

U-Shaped Valley

Examples include Glendalough and Glendasan, Co. Wicklow,

U-shaped valleys are features of **glacial erosion** found in **upland areas**, usually extending to lowland areas. In some cases, U-shaped valley may extend to coastal location and in some cases may have been drowned by the post-glaciation rise in sea level. In this case, the U-shaped valley becomes a **fjord**. A U-shaped valley is an **overdeepened valley** with high, sheer valley walls and usually containing lakes called **ribbon lakes**.

U-shaped valleys formed when snow gathered in pre-glaciated valleys, usually v-shaped river valley or when cirque glaciers extended down valley. As layers of snow built up over a period of 200 years or more, it was compressed until it turned into **firn ice**. The weight of the overlying ice caused friction at the base of the glaciers producing a thin film of water. This allowed the glacier to move under the force of gravity. This movement is called **basal slipping**. As the glacier moved, plucking and abrasion occurred. **Plucking** is a glacial erosion process whereby rocks are plucked from the ground by the passing glacier. Friction cracks form on the ground. Meltwater pours into the cracks and freezes, thereby sticking to the base of the glacier. As the glacier moves off, the rock is plucked out of the ground. **Abrasion** occurs when the rocks imbedded in the glacier scrape the landscape, wearing it away in a sandpaper-like fashion.

Weaker parts of the valley floor were more affected by plucking and were overdeepened leaving hollows behind. When the period of glaciation ended, these hollows filled with water and became **ribbon lakes**. Ribbon lakes are long, narrow lakes found on the floor of a glaciated valley. During an ice age, a valley glacier may have been joined by smaller, **tributary glaciers**. These did not erode their valleys to the same extent as the main valley glacier. When the ice age ended, a small glaciated valley was left hanging above the main valley floor. This smaller valley is called a **hanging valley** and usually it is drained by a small stream which falls to the valley below as a waterfall. Deposition by the waterfall on the valley floor produced alluvial fans. As the glacier moved through the pre-glacial valley, it encountered interlocking spurs as obstacles. While the glacier could **deform like plastic**, it was not flexible enough to negotiate these spurs. Instead, it plucked and abraded the spurs. When the ice age ended, these spurs were revealed as **truncated spurs**, thus giving the valley its characteristic steep sides.