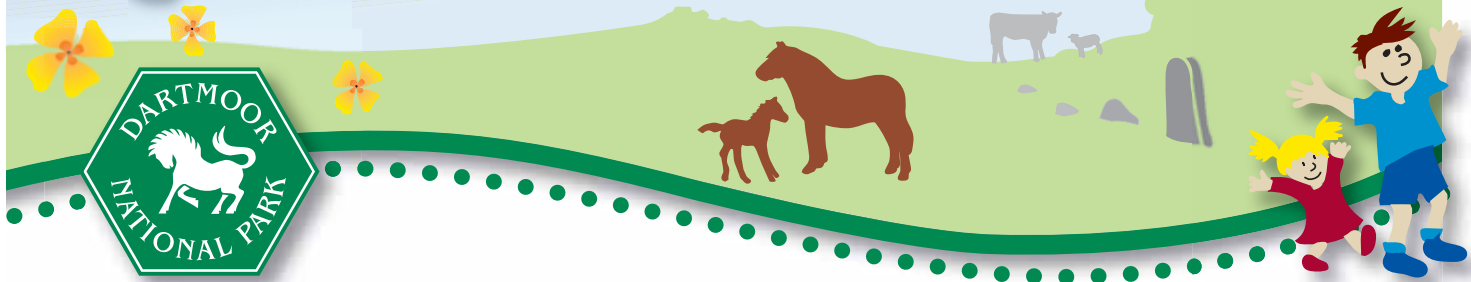




Introducing the Rocks and Landforms of Dartmoor



Rocks

(the long story over hundreds of millions of years)

All rocks are formed in one of the following three ways (the Dartmoor examples are listed below):

Molten rocks that have cooled and turned solid

- example granite

igneous rocks

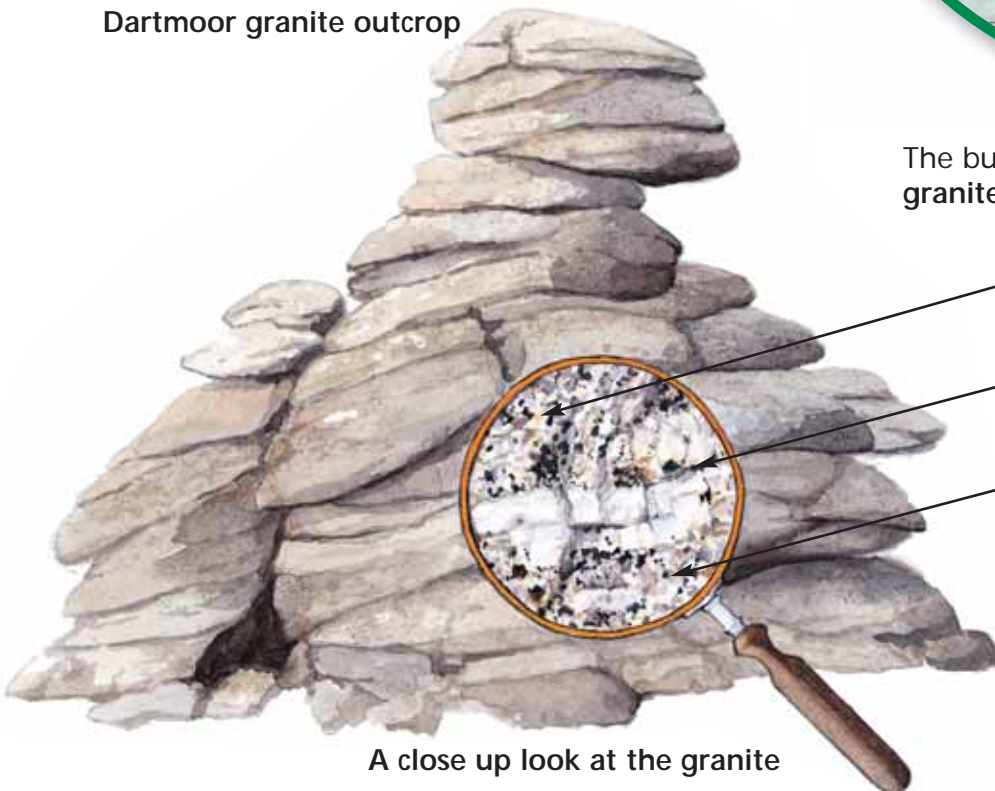
Deposited layers of rock laid down one on top of another - example limestone

