



**Title: A landscape in three chapters.**

**Location: Pointe de l'Echelle and the Glacier de la Masse, Vanoise National Park, France**

This landscape is a story with three chapters.

Starting about 300 million years ago layer upon layer of coarse sediment washed into the area over several million years, filling up an ocean basin. Then this thick pile was squeezed and deformed as the sediments were dragged deep into a subduction zone, leaving a tell-tale foliated (crinkly) structure in the rocks, seen in the foreground exposures. About 35 million years ago the rocks were in the collision zone of the converging African and European continents which forced uplift to create the high mountains now on show.

And so to the final chapter. It is ice that has shaped the land dramatically over the last two million years. Glaciers scoured the uplifted landscape leaving bare rock surfaces, sharp jagged peaks and deep cirques with arêtes above. The head walls, shattered by frost weathering, dropped blocks of rock below forming apron-shaped scree slopes or creating rock debris on the ice surface. Some material on the ice is transported along the sides of the glacier forming ridges of loose material at its edge. These ridges are called lateral moraines. The curved lateral moraine on the left hand side of the glacier as we look at it shows evidence of a more extensive glacier in the recent past. We can tell this as it extends much beyond the position the glacier now occupies. It also suggests the glacier will not be there for much longer, but that's a future chapter for the story.