

Brig o' Balgownie, Old Aberdeen

An under-recognised and under-appreciated
unconformity



James Hutton – The Father of Modern Geology
2026 is his Tercentenary!



2026



Hutton's 'Caledonide' Unconformity at
Siccar Point in Berwickshire

Seaton Park's Caledonide Unconformity

Unconformity seen here on the south bank of the Don, just 50 m SE of the Brig o' Balgownie



B o'B looking SE



We plan to form a joint AGS / ACC Ranger Service work party to clean up this outcrop

Let's show off this important stratal surface in the year of Hutton 300!

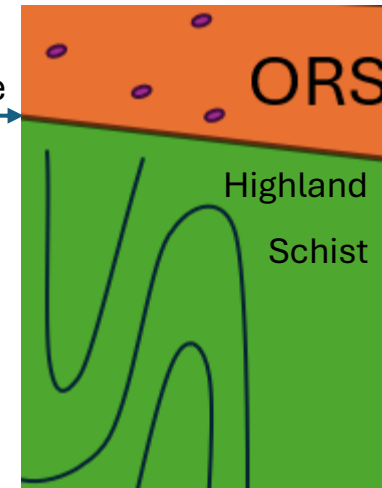
We will liaise with ACC the UoA and the BGS

HSE will be a priority!

~400 Ma = Old Red Sandstone

~600 Ma = Dalradian

= ~200 Ma of missing time or 'Deep Time'



‘Before pictures’ of the river side outcrop



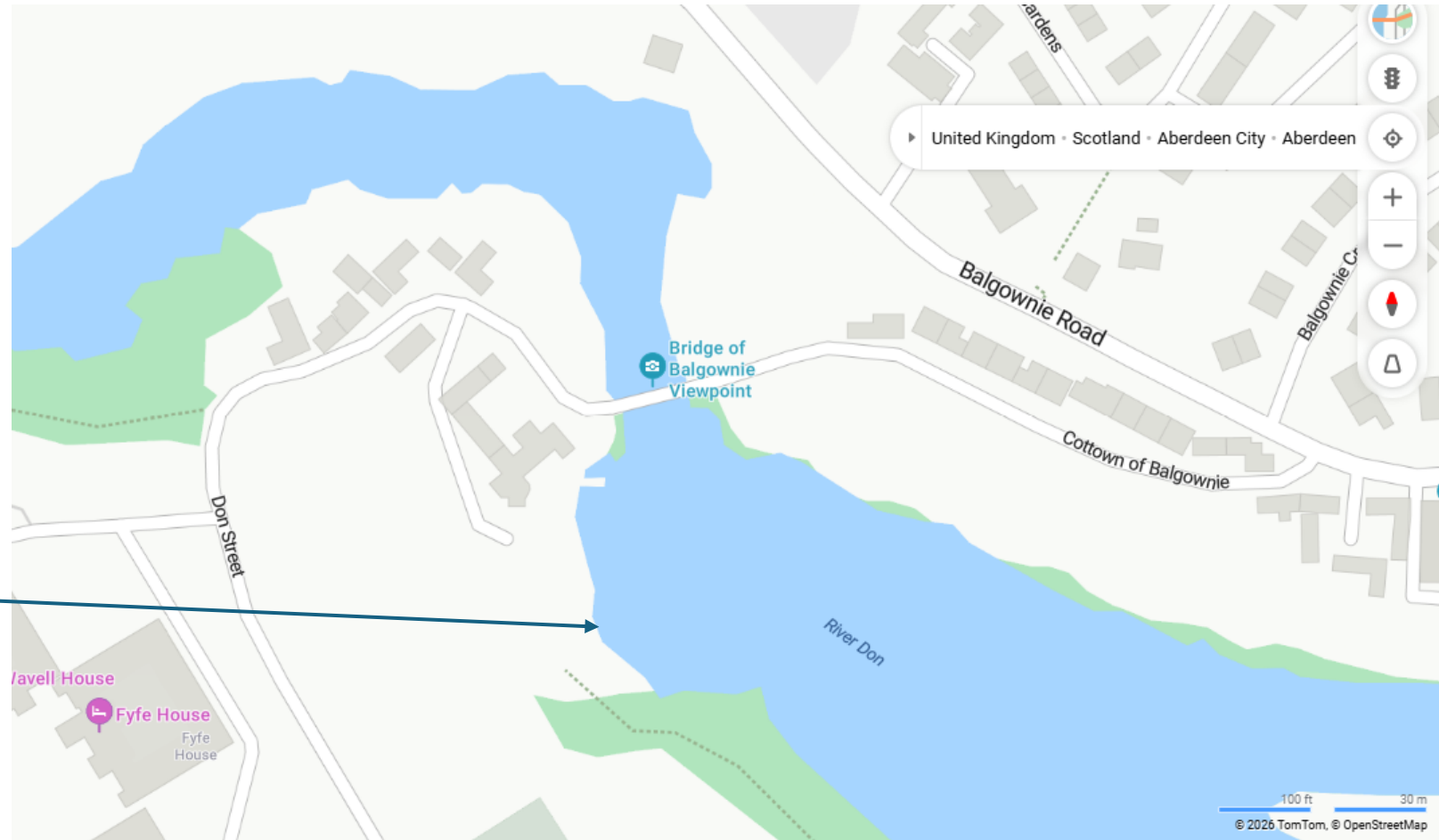
Overgrown and hard to detect that there is an outcrop of interest here