sedimentary rocks

Changed rocks that have been squeezed or heated - example hornfels

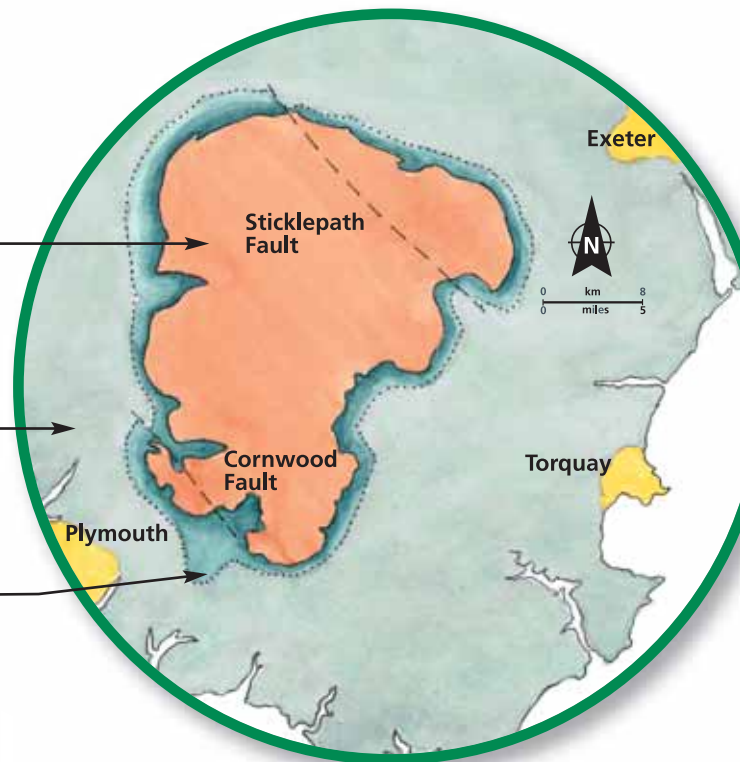
metamorphic rocks

Dartmoor granite outcrop



A close up look at the granite

A map of South Devon showing Dartmoor granite and surrounding rocks

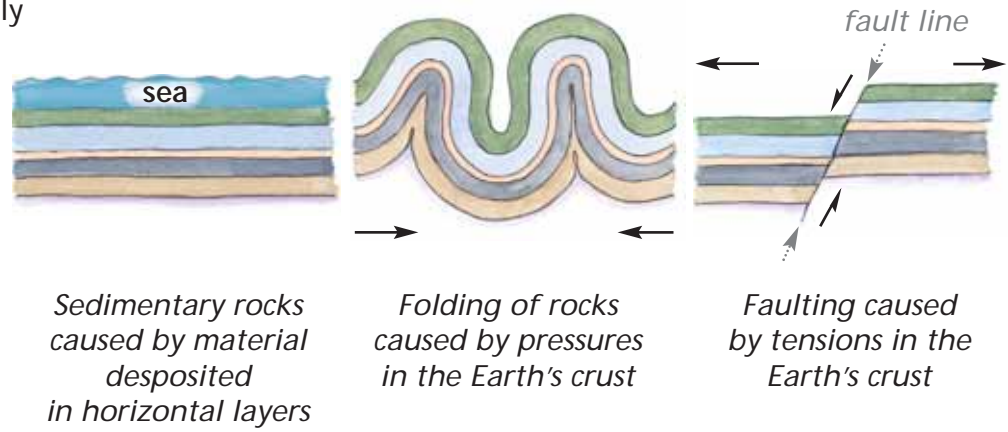


The bulk of Dartmoor is made of granite. This is a hard rock containing:

