SHETLAND HERITAGE TRAILS

Old Red Sandstone

Geopark Shetland

Lakes and desert in the heart of an ancient continent

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Northern Periphery and Arctic Programme 2014–2020

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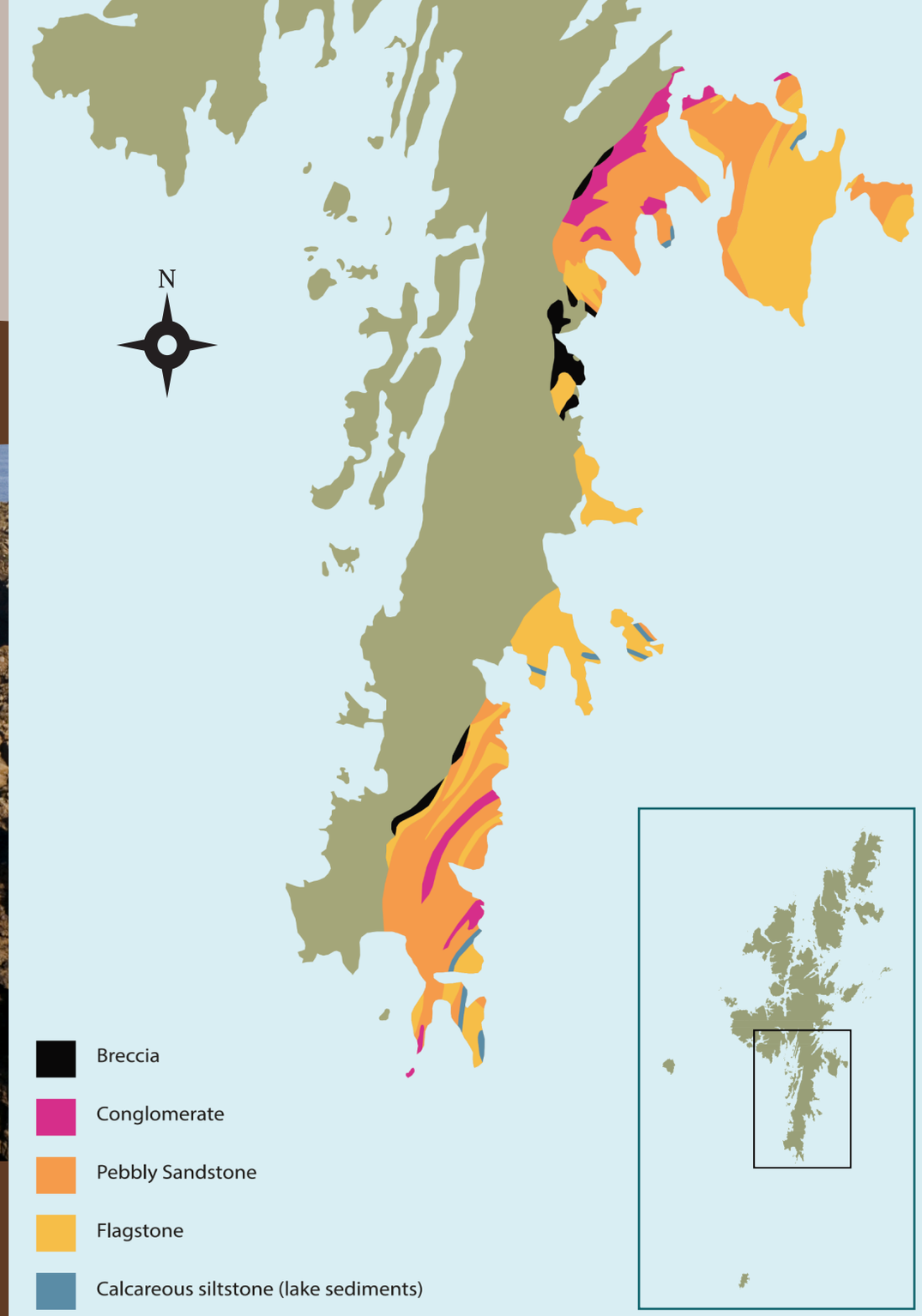
DRIFTINGAPART



