SITE

Name: Haytor Rocks and Quarries

Parish: Widecombe-in-the-Moor

Local Authority: Dartmoor National Park

National Grid Ref: SX 757 770

OS Sheets: 1:50K, 191, **1:10K**, SX77 NE

Locality Description: This site lies 6km west of Bovey Tracey along the B3387.

Nature and Status of Site: The site comprises two large tors and three disused quarries in a moorland setting. It is a Site of Special Scientific Interest (SSSI).

Summary of Geological / Geomorphological Interests: This well known and much visited site provides exposures of the two principal coarse megacrystic biotite-granites of Dartmoor, the Giant and Blue varieties. It allows compositional and textural variations to be examined between the main suite of Dartmoor Granites in particular and in the Cornubian granites in general. Evidence is also exposed for the way in which the magma was modified both by the incorporation of xenolithic constituents and by the reaction with boron in the Cornubian magmas. The former quarries are of historic interest, with old granite tramlines used to transport the granite southwards to the Teign Estuary.

Safety Considerations: None

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

Parking and Access: Access is open and a number of car parks are along the B3387 to the south of the tor.

References

Brammall A. & Harwood H. F. (1923**). The Dartmoor Granite: Its Mineralogy Structure and Petrology**. Mineralogical Magazine, 20, 39-53.

Dangerfield J. & Hawkes J. R. (1981**). The Variscan Granites of S.W. England: Additional Information**. Proc. Ussher Soc., **5**, 116-20.

Exley C. S. & Stone M. (1982**). Hercynian Intrusive Rocks: Petrogenesis. In Igneous Rocks of the British Isles,** (Ed. D. S. Sutherland), John Wiley & Sons, Chichester, 311-20.

Floyd, P. A, et al. (1993**). Igneous Rocks of South-West England**. GCR Series No.5, Joint Nature Conservation Committee, Peterborough, and Chapman and Hall, 256pp.

Detailed Geology: The site contains the best exposures of variants of the coarse, megacrystic granite of Dartmoor together with a later, intrusive, fine grained granite sheet. The former can be seen to enclose a variety of genetically significant xenoliths. The chemical and textural variations in the coarser Cornubian granites is gradational and does not allow an ideal separation, but can be shown to be different statistically. Using Exley and Stone's classification, both granites can be Type B granites, or coarse megacrystic and coarse poorly megacrystic varieties of the Dangerfield and Hawkes classification (1981). It is generally excepted that the fine-grained intrusion at Haytor Rocks is a large sheet, later than, and independent of, the coarse granites in both the tors and quarries. It has therefore been classified as Type C (Exley and Stone, 1982) or fine poorly megacrystic type (Dangerfield and Hawkes, 1981). The earliest magma is thought to be sodipotassic (Brammall and Harwood, 1932) and that it was modified and made increasingly potassic by the assimilation of xenolith material. The presence of a wide variety of xenoliths, many of which are metasedimentary, gives these granites the aspect of Chappell and White's (1974) S Type, though relatively high concentrations of some metallic and halogen elements suggest the addition of some mantle components (Exley et al.,1983; Stone and Exley, 1986). A high boron concentration in the Cornubian magmas played a very important role in late- and post-magmatic activity of various kinds, including mineralisation and the quartz-tourmaline veins and nodules, which are well displayed around Haytor, provide excellent examples of the early stages of these phenomena.

