
Rye Harbour, East Sussex

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Introduction

Rye Harbour is the westernmost of the shingle beaches that extend across the former Romney Marsh embayment between the Fairlight Hills east of Hastings and the former sea cliffs at Hythe. The development of the beach ridges at Rye Harbour has taken place mainly since the 16th century. The shingle ridges at Camber are found in four main groups (Figure 6.47), the oldest at the site of Camber Castle (built in 1539), the most recent associated with the modification of the river mouth by training walls. In focusing upon the development of Dungeness, coastal geomorphologists have tended to overlook this site. Ward (1922) and Steers (1946a) provide general accounts, and its historical development was elucidated by Lovegrove (1953). It is a good example of the development of double spits at harbour mouths (see also GCR site reports for Pagham Harbour, South Haven Peninsula and Dawlish Warren in the present volume) but has never been recognized as such. This may be because its development has been overshadowed by greater emphasis on the larger features of the Dungeness complex. Parts of the site have been disturbed by gravel extraction and the longshore movement of shingle has been modified by coast protection works as well as management of the river mouth.

Description

In 1287, the former town of Winchelsea, which stood on a low shingle bank four or five kilometres south-east of the present-day town, was destroyed by storms. These storms also appear to have deflected the River Rother to its present-day course past Rye (Ward, 1922). Winchelsea was rebuilt on its present-day site, which was then accessible by sea. Shingle ridges grew north-eastwards from the area to the south of Winchelsea and by the mid-16th century provided the site for Camber Castle (Figure 6.47).

The Camber Castle group of ridges are mainly recurving distal features of a spit that gradually extended to the NNE. Most of the laterals end in narrow ridges, which trend from WSW to WNW and are truncated by the later storm ridges that form the seaward side of the group. The second group of ridges lie behind a seaward ridge, which trends to the north-east. Many of the laterals here run predominantly south-north before curving inland to the west. The third group, known as 'Nook Beach', are aligned more towards north-east. The final group of ridges is progressively aligned more and more with the present-day beach, which faces SSE. The ridges as a whole fan out from the area of Winchelsea Beach, with a change in orientation through about 50°. On the northern side of the River Rother, a series of narrow ridges, including short distal recurves extended westwards from the shoreline at Broomhill. These are now cloaked by dunes fed by a wide, intertidal, sand beach at Camber Sands.

The natural supply of shingle to the westward end of the beaches was always restricted and a narrow single ridge at the proximal end was frequently breached. There are many embankments in the area of Winchelsea Beach and seawards of Camber Castle, which indicate apparently successful attempts to prevent permanent breaching of this narrow neck. Most of the shoreline between Cliff End at the eastern foot of the Fairlight Hills and the western end of this site is protected by coast protection works. Artificial beach replenishment material taken from borrow pits within the relict shingle plains and ridges has been used at least since the 1950s on the beach at Pett (Thorn, 1960). Some of this shingle feeds into the modern beach at Rye Harbour.

