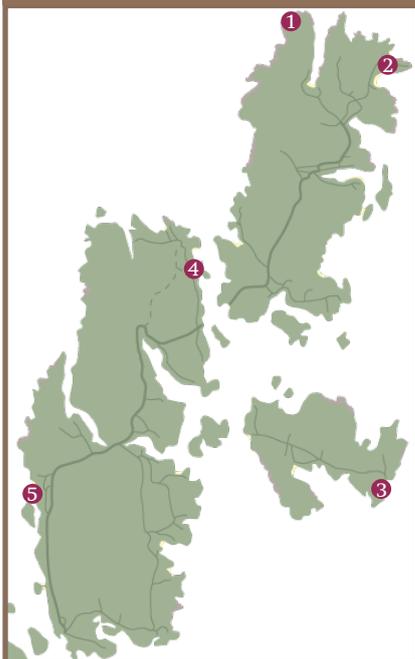


North Isles Geology

SHETLAND HERITAGE TRAILS



Discover the North Isles...



In the North Isles of Shetland you get a real sense of Shetland's geological journey. Walk over 500 million year old rocks from an ancient ocean floor, view the dramatic storm eroded coastline of Britain's most northerly point and discover the forces at work in the building of a huge mountain chain!

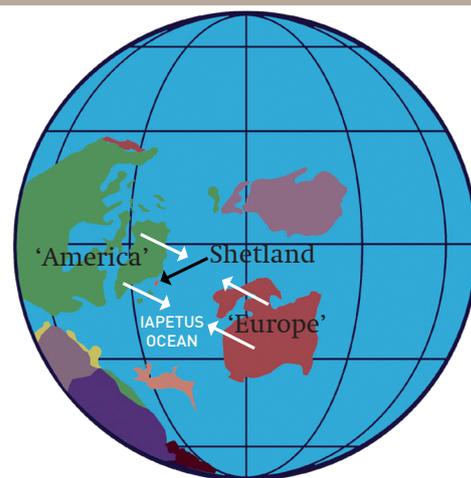
Unst and Fetlar - an ancient ocean floor exposed

420 million years ago an ancient ocean called the Iapetus was beginning to close. The landmasses of America and Europe on either side of the Iapetus began to "drift" towards one another and the ocean disappeared. During this closure, part of the floor of the ancient ocean was trapped and thrust up onto the nearby North American continent. This ancient ocean crust (an ophiolite) now forms the eastern parts of Unst and Fetlar. Western Unst is the remnants of that ancient American continent.

Find out more with the 'Shetland Ophiolite' trail pack - from Unst Heritage Centre, Fetlar Interpretive Centre and Shetland Museum and Archives

1 Hermaness - next stop the Arctic!

Britain's northern tip is punctured by multiple stacks, caves, 'geos' and skerries. The peninsula has seen millions of years of storm driven erosion that have sculpted the present coastline. Now the cliffs are a haven for Puffins and Gannets, while Great Skuas nest inland on the blanket bog. The rocks that make up the peninsula are metamorphic. They have been changed and altered under extreme heat and pressure generated by the continental collision. Striking blue crystals of Kyanite, a metamorphic alteration mineral, can be seen exposed in the crags above the Ayre of Tonga.



2 Skaw Beach



Look out for the huge pink feldspar crystals in the beautiful Skaw Granite

At Skaw beach you will find the beautiful Skaw granite. This formed from magma that forced its way into existing rocks and cooled about 450 million years ago. It has a porphyritic texture, which means that some crystals, called phenocrysts, are obviously larger than the others. In this case large pink crystals of potassium-feldspar stand out in a matrix of smaller crystals. This texture occurs when slow cooling is followed by rapid cooling. After cooling the granite was thrust into its present position when the Iapetus ocean closed. Thrusting deformed the granite, recrystallizing minerals in the matrix to form fine banding around the phenocrysts.

3 Bay of Funzie

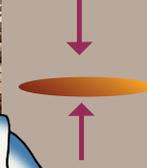
Fetlar is also part of the ophiolite. At Funzie Bay the effect of dense, oceanic crust thrusting up onto the ancient North American continent can be clearly seen.