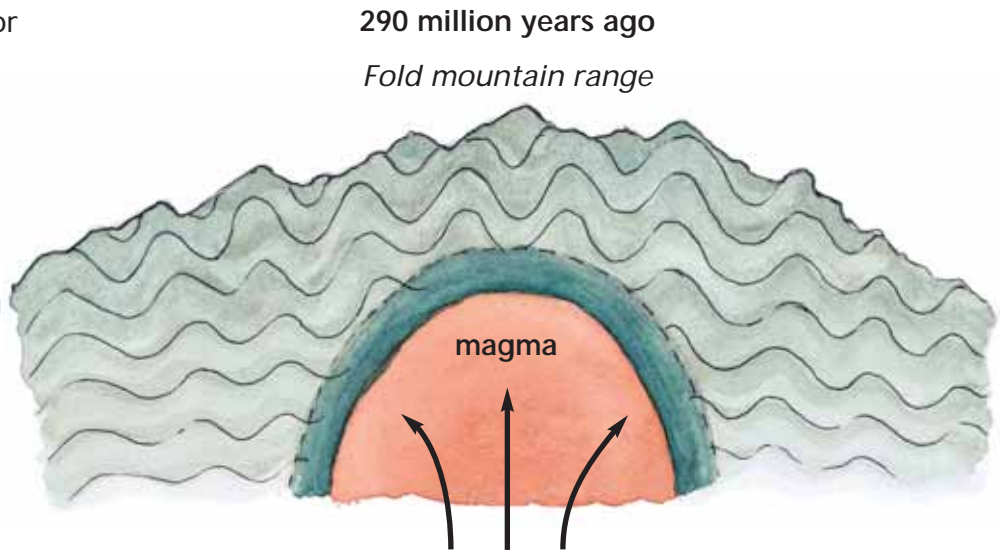
- white/pink or yellow crystals called feldspar
- grey glassy crystals called quartz
- black glittery crystals called mica

The large core area of granite is surrounded by a ring of changed, metamorphic rocks that were cooked by contact with the hot molten magma before it cooled.

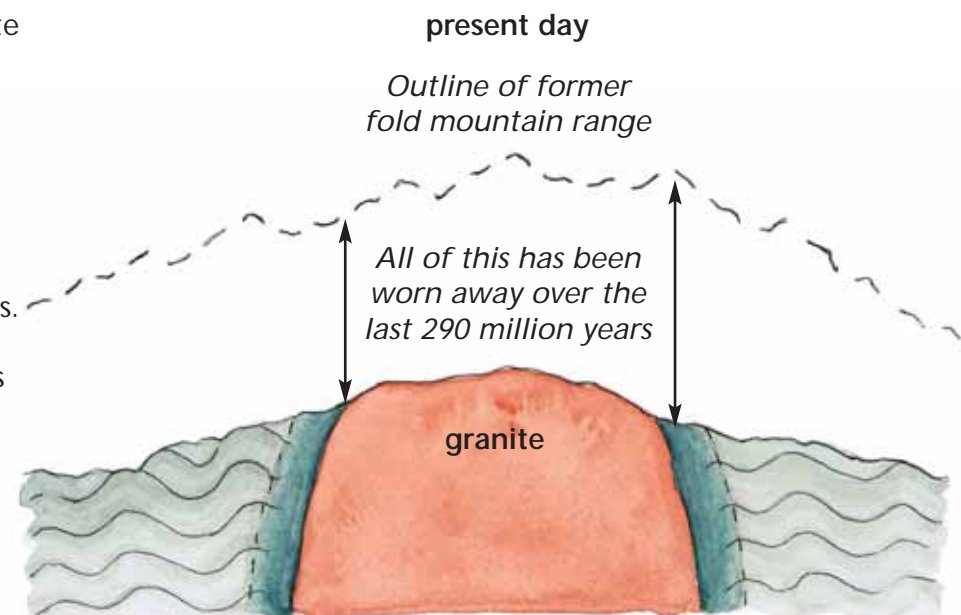
The rest of Devon is mainly made of particles (sand, silt, remains of small sea creatures) deposited in layers on the sea floor, these harden to form **sedimentary rocks**. Sometimes these rocks were folded by the pressures in the Earth's crust or torn apart along **fault lines** over many millions of years.



You can say that Dartmoor began when the granite appeared from deep below the Earth's crust 290 million years ago. The molten **magma** pushed its way through the surrounding rocks into the base of a folding mountain range. It then cooled and turned solid. It must have cooled very slowly as you can sometimes see large crystals locked into the granite (the larger the crystal the slower the cooling).



Ever since then the granite has been wearing away (eroding). It is difficult to imagine how something as soft and gentle as flowing water can wear away something as hard and solid as granite but given enough time it does. Climates have changed many times and sea levels have gone up and down. Mountains have been washed into the sea but now the exposed hard granite upland of Dartmoor contains the highest point in south west England and remains visible from all over Devon.

