SITE

Name: Brent Tor

Parish: Brentor

Local Authority: Dartmoor National Park

National Grid Ref: SX 471 804

OS Sheets: 1:50K, 191, **1:10K**, SX48 SE

Locality Description: The site lies 2½km NW of Mary Tavy (A386) and is well known for its historical chapel.

Nature and Status of Site: Exposed tor in the shape of a conical knoll. It is a Site of Special Scientific Interest (SSSI). The church remains in use and consideration for parishioners and other visitors is essential within its immediate vicinity.

Summary of Geological / Geomorphological Interests: Excellent and rare example of Lower Carboniferous submarine volcanic deposits. Demonstrates the effect of water current reworking, carrying volcanic debris down the slope for a considerable distance. Rocks are basaltic lavas broken up by explosive contact with sea water during eruption on the sea bed.

Safety Considerations: Vegetated slopes may make climbing/walking difficult in wet weather.

Educational Groups: Primary, Secondary, College/6th Form, University.

Parking and Access: Cars can park directly west of the site, North West of Heathfield Plantation. Access to the site entrance is at the northern end near the Stag's Head House, gained via road side pavement. Additionally The National Cycle Network Route 27 (Plymouth to Ilfracombe) is close to the site. Visit Sustrans online for details.

Site Owner: Dartmoor National Park Authority , Parke, Bovey Tracey. **Tel.** 01626-832093

References

Butcher, N.E. 1958. The Culm Igneous Suite near Tavistock, West Devonshire. *Abstracts of the Proceedings of the Conference of Geologists and Geomorphologists in the South-west of England*. Exeter **1958**: 21-23.

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Rutley, F. 1978. The Eruptive Rocks of Brent Tor and its neighbourhood. *Memoir of the Geological Survey of Great Britain.* HMSO, London, 50pp.

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Detailed Geology: A unique example of an early Carboniferous basaltic pillow lava and hyaloclastite seamount, or mound, with a reworked volcaniclastic apron. Whilst the volcanics are generally recognised as Carboniferous as they rest on cherts and slates assigned to this age, Selwood (1974), suggested that the volcanics and associated radiolarian-bearing black slates might be late Devonian, because the sediments are lithologically similar to strata of this age north of Tavistock. The Brent Tor volcanics are mainly composed of coarsely bedded volcaniclastics that have a southerly dip. The base of the sections shows variably foliated, platy, light and dark grey fine tuffs upon which, rest a series of basaltic hyaloclastites and pillow-lava breccias that comprise the main outcrops. On the southern slopes below the chapel are hyaloclastites containing closely packed large fragments of dark, non-vesicular basalt interbedded with foliated tuffs, containing broken, interbedded pillows. Further downslope, graded hyaloclastites and pillow breccias can be found. This reworked volcanic debris probably travelled some distance away. All lava fragments are highly altered and oxidised basaltic material. The general shape and limited extent of the hyaloclastite deposits suggests a localised submarine eruption, which built a high-level mound of largely unsorted, basaltic, glassy fragments and pillow breccias.