Detailed Map

Here is the
outcrop – right on
the water's edge

Its 20 m or so off
the main river
side walk

So walkers won't
be affected by
these operations

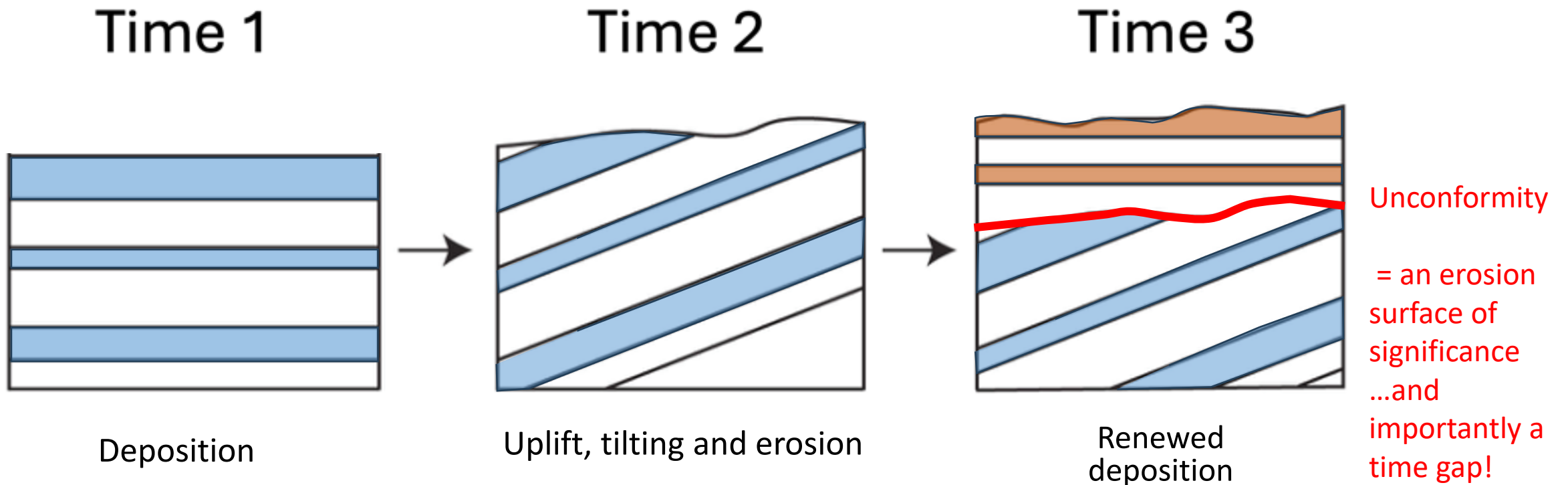


Could this area be cleaned up to deserve SSSI status?