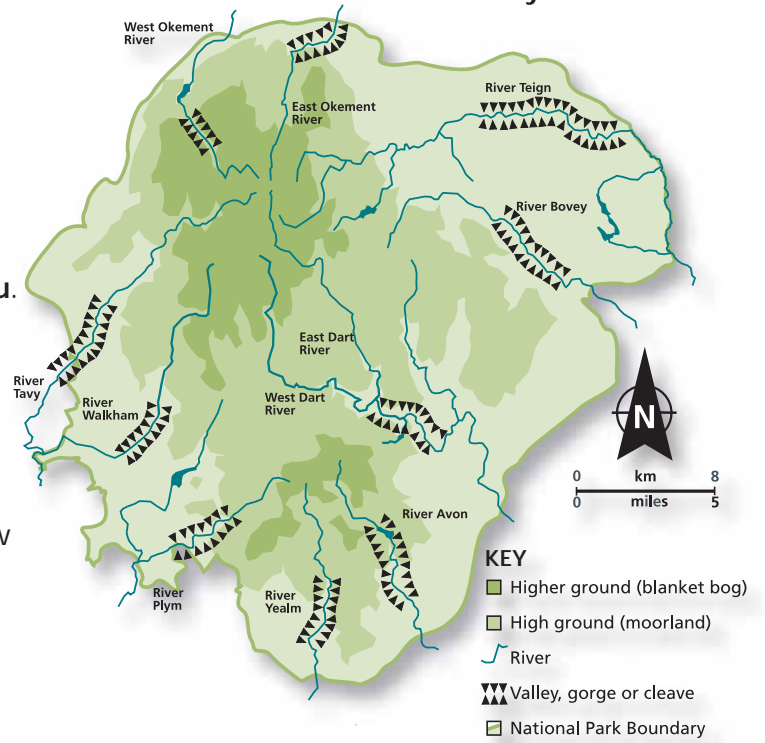


Dartmoor's Landforms (these have formed over millions of years)

The granite gives Dartmoor its particular character even though it is mainly covered with soils and plants. Natural rock outcrops such as tors can be seen all over the moor often surrounded by loose boulders. From the centre of the moor Dartmoor appears as a gently rolling upland or **plateau**. Many of Devon's rivers rise on Dartmoor. This is not surprising as it rains more on the high ground than on the surrounding lowlands. These rivers normally have their source in a large wet area called a bog or mire high up on the moor. From there the rivers begin to flow downhill carving shallow valleys into the granite landscape. By the time the rivers run off the granite onto the surrounding rocks they have created deep, steep sided valleys called gorges or cleaves.

The Dartmoor landscape is very ancient and the present features such as the hills, valleys, tors and rivers have been formed naturally over millions of years. Warm periods and very cold periods have all helped shape what we see today. In some areas chemicals are breaking down, **weathering**, or **rotting** the granite. In others the granite is still as hard as it was when it formed. Some tors are large rounded features (for example Haytor); others that have been shattered by frost and ice look like jumbled piles and heaps (for example Leather Tor).

Dartmoor Plateau (upland) with Rivers and Valleys



During the Ice Age Dartmoor was not buried under ice sheets like so much of northern Britain. Nevertheless, conditions on Dartmoor must have been extremely cold and very few plants would have grown there. The place would have looked like a great jumble of broken rock. Now thousands of years later plants cover most of Dartmoor but you can still find bits of that broken jumble poking up through the moorland grasses, heather and bogs.



