. The sea and currents around the islands may have worked and reworked the remains of the moraine and tombolo and fashioned the present bridges in the wave shadow of the Saltee Islands. The wave shadow exists because of the position of the mainland and the islands relative to the direction of the prevailing south-westerly local weather systems.

St Patrick's Bridge at extreme low water with the two Saltee Islands in the distance.

At high water the bridges are covered by the tide and since they pose a threat to boating the safe approach to Kilmore Quay harbour and marina is marked by navigational transits.

Glacial erratics

Glacial erratics are boulder-sized blocks of rock that have been transported from their source by moving ice and subsequently dropped in an area often some distance from their source[11]. The shoreline east of St Patrick's Bridge is littered with erratics. Erratics of gneiss are very rare; most are blocks of Carnsore granite, a coarse pink rock found at Carnsore Point 14km to the east. Erratics are very rare west of the bridge. The biggest erratics have names: the big drum-shaped one immediately east of the bridge is St Patrick's Rock (pictured here close to low water). As big as a mini-bus, the flat top of St Patrick's Rock usually supports a number of Great Cormorants drying their outstretched wings in the sea breeze. Many other erratics are exposed at low water of spring tides.



Marine life and nature conservation

The national BioMar Survey[12] was conducted to identify coastal areas around Ireland important for marine life. With regard to the seabed around the Saltee Islands: *"No other area surveyed during the BioMar Survey had so many species rich communities"*[13]. Consequently, a large area of some 16,000ha around the Saltee Islands was designated a Special Area of Conservation (SAC), Site Code IE0000707, to conserve the exceptional heritage resources it supported. A map of the area may be viewed on the National Parks and Wildlife Service website[14] together with a description of the site, its qualifying interests and its conservation objectives[13]. The protected area extends to the mainland and its boundary runs along the shore from the townland of Crossfarnoge to Ringbaun Burrow.

Habitats are places where plants, animals, fungi and other life forms live. Two habitat types annexed in the EU Habitats Directive[13] are represented on the seashore adjacent to Kilmore Quay. *'Mudflats and sandflats not covered by seawater at low tide'* [Code 1140] occur on the Little Strand at Crossfarnoge. That habitat type is dominated by a community complex of marine worms such as Ragworms and Lugworms. The second habitat type is *'Reefs'* [Code 1170]. Reefs are areas of rock, either loose rocks or bedrock protruding through the sand. A large area of intertidal reef is exposed at low water between the boat house at Olinda and St Patrick's Bridge. The bridge itself is

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part of the reef. The Nemestown shore reef is moderately exposed. It runs south-west to north-east and is a site of biological importance for the exceptionally rich marine life it supports.

The tide pools left on the foreshore when the tide ebbs are a haven for marine life and support a rich biodiversity They support many colourful creatures like the Strawberry Anemone (pictured) that may regularly be found in pools low on the shore. It is best to start exploring the pools at the water's edge at low tide and to work up the shore ahead of the flooding tide.

In years when beds of Eelgrass flourish near St Patrick's Bridge, Light-bellied Brent Geese feed near the shore in winter up-ending to reach the plants underwater.

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Follow the Country Code when visiting the Nemestown shore

There are no restrictions on pedestrians accessing the foreshore from the village of Kilmore Quay. Ownership of the shore is vested in the State. Visitors can help conserve the biodiversity of the protected area by following the Country Code.

- Leave the area as you found it. Do nothing to destroy the wonderful amenity you have come to enjoy. Kill nothing but time; take nothing but memories and photographs; leave nothing but footprints.
- Take your rubbish home with you; bag it and bin it.
- Protect rock outcrops by not hammering on them or damaging them.
- If you turn over stones to see seashore life, please turn them back again and leave them as you found them. Doing so avoids killing the creatures that live on top of the stones by not covering them and those that live on the underside by not exposing them.

The protected area is managed by the National Parks and Wildlife Service (NPWS). If you see any threats to wildlife report your concerns to Tony Murray, the local NPWS Conservation Ranger, email Tony.Murray@housing.gov.ie, telephone 01 539 3212. If you see any other threats of concern to the Kilmore Quay Community Development Association please report them at the reception desk in the Stella Maris Centre in the village. Otherwise email reception@stellamariscentre.com or telephone 053 912 9922.

Thank you.