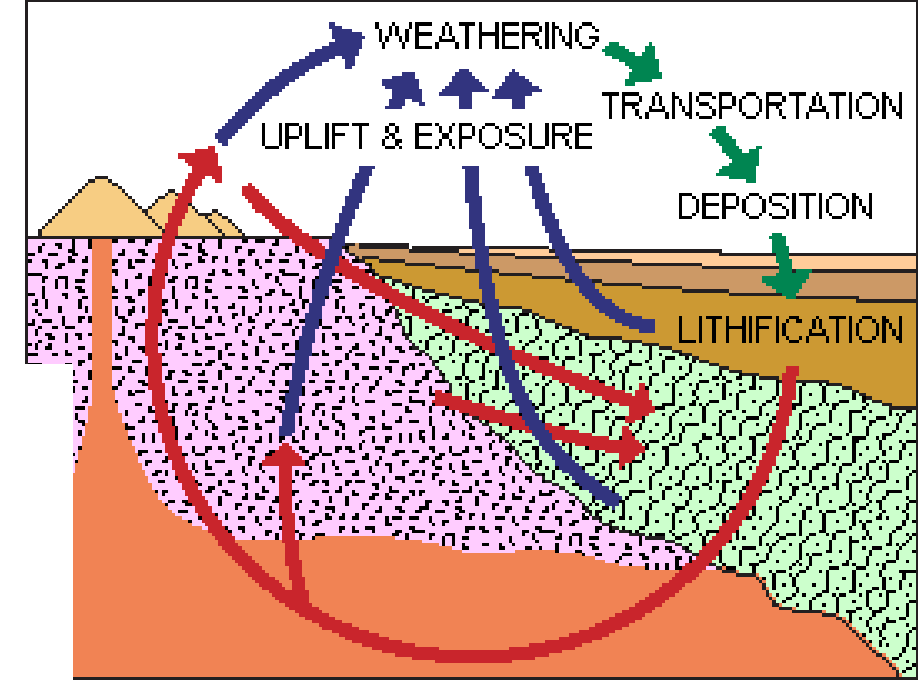
- What is a Site of Special Scientific Interest?
- A formal conservation designation used in the United Kingdom to protect areas of land or water of scientific value
- A protected area - designated for containing rare species of plants and animals, or important geological and physiographical features



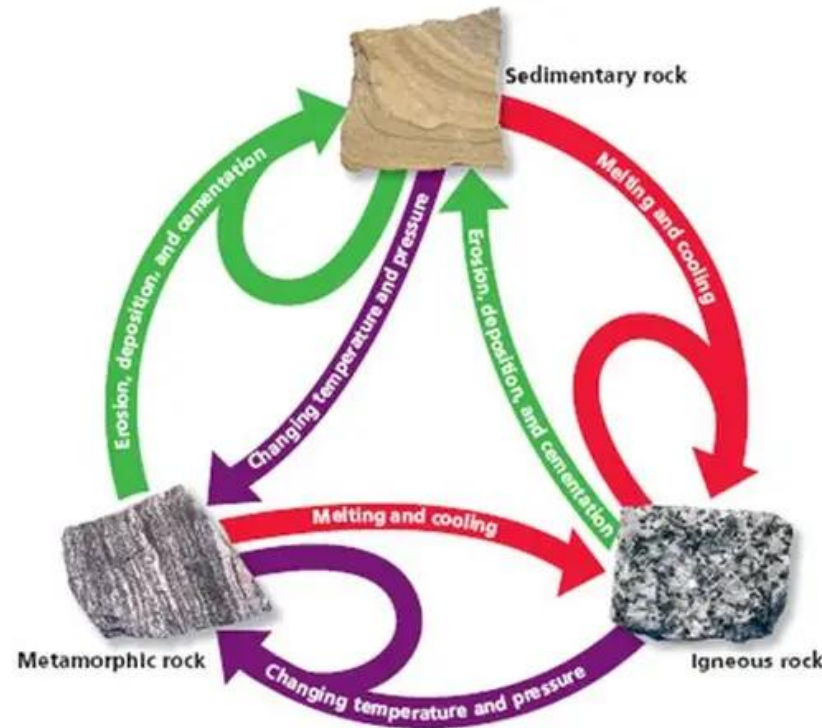
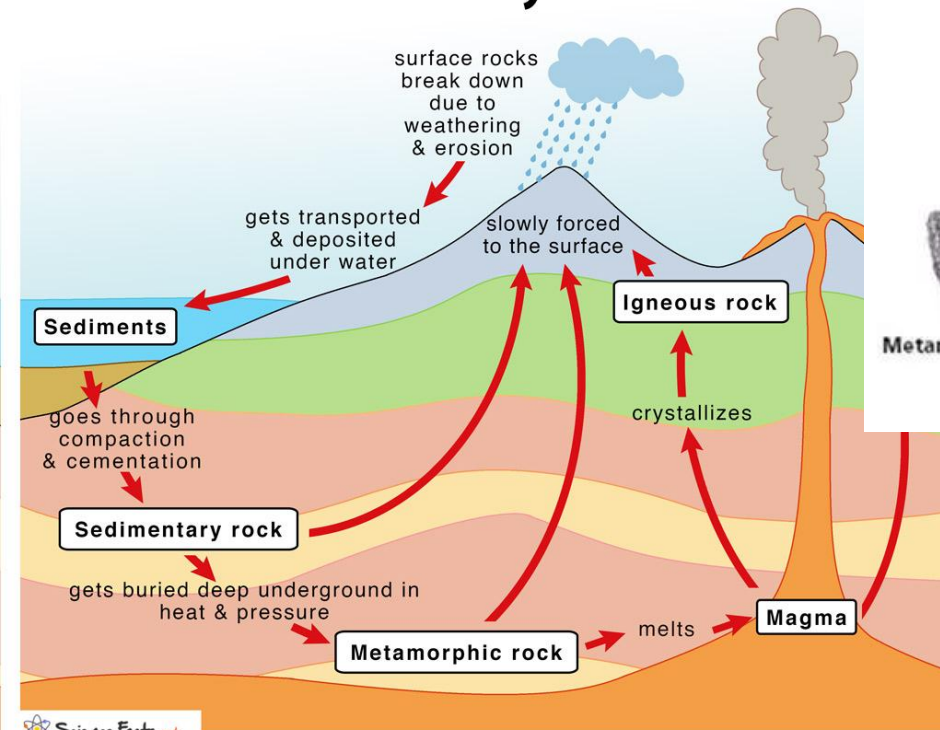
Stages in the Formation of an Angular Unconformity