Leather Tor

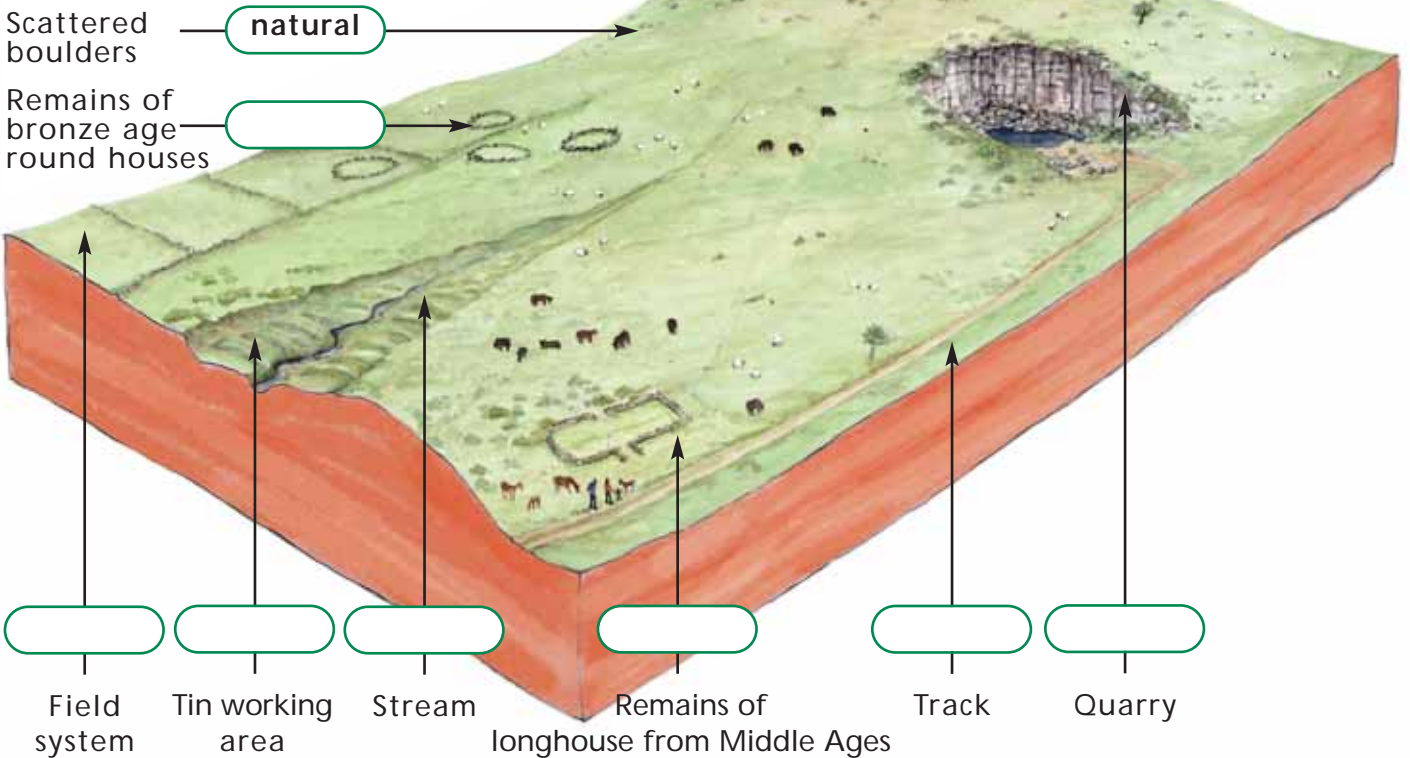
The effect of people on the moor (the short story lasting only thousands of years)

Dartmoor looks very wild and untouched by people but do not be fooled. People have been very busy and have made a big impression over a long period of time. First, in the distant Stone Age (approximately 7,000 years ago) Dartmoor was covered in forest. These trees were soon cleared with the help of Stone Age farmers' animals, sheep, cows and ponies until it would have looked very similar to the open moor we see today. Bronze Age people built fields and many round houses (approximately 3,500 years ago) using the plentiful granite boulders. Their old walls and hut circles can still be traced in many places. In the Middle Ages farmers were again building farms and fields many of which are still in use today.

A big impression was left by the tanners looking for tin, a very valuable metal. They left no stone unturned; every valley bottom was dug up leaving very bumpy areas most of which are now overgrown. Whole hillsides were scarred with gullies where the tanners broke the tin ore out of the granite. They used picks and shovels and running water to sort through the rock. Every where people were busy and not just looking for tin; peat was cut for fuel from the higher bogs both for their own use and for industry. Granite is very hard and difficult to work with but this did not discourage people from using it for millstones, gateposts, for over doors, windows and troughs. By the time of the industrial revolution granite quarries were dug in many places using drills and explosives. No walk on the moor can avoid stumbling across at least some of the features mentioned above. Recognising them can make a visit so much more exciting.

Are these features natural or human?

Look carefully at the features, and label them **natural** or made by **humans**.



Further information available

from our web site

www.dartmoor-npa.gov.uk

- Fun Zone
- Factsheets
- Publications

For further information, and a list of other Fact Sheets available, contact the:

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Dartmoor National Park Authority,
Parke, Bovey Tracey, Newton Abbot,
Devon TQ13 9JQ

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E-mail: education@dartmoor-npa.gov.uk

Web site: www.dartmoor-npa.gov.uk

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