Suggested Questions

1. Compare and contrast the compositional and textural variations between the different granites.

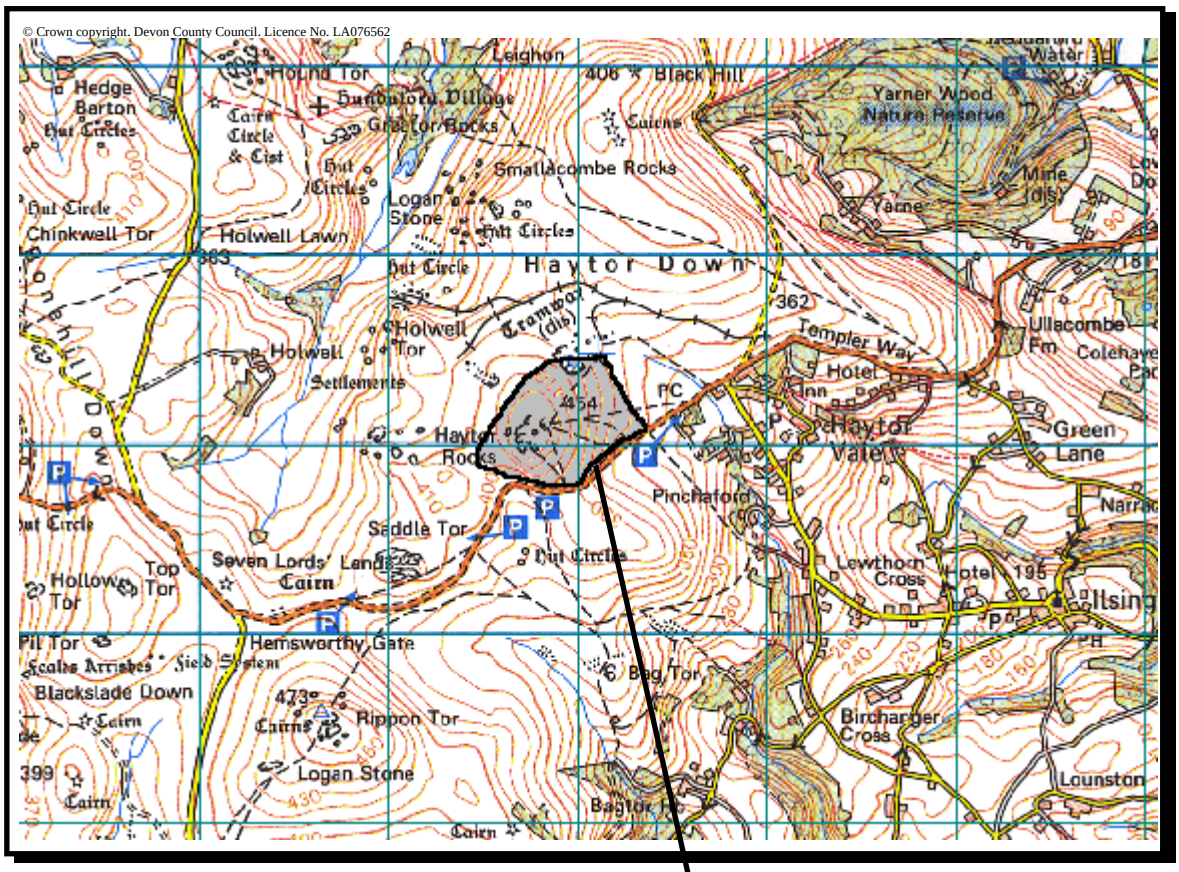
2. Identify and draw xenoliths found within the granites.

3. What significance has the xenoliths had on the surrounding granite? Identify any mineralogical changes that can be seen around the margin of the xenoliths.

LOCATION PLAN

HAYTOR ROCKS AND QUARRIES, SSSI
WIDECOMBE- IN- THE- MOOR, DARTMOOR NATIONAL PARK

National Grid Ref: SX 757 770



Scale 1:25,000

Site Locality

Along the B3387, to the west of Bovey Tracey.