The Rock Cycle



Rock Cycle



Rock Types

There are only three types of rock:

1. Igneous (volcanoes)
2. Sedimentary (layers depositing)
3. Metamorphic (pressure and temperature during mountain building)



Silurian (450 Ma) Plate Tectonic Reconstruction

Collisional plate
tectonic setting

Iapetus Ocean is
closing and
subduction ensues

Southern Hemisphere

Semi-arid climate

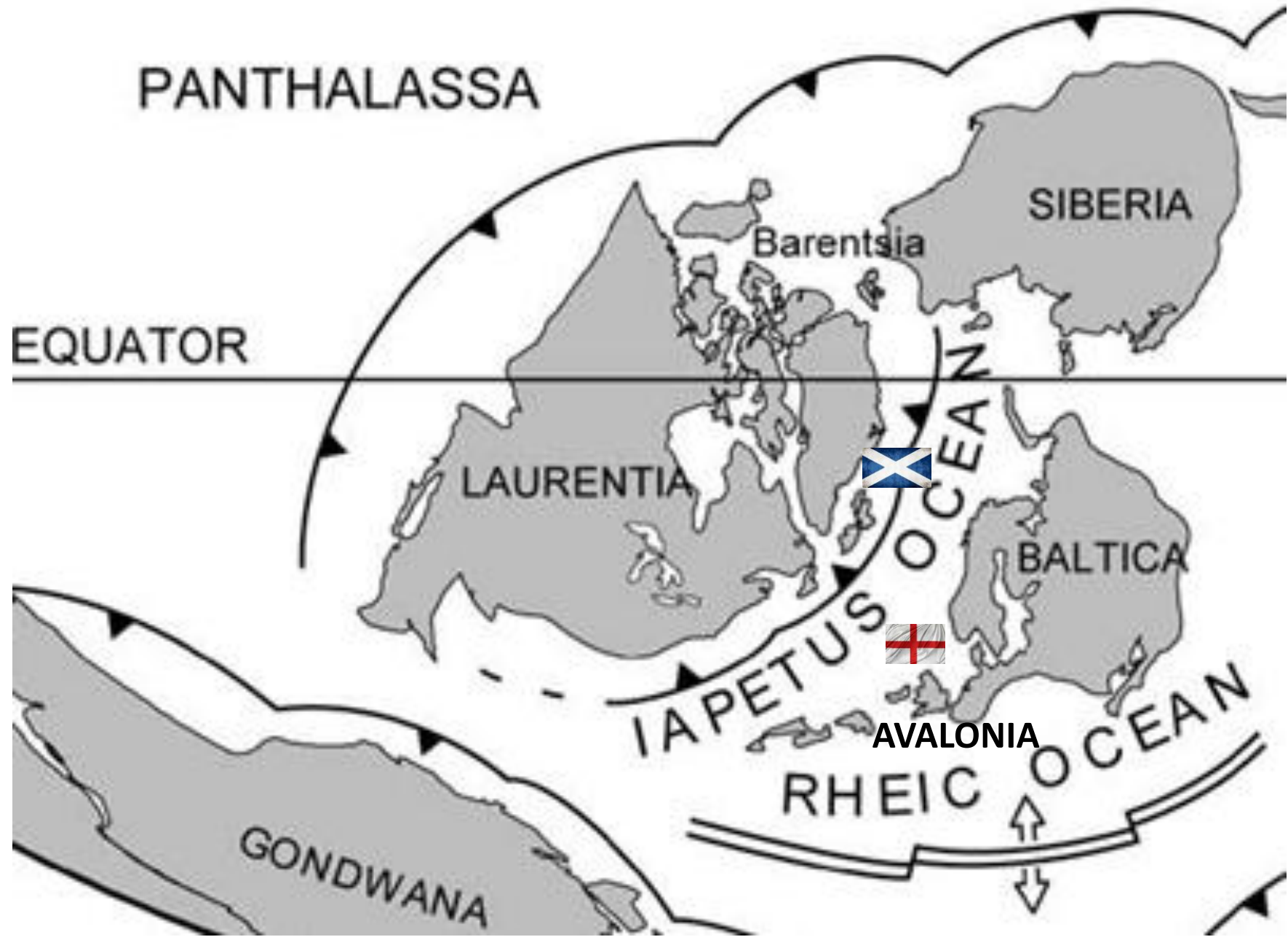


Plate Tectonic Interpretation

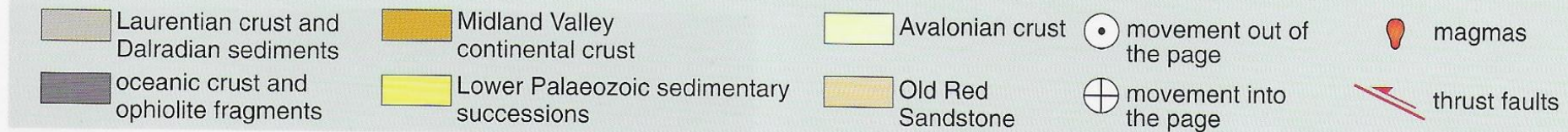
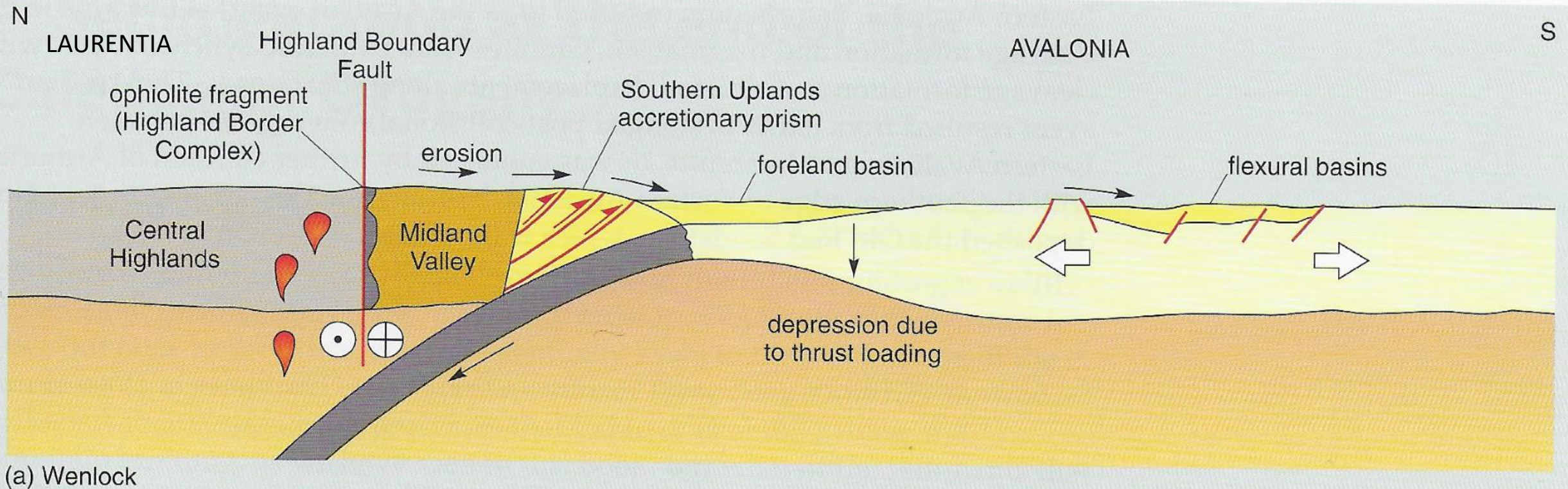
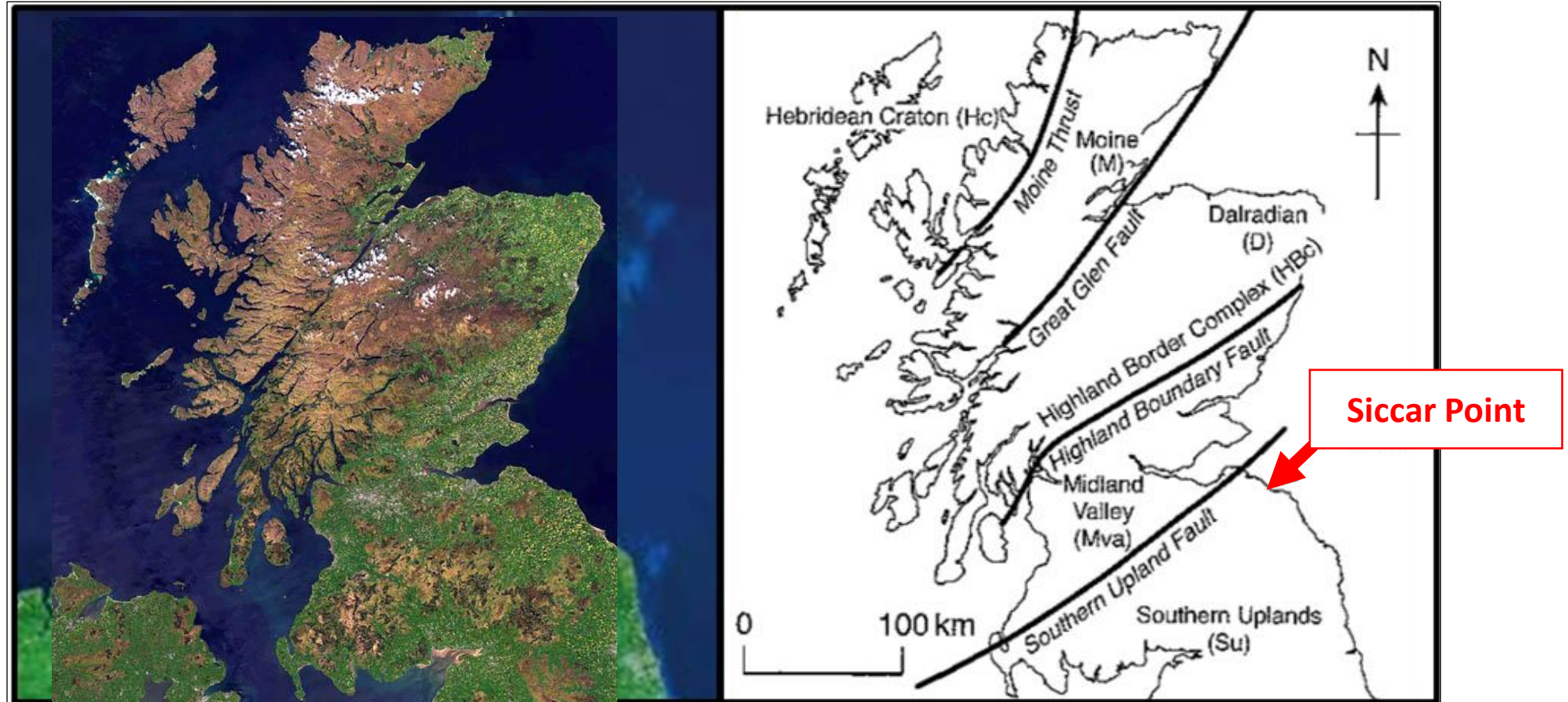


