

Geology

The next major geological event was glaciation. Glaciers are responsible for most of the interesting features seen in the White Mountains today. 50,000 years ago, it became cold enough so increased amounts of snowfall resulted in small glaciers called alpine or valley glaciers. A glacier has many layers of snow and ice which accumulate over many years. The overlying snow creates enough pressure so the bottom layers change into ice (for example, squeeze a snowball and it turns to ice). As the glaciers move, they scoured features such as the Great Gulf out of the mountains and river valleys.

Glaciers start at the headwaters of streams and snowfields form. As snow and ice melt and refreeze, water gets into cracks and chunks of rock are broken away. The results are steepened valley walls (headwalls) and bowl-shaped ravines like Tuckermans Ravine. The glaciers begin to flow through the stream valleys. The dark streaks in the ice are sediment and rocks from the valley walls and floors. It is the rocks carried within the ice that actually erode the landscape.

Notches are evidence of valley glaciers. The valley glaciers cut out notches, which are U-shaped valleys from pre-existing V-shaped stream valleys. When ice flows down these valleys, the valleys become wider and obtain a U-shaped profile. The Great Gulf is one of these glaciated stream valleys.

The large snowcap in Canada began to grow outward, and this area was covered by a continental ice sheet which extended as far south as Long Island, New York. The summit of Mt. Washington was completely covered by ice before the ice melted about 12,000 years ago. Different types of evidence have been found to support this idea. One is the presence of potholes on the Caps Ridge Trail out of Jefferson Notch. Potholes can be seen just below tree line between 3500 and 4000 feet. Potholes are cut by rocks carried in swift-moving rivers. There isn't any stream along the Ridge of the Caps now, but there was one when the ice sheet began to melt. Boulders carried in the melt-water cut out these potholes. An example of a more modern pothole is the Basin in Franconia Notch.

Another feature made by the continental ice sheet is a roche moutonee (whaleback/sheepback) - there is a small one on Route 16 in front of the Glen House. The shape of these features show which way the ice sheet flowed. The Imp is another example of a sheepback.

Erratics were also left behind when the ice sheet melted. Rocks from places to the north of these mountains were carried in the ice down to this area and deposited when the ice receded. Glen Boulder is one of these erratics. Smaller, greenish erratics have been found on top of Mt. Washington which match the bedrock found seven miles away in Jefferson. (It is also interesting to note than several of the plants found at the Summit are only found on Mt. Washington and within the Arctic Circle - additional evidence of the ice sheet's movement).

The story of these mountains doesn't end here, though. The snow and ice in the winter continue to loosen blocks from the summits. These blocks are called 'talus'. It is the work of the ice and snow in the winters and early springs that break off talus blocks and endanger the Old Man of the Mountains in Franconia Notch. The streams are still gradually wearing down the landscape and will continue to do so until this land is a flat surface once more.