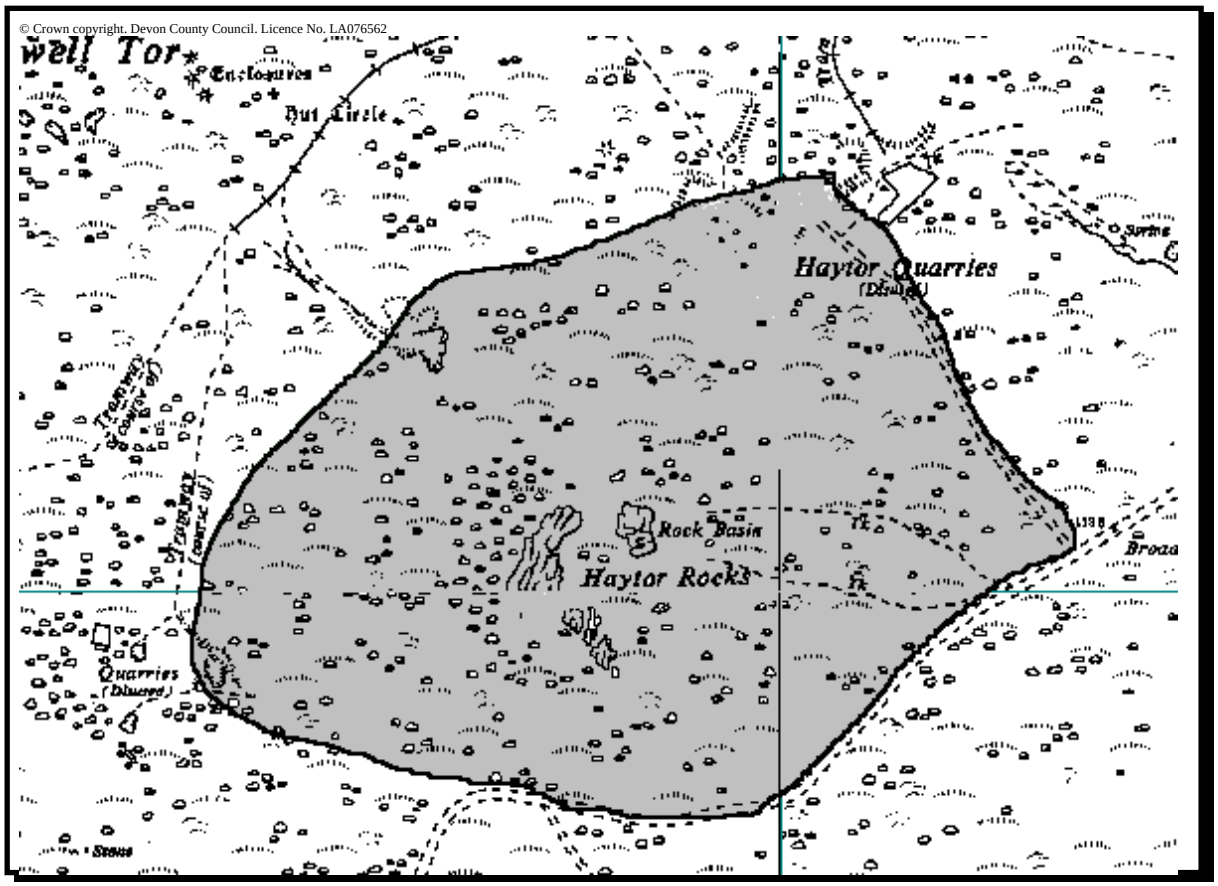
Parking and Access

Use car park in Haytor Vale, in close vicinity of the site. There is no coach parking at the bottom car park at Haytor. The site is easily accessible from the parking facilities and can be seen from many parts of south and east Devon.

SITE PLAN

HAYTOR ROCKS AND QUARRIES
WIDECOMBE-IN-THE-MOOR, DARTMOOR NATIONAL PARK

National Grid Ref: SX 757 770



Approx. S.S.S.I Boundary

Scale 1 : 9,000

Main Points of Interest:

- **Granite: outstanding exposures of two principal variants of the Dartmoor megacrystic biotite-granites known as the 'Giant' and 'Blue' varieties.**
- **Xenoliths fragments of country rock included within the granite.**
- **Historic Interest of quarries with old granite tramlines used to remove granite.**