Figure 8.12 A plate-tectonic model for the Silurian–Devonian evolution of the Caledonian Orogen. (a) Mid-Silurian; From Jones, K. & Blake, S. (2003), *Mountain Building in Scotland*, The Open University, Milton Keynes, UK

This is the Caledonian Orogenic Phase - records the closure of the Iapetus Ocean
Uplift and erosion as England (AVALONIA) was subducted under Scotland (LAURENTIA)

Regional Geological Setting

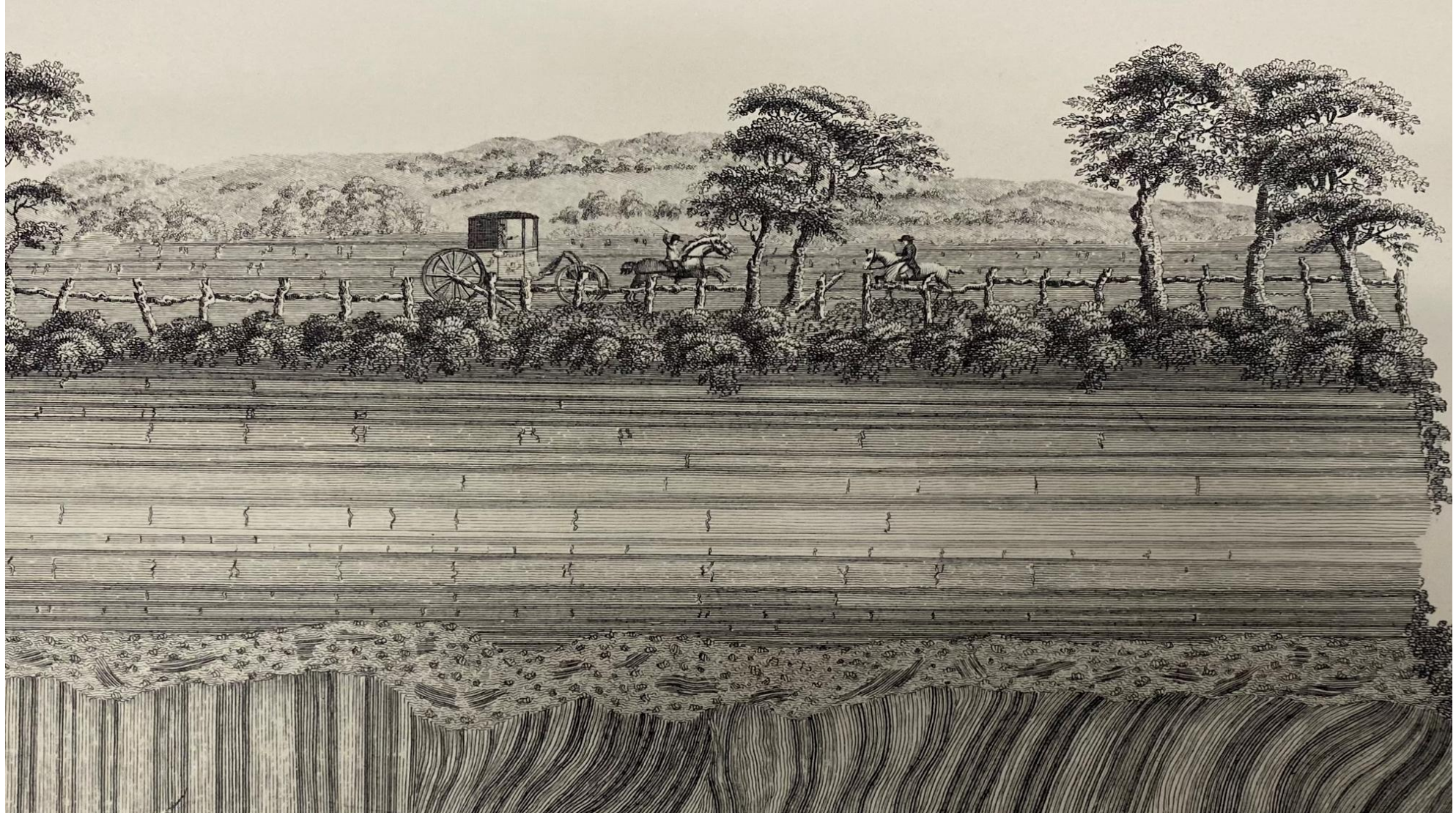


In the context of Scotland's five terranes

Hutton's Unconformity at Siccar Point



Hutton's Unconformity in Jedburgh



Balgownie Gorge

- Future Research Project?

- How long has the Don been locked into this bedrock knick point, north of Hillhead?