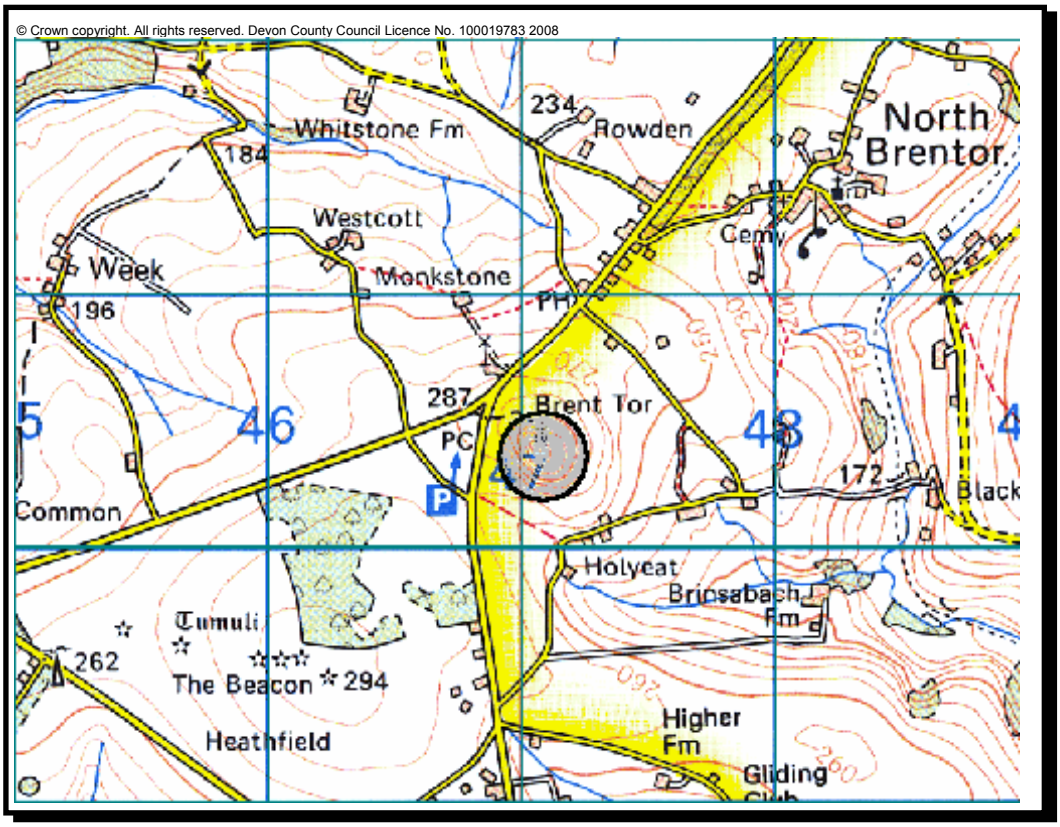
Suggested Questions

1. What characteristics can be used to identify these rocks as (i) volcanic, (ii) basaltic and (iii) submarine eruption?

LOCATION PLAN

BRENT TOR, SSSI
BRENTOR, DARTMOOR NATIONAL PARK

National Grid Ref: SX 471 804



Scale 1:30,000

Site locality

Parking and Access

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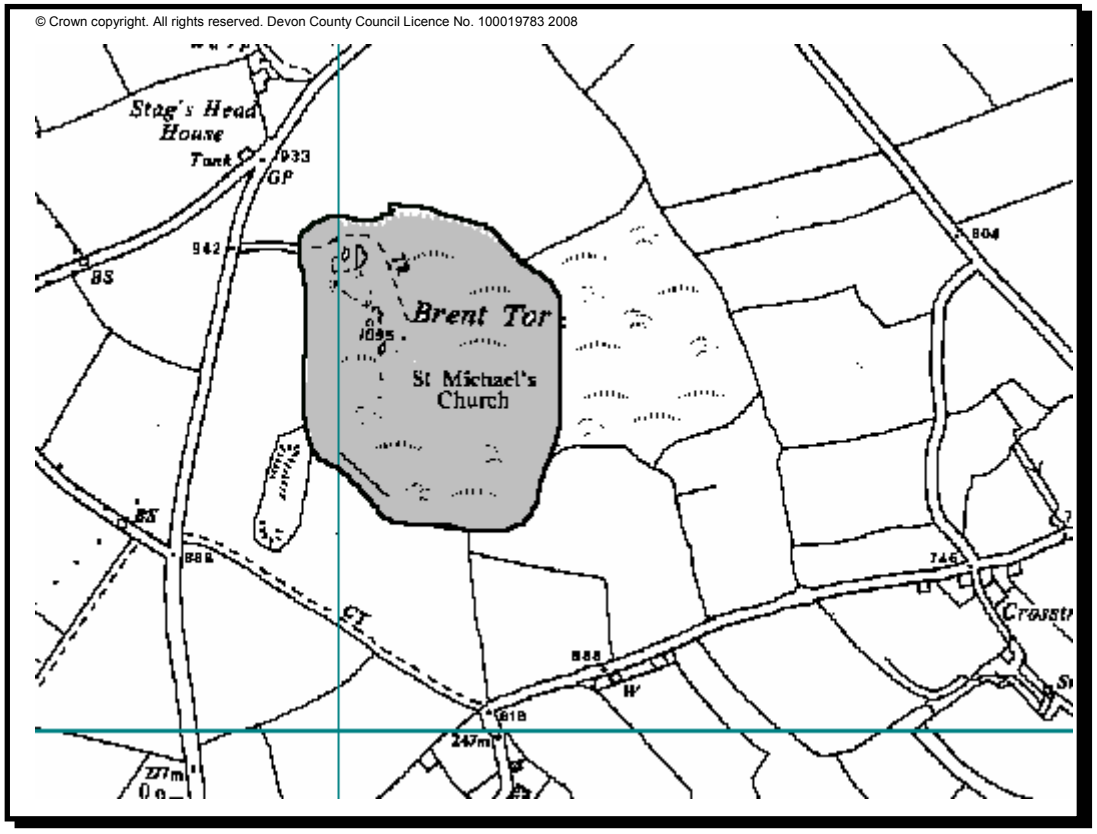
SITE PLAN

BRENT TOR
BRENTOR, DARTMOOR NATIONAL PARK

National Grid Ref: SX 471 804



Approx. County SSSI Boundary

Scale 1 : 8,000

Main Points of Interest:

- Excellent and rare example of Lower Carboniferous submarine volcanic deposits.
- Demonstrates the effect of water current reworking, carrying volcanic debris down slope for a considerable distance.
- Rocks are basaltic lavas broken up by explosive contact with sea water during eruption on the sea bed.

BRENT TOR

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General view of Brent Tor showing crags of Lower Carboniferous volcanic rocks (Milton Abbot Formation)

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Detail of exposures of Lower Carboniferous volcanic rocks (Milton Abbot Formation)

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Volcanic rocks of the Milton Abbot Formation at Brentor. Above: natural exposure of volcaniclastic rocks showing brecciated texture. Below: vesicular lavas in the wall of Brentor church.