An ancient landscape

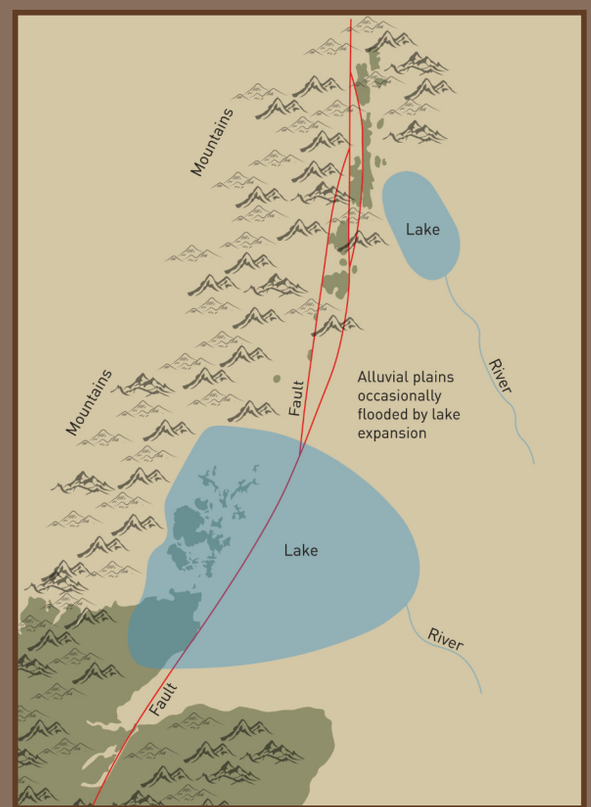
420 million years ago, Europe and North America collided to form a single super-continent. Shetland lay in the interior, on the edge of a range of fold mountains – the Caledonian mountains – thrown up by the collision. To the east, a series of sandy basins stretched out southwards, where lakes fed by meltwater from the mountains were home to strange forms of fish.

Tarim Basin, northwest China

The metamorphic rocks of Shetland and Scotland represent the eroded stumps of those mountains. During the Devonian period, 350 to 400 million years ago, they would have been as high as the Alps or possibly even the Himalayas. Ice, rain and wind quickly eroded the mountains and fast-flowing rivers carried boulders, cobbles, sand and silt down to the plains below. Larger stones were dumped at the foot of the mountains where the gradient eased and the force of the water lessened. **Braided rivers** carried the finer material out into the lowlands, where it built up over millennia to form a vast thickness of sedimentary rocks.

A similar environment can be found today in central Asia, where the Tarim Basin, surrounded by high mountains, contains the inhospitable Taklimakan desert. The lowlands stretched from Shetland, across Orkney and into what is now the Moray Firth. Shetland is made up of several slices of the earth's crust, which have moved relative to each other along four large shear faults. These had not yet reached their final positions, so whilst the south Mainland lay on the edge of one basin, the Walls peninsula and Melby were in two separate ones to the south rather than their present position in the west.

Breccia, Muckle Hell, Bressay



The rocks that formed here and in similar environments elsewhere in Britain were originally known as the Old Red Sandstone, although they are not all sandstone, and in Shetland most are not red. They include breccia formed from ancient scree deposits, beds of cobbles carried by flash floods, sandstones laid down in river channels and sand dunes, and fine-grained lake sediments. We now know that they formed at the same time as marine sediments in Devon, from which this geological era, the Devonian, now takes its name. This was also a time of volcanic activity and you can find out more about this by following Shetland's Volcano Trail.

Billion Years Ago | **Million Years Ago**

- 4.6 — Age of the Earth
- 2.8 — Oldest rocks in Shetland formed
- 420 — Continents collide to form Euramerica. England and Scotland are joined for the first time.
- 400–350 — Devonian period
- 300 — Further continental collisions result in supercontinent Pangaea
- 60 — Pangaea splits, dividing North America from Europe, and forming the Atlantic Ocean
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