The main building blocks of modern Scotland were assembled in a series of events lasting hundreds of millions of years. The story began with the opening of the Atlantic Ocean about 60 million years ago. Scotland's oldest rocks are found in the Outer Hebrides (Iona Marble) were formed deep underground in intense heat and pressure under the ocean floor. The Iapetus Ocean was formed, with Scotland on the northern edge of the ocean resulting in a mountain-building phase called the Caledonian Orogeny, which ended about 400 million years ago. The associated faulting and folding of the rocks resulted in a mountain range that formed the Highland Fault. The mountains were tectonically, but still prone to occasional volcanic outbursts which have left some impressive features in the landscape (Caldercruix Dolerite). For millions of years Scotland experienced changing climates, from hot desert conditions (Carmyllie Sandstone; Errochty Sandstone; conglomerate) across the equator where wet conditions caused sedimentary rocks to accumulate on the Earth's surface. This often happens under water. Examples are the sandstone and limestone that make up the Scottish Highlands.

The Canongate Wall incorporates are “Brewery Stones” recovered from Edinburgh’s Old Town and has been torn apart by the actions of plate tectonics. The rocks are not wholly representative, as harder stones are more resistant to weathering. The Canongate Wall is a unique feature of Edinburgh and is a testament to the city's rich history and culture.
The Atlantic Ocean about 60 million years ago. These tough metamorphic rocks (Lewisian Gneiss; Colliding continents and a disappearing ocean - the Caledonian Orogeny

The closure of the Iapetus Ocean resulted in a mountain-building phase called the Caledonian Orogeny. Different kinds of metamorphic rocks now found in the Northern Highlands and the Grampian Highlands, separated by the Great Glen Fault are formed of folded metamorphic rocks, overlain by Permian rocks when magma gets trapped underground, e.g. granite.

After the orogeny - erosion and tearing of the new continent means that oceans do not last forever. The Scottish Parliament Building. All incorporating are “Brewery Stones” recovered from the same selection process as before. In total there are six main distinctive areas of Scotland’s rocks. Geologists recognize three kinds of rock.

Sedimentary Rocks form when sediment (e.g. sand or mud) accretes on the Earth’s surface. This often happens under water. Igneous Rocks are crystalline rocks formed from solidified magma, either in volcanoes where lava and ash form extrusive rocks such as basalt and tuff, or as intrusive rocks when magma gets trapped underground, e.g. granite. Metamorphic Rocks are formed by the action of heat or pressure on existing rocks, usually deep underground.

Try the Canongate Wall

The Canongate Wall displays a remarkable variety of different kinds of sedimentary, igneous and metamorphic rocks. Scotland’s long and complicated geological history. Over the past three billion years, these rocks have moved over the Earth’s surface, experiencing a range of environments and climates. Fragments of the rock units that now make up Scotland have collided, slid past each other and been torn apart by the actions of plate tectonics. The rocks are not wholly representative, as harder stones are more resistant to weathering and erosion and tend to survive longer. The map shows the six main distinctive areas of Scotland’s rocks.

Scotland’s Geodiversity

Geologists recognize three kinds of rock. Sedimentary Rocks form when sediment (e.g. sand or mud) accretes on the Earth’s surface. This often happens under water. Igneous Rocks are crystalline rocks formed from solidified magma, either in volcanoes where lava and ash form extrusive rocks such as basalt and tuff, or as intrusive rocks when magma gets trapped underground, e.g. granite. Metamorphic Rocks are formed by the action of heat or pressure on existing rocks, usually deep underground.

Examples are slate, schist, gneiss or marble.
   "When we had a king..." Walter Scott
   Mrs Howden in "Heart of Midlothian"
   Metamorphic

2. Cove Red Sandstone – Annan, Dumfries & Galloway.
   "Let the words..." Psalm 19:14
   Sedimentary

3. Ardkinglas Slate – Cairndow, Argyll.
   "From the lone shieling..." Anon
   Metamorphic

4. Whinstone (dolerite) – Caldecrux, West Lothan.
   "This is my country..." Sir Alexander Gray
   Igneous

5. Carmyllie Sandstone – Angus.
   "What would the world be..." Gerard
   Manley Hopkins
   Sedimentary

   "Then let us pray..." Robert Burns
   Metamorphic

   "Am fhearr as fhearr..." Proverb
   Sedimentary

8. Lewisian (banded) Gneiss – Lochinver, Sutherland.
   "But Edinburgh..." Hugh MacDiarmid
   Metamorphic

   "If a man..." Andrew Fletcher
   Metamorphic

    "So, cam' all ye..." Hamish Henderson
    Igneous

    "Tell us about..." Edwin Morgan
    Sedimentary

    "Who possesses this landscape...?" Norman MacCaig
    Igneous

    "There is hope..." Charles Rennie
    Mackintosh
    Igneous

    "Am fhearr as fhearr..." Proverb
    Igneous

15. Caithness Flagstone (polished) – Spittal, Caithness.
    "To promise..." Proverb
    Sedimentary

16. Ledmore Marble – Ledmore Quarry, Highlands.
    "Oh, dear me..." Mary Brooksbank
    Metamorphic

17. Ardkinglas Slate – Cairndow, Argyll.
    "O wad some Pow'r..." Robert Burns
    Metamorphic

    "Y's a/Alba..." Deorasa Mac Iain Deorsa
    Sedimentary

    "The rose..." Hugh
    MacDiarmid
    Sedimentary

    "The rose..." Hugh
    MacDiarmid
    Sedimentary

    "To promise..." Proverb.

    "What a lovely..." Alan Jackson
    Metamorphic

23. Glen Tilt Marble – Blair Atholl, Perthshire.
    "Put all your eggs..." Andrew Carnegie
    Metamorphic

    "Scotland small..." Hugh MacDiarmid
    Igneous

    "The battle..." John Muir
    Igneous

26. Lewisian Gneiss – Lochinver, Sutherland.
    "Bright is..." Alasdair Gray
    Metamorphic

27. Iona Marble – Iona, Argyll.
    "Work as if..." Charles Rennie
    Mackintosh
    Igneous

    "Sweet Ghosts..." George
    MacDonal
    Sedimentary

The 3 vertical strips of grey rock are Dolerite.