GLACIAL WASTING

After the Goldschmidt meeting in Davos, Pierrette Tremblay and I went on a four-day Alpine tour taking in some well-known localities in Switzerland and the Mont-Blanc region. I'd first visited these tourist destinations more than 30 years ago, on camping holidays with my children. My memory was of pristine glaciers gleaming in the Alpine sun, but it was at once obvious that enormous changes had occurred since the 1970s. One frequently reads assertions that glaciers in the Alps are retreating at an extraordinary rate, but these are not usually accompanied by really striking 'then-and-now' pictures. An afternoon of Googling left me unrewarded. So, I have digitized some earlier photos from my archives taken from as nearly as possible the same viewpoints as in 2009 and selected the same areas of the images. Estimating the loss of ice from glaciers quantitatively is not straightforward. The large amount of rock debris on the surface of rapidly declining glaciers like those in the Alps makes the maximum extent of the ice difficult to locate, and although we often speak of 'glacial retreat', the reality in the Alps is 'down-wasting', stationary thinning. Nevertheless, the photograph pairs speak for themselves in a most dramatic way.

The Lower Grindelwald Glacier, August 1977

July 2009

Mer de Glace, August 1984

July 2009

The first two pictures show the Unterer Grindelwaldgletscher, a medium-sized glacier above the holiday village of Grindelwald in the Bernese