
Castle Porth, Tresco

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Highlights

This site lies at the southernmost limit of a glacier which reached Scilly at about 19 ka BP, and exemplifies the evidence used to reconstruct the limit of the ice across the northern islands. Sediments of glacial derivation are abundant at the northern end of the section but absent at the southern end.

Introduction

Barrow (1906) was the first to comment on the distinctive distribution of foreign pebbles at Castle Porth, and the significance of this distribution was further elaborated by Mitchell and Orme (1967) and Scourse (1986).

Description

Castle Porth [SV 882 160] lies on the north-west coast of Tresco immediately to the south of Cromwell's Castle, and to the south-west of Castle Down (see above; (Figure 8.1) and (Figure 8.13)). In describing the distribution of the 'curious glacial deposit' on Scilly, Barrow (1906) included a detailed report of its distribution on Tresco which he regarded as a model for the northern islands. He noted that the glacial deposit occurred in a small hollow at the northern end of Gimble Porth on the east side of Tresco, and that ... this hollow is continued up the hill inland with a comparatively gentle slope. Up the whole of this slope the pebbles in considerable numbers can be traced to the crest of the ridge [Castle Down] ... and down the corresponding slope on the opposite side of the headland. Moreover on the crest of the ridge they may be traced to some little distance to the south. On the opposite, or western, side, owing to the exposed nature of the coastline, practically no Head is met with north of Cromwell's Castle, but immediately south of this is a small and more protected bay [Castle Porth] in which another patch of Head has escaped denudation. On top of this patch the foreign stones are abundant in the northern portion only of the outcrop; further south they cease just as suddenly as they did on the opposite side of the island [Gimble Porth]. If now the two points of cessation of this deposit on the two shorelines be joined up their line of junction is seen to pass approximately along the southern limit of the stones on the crest of the hill. Their distribution at the north end of Bryher is on exactly similar lines' (Barrow, 1906; p. 26).

He went on to interpret this distribution of foreign stones to be ... unintelligible except by invoking some other means of transport than water ... It is quite clear that they [the foreign stones] must have been carried by floe-ice' (Barrow, 1906; p. 27). This constitutes the first recognition of an ice limit across the northern islands.

Mitchell and Orme (1967) reported the same distinctive distribution of the foreign pebbles on Tresco:

... north along the shore of Gimble Porth, foreign stones suddenly appear in great quantity before the end of the bay is reached. This part of the island is the northern end of a granite ridge 100 to 130ft high. The foreign stones can be followed up to the crest of the ridge at 100ft and down the other side into the north end of Castle Porth ... at the end of the retaining wall east of Cromwell's Castle, the base of the section was in coarse Lower Head. Above this was a finer Upper Head, and just along the junction there were layers and pockets of outwash gravel, together with thin lenses, some kneaded and disturbed, of silty till ... One hundred yards south of the wall the erratic gravels ended, and, as on the east side of the island, south of this point only a very few erratic pebbles were seen in the Upper Head. They were not seen anywhere south of a line joining New Grimsby on the west and Merchant's Point on the east' (Mitchell and Orme, 1967; pp. 75–77; (Figure 8.1)).

Interpretation

The limit of erratic material which can be observed so clearly in the section at Castle Porth has been interpreted by Barrow (1906), Mitchell and Orme (1967) and Scourse (1991) as recording the southern limit of ice on Scilly (Figure 8.1). Unlike some ice limits which are marked by morainic landforms, the maximum extent of ice on Scilly is simply delimited by the distribution of glacial or glacially derived sediment. This characteristic is exemplified by the Castle Porth site.