- When did the diversion and piracy take place?
 - The old river used to go through Seaton Park?...
- Was ice involved?
- Can the terraces assist – can they be dated?
- UoA - School of Geosciences
 - Fluvial systems and landscape evolution PhD project? Carnegie Scholarship Fund?



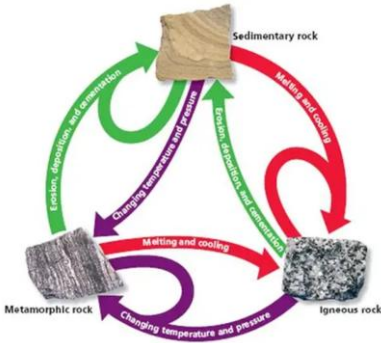
Info Board Mock up

- Just some preliminary ideas....

Brig o' Balgownie Unconformity



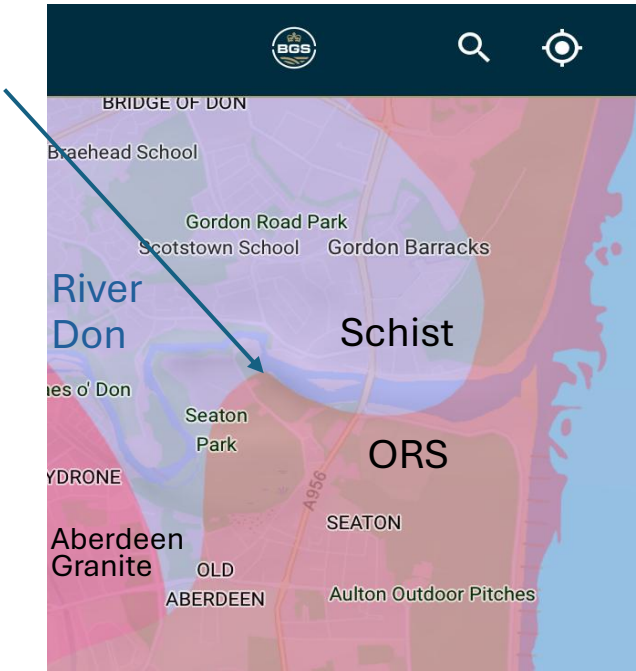
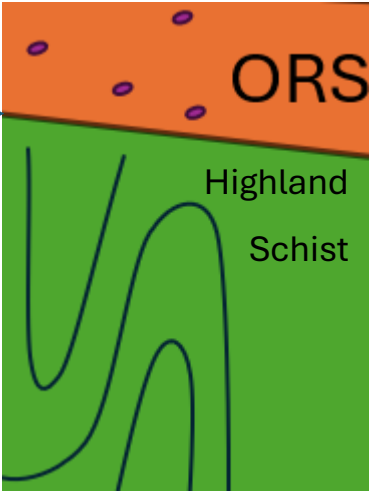
Before and After photos



The Rock Cycle

~400 Ma = Old Red Sandstone
~600 Ma = Dalradian

= ~200 Ma of missing time
or ‘Deep Time’



Stages in the Formation of an Angular Unconformity