Interpretation

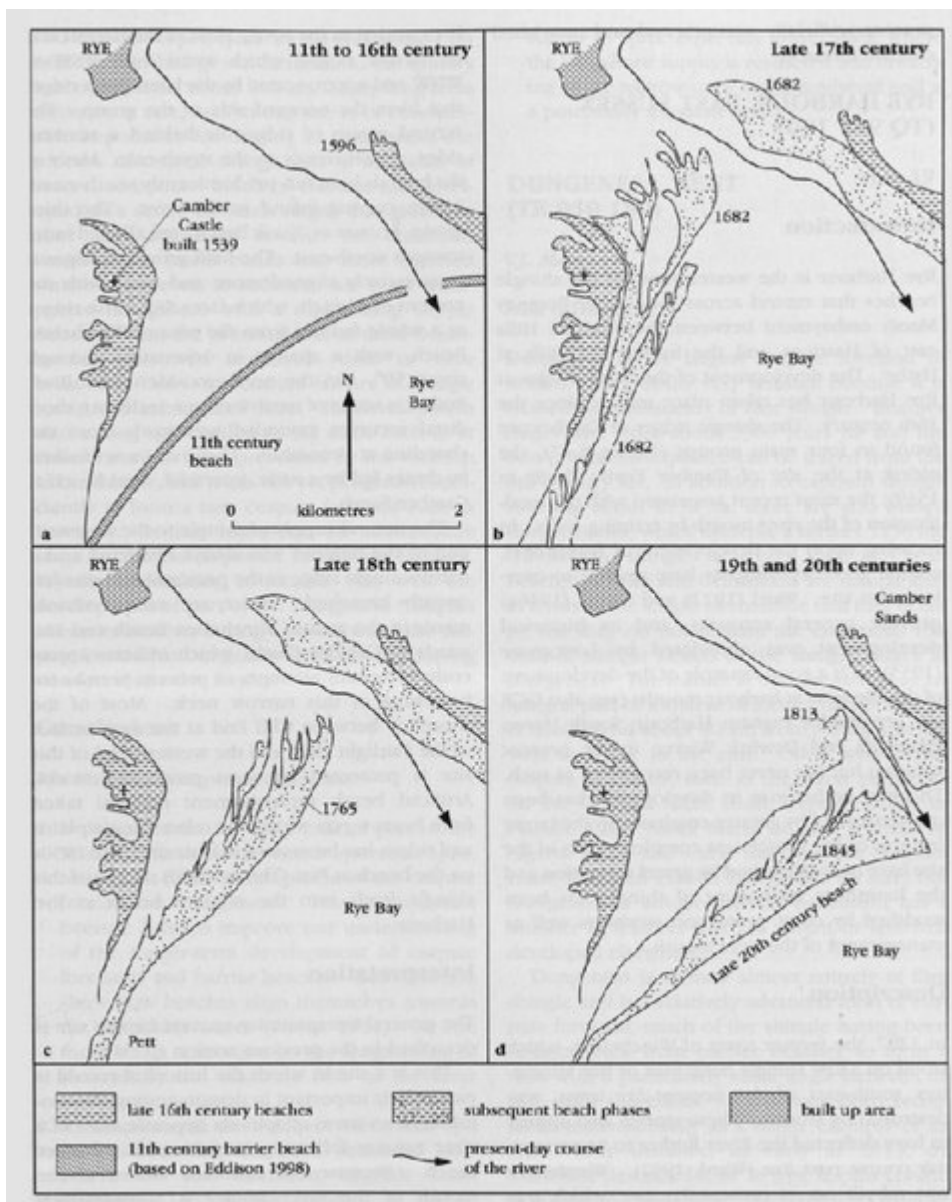
The general interpretative context for this site is described in the previous section (p. 310).

This is a site in which the historical record is particularly important in demonstrating the evolution of a system of spits on opposite sides of a river estuary following breaching of a barrier beach. Because the historical record at the mouth of the River Rother is comparatively good, it is possible to recognize the growth of two beaches, terminating in recurved spits, into the estuary (Figure 6.47). By the end of the 16th century, according to the cartographic evidence examined by Lovegrove (1953), the Rother estuary was about 2 km across and was bounded by two well-developed spits. By the end of the 17th century, they had grown farther into the estuary narrowing it to about 400 m. Such long-term evidence is rare, and so this site is of considerable importance for helping to understand the process of coastal change over a timescale of several centuries. Much of this site has developed as a series of beach ridges that gradually alter their alignment towards the dominant waves as the beach builds into more exposed waters. However, as sediment has been transported alongshore with a diminishing supply from the west, the proximal end of these beaches has narrowed and from time to time breached. This is a recurrent feature of shingle spits, well exemplified here. Its development into a long spit parallel to the coast such as at Orfordness has been prevented by the location of the Rother, and it has not yet prograded sufficiently to form a new cusped foreland such as Pevensey. It thus represents an intermediate stage in the development of shingle features. Equally importantly, it records very well the development of part of the Dungeness complex of barrier beaches during a period when the cusped foreland at Dungeness itself was developing its most distinctive form.

Conclusions

Rye Harbour is important because:

1. It demonstrates the behaviour of part of the Romney Marsh barrier beach system as spits, in contrast to the development of the cusped foreland at Dungeness. This is important because it helps improve our understanding of the longer-term development of cusped forelands and barrier beaches. Both features show how beaches align themselves towards the dominant waves (Lewis, 1931). At Rye there was a restriction on the lengthening of the spit by the estuarine flow of the River Rother.
2. It complements the evidence of double spit formation, which has been examined elsewhere on the southern English coast (Robinson, 1955; Kidson, 1963).
3. It provides a good example of beach plain development where the dominant forms are large numbers of laterals, unlike eastern Dungeness where successive storm beaches form the beach plain.
4. It exemplifies the problem of the sediment supply to spits, especially gravel spits, where the longshore supply is restricted and breaching of the narrow neck at the landward end is a potentially frequent event.



(Figure 6.47) The historical evolution of Rye Bay. Dates indicate shoreline and beach area from contemporary maps and charts. (After Lovegrove, 1953; and Eddison, 1998.)