The conglomerate rock here has been much deformed and strained. The original spherical pebbles have been stretched and squashed due to the force from the overriding oceanic plate.



See who can find the most stretched pebble; some are now 20 times their original length!

Flattened



Pebble



Yell - the roots of a huge mountain chain

The rocks that make up Yell are known as "Moine". These rocks were originally sands that were laid down 1000 million years ago off the coast of the ancient American continent. At this point in time Shetland's landmasses were actually in the Earth's southern hemisphere! The rocks have been buried and baked many times as the continents have moved and collided, resulting in the beautiful variety we see today.

Discover the beauty of Yell's rocks at the Old Haa in Burravoe...

4 Ness of Cullivoe

The rocks along this shoreline have been intensely folded and deformed due to the continental collision of ancient 'America' and 'Europe' some 420 million years ago. The collision resulted in the formation of the Caledonian Mountains, the remnants of which make up today's Scottish Highlands.

At the time of their formation, the Caledonian Mountains would have been the size of modern day Alps and Shetland was a part of this colossal mountain chain! Look at the intricate, tight folds that are exposed along the coastline and try and think about what direction the forces acted.



5 West Sandwick Beach

During the Ice Age, glaciers scoured Shetland's landscape. Sediments created were reworked by rising seas after the ice melted 10,000 years ago to form beaches and sand spits. The shining white sands at West Sandwick beach eroded from the metamorphosed Moine rocks that Yell is made from. The sand contains tiny flakes of the shiny mineral mica and pink garnet. The sand dunes offer shelter on a windy day making it an ideal spot for a picnic!

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SHETLAND >>>



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North Isles Geology

SHETLAND HERITAGE TRAILS



1) Hermaness, Unst: HP 61209 14943 / 60.812789, -0.876757

Unst is accessible via a ferry which departs from Gutcher on the island of Yell. Take the A970/A968 to Toft and cross on the ferry to Ulsta. Continue on the A968 to Gutcher and cross on the ferry to Belmont. Continue on the A968 until you reach the end of the road where you will find the parking area for Hermaness National Nature Reserve. Toilets are available at the shore station nearby.

2) Skaw Beach, Unst: HP 65969 16440 / 60.825480 -0.788777

Unst is accessible via a ferry which departs from Gutcher on the island of Yell. Take the A970/A968 to Toft and cross on the ferry to Ulsta. Continue on the A968 to Gutcher and cross on the ferry to Belmont. Continue on the A968 until you reach a T-junction and turn right (signposted Haroldswick). Continue until you are driving on single track road before taking the right turn signposted Unst Heritage Centre. Continue until the turning for Holsens Road where you turn left, follow the road to the end, park and walk down to the beach.

3) Bay of Funzie, Fetlar: HU 66423 89639 / 60.584714 -0.789513

Fetlar is accessible via a ferry which departs from Gutcher on the island of Yell. Take the A970/A968 to Toft and cross on the ferry to Ulsta. Continue on the A968 to Gutcher and cross on the ferry to Hamars Ness. Follow the B9088 across the island until you reach the end and park. The geological interest is on the far side of the beach.

4) Ness of Cullivoe, Yell: HP 54658 02845 / 60.705040 -1.000536

Yell is accessible via a ferry which departs from Toft on the Mainland. Take the A970/A968 to Toft and cross on the ferry to Ulsta. Continue on the A968 towards Gutcher. Just before the Gutcher ferry terminal turn left on the B9082 to Cullivoe. Continue until you reach Cullivoe. The Ness of Cullivoe is opposite to the pier, where parking and toilets are available. One to two hours is needed to walk round the Ness. Please note this route contains two step stiles.

5) West Sandwick Beach, Yell: HU 44689 89039 / 60.582330 -1.186269

Yell is accessible via a ferry which departs from Toft on the Mainland. Take the A970/A968 to Toft and cross on the ferry to Ulsta. Continue on the A968 towards Gutcher. Turn left to West Sandwick and follow the signs to the beach.

Coordinates are given as a guide only. You may wish to consult OS Explorer Map 470 and the British Geological Survey 1:50 000 Series sheets 130 / 131.