Glaciers

The valleys at Arthur's Pass were carved out by **glaciers.** These are huge frozen rivers of ice that over the last two million years have sliced through the rock of the mountains to form huge **U-shaped valleys.** Thousand of years ago ice completely filled the valleys at Arthur's Pass, with the ice reaching high up the mountain sides.

The Tasman, Fox and Franz Joseph Glaciers further south, are examples of glaciers like the ones which once filled all the valleys of Arthur's Pass. The Bealey Valley was once completely filled with ice. The point where the ice came up to can be pointed out when you come to the Outdoor Education Centre.

Rock and shingle debris carved from the valley sides was pushed in front or on top of the advancing glacier and was deposited as **terminal moraine** at the foot of the glacier. Moraine deposits became small hills of rock and shingle left behind in the valleys when the glaciers melted. The bouldery ridge where the Dobson Memorial now stands is an example of such a moraine.

The ice in a glacier moves very slowly. New snow that falls and collects at the head of the glacier (the **neve**) is compressed over time into ice. This feeds the glacier. At the foot of the glacier the ice melts and is the beginning of an ice fed river (see Photo Gallery).

Most of the glaciers **receded** 10,000 years ago when the climate became warmer.
When the glaciers melted away the sides of the **U-shaped valleys** crumbled and fell, forming screes and land slides, and leaving the **V-shaped valleys** we see today. The sides of the valleys were once bare shingle slopes. **Over** time the valley sides slowly became covered with small plants, and then trees and shrubs, as plants found soil in which to grow. This is the process of **' succession** (refer to ecology section).