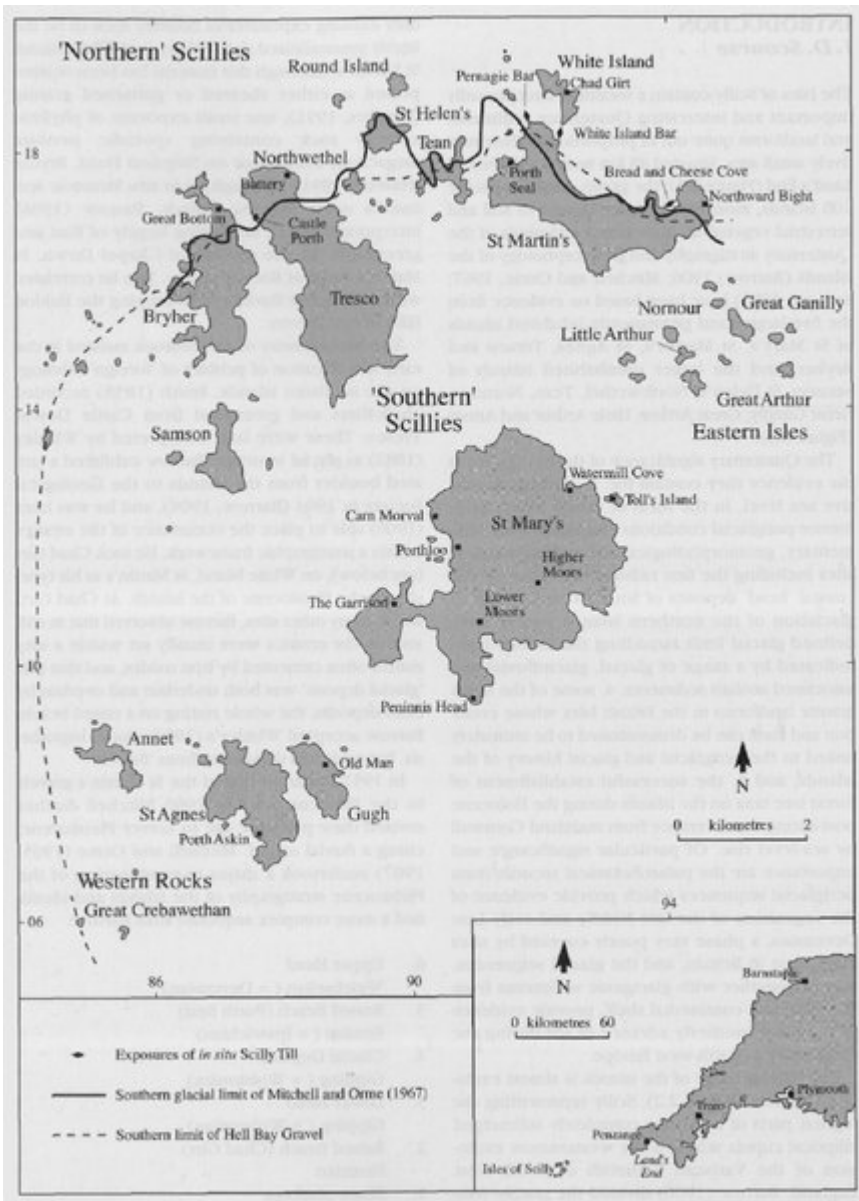
In terms of the stratigraphy proposed by Scourse (1991), the foreign pebbles at the northern end of Castle Porth occur within a matrix of sandy silt interpreted as a soliflucted mixture of sandloess, outwash gravel and till, formally defined as the Hell Bay Gravel. This conflicts with Mitchell and Orme's (1967) suggestion that the section contains 'silty till'.

The Hell Bay Gravel occurs above a granitic head devoid of erratic material, correlated by Scourse with the Porthloo Breccia. It is overlain by another unit of granitic head which contains a proportion of erratic material incorporated from the underlying Hell Bay Gravel; this is the Bread and Cheese Breccia. At the southern end of the section the Hell Bay Gravel is absent, and here the upper unit of granitic head (the 'Upper Head' of Mitchell and Orme) rests directly on the lower unit (their 'Lower Head'). Lithologically this upper unit is indistinguishable from the lower unit, hence Scourse's classification of the entire sequence here as Porthloo Breccia. This demonstrates two points: first, that the Bread and Cheese Breccia is confined to the area north of the ice limit and second, that at sites in the 'southern' Scillies where the Old Man Sandloess is absent, for example, the southern end of Castle Porth, the upper Porthloo Breccia rests directly on the lower Porthloo Breccia and is indistinguishable from it. All the sedimentary units at Castle Porth are therefore of soliflual origin and the basis for their differentiation lies in the lithological composition of the source material.

Conclusion

Castle Porth helps to establish the southern limit of a glacier which reached Scilly at c. 19 ka BP. Although this limit is recorded at a number of other sites on Scilly, it is most clearly demonstrated here. Sediments deposited by the glacier can be observed at the northern end of this site but are absent at its southern end. Since deposition, these glacial sediments have been moved downslope by gravity flows in an Arctic climate.

[References](#)



(Figure 8.1) The Isles of Scilly: critical sites, exposures of the Scilly Till, the southern limit of the Hell Bay Gravel and Mitchell and Orme's (1967) glacial limit. (Adapted from Scourse, 1991.)



(Figure 8.13) Quaternary sediments exposed in coastal cliffs at Castle Porth, Tresco. The Hell Bay Gravel at the northern end of the exposure (left) is rich in erratics, whereas erratics are absent at the southern end (right) of the section. (Photo: S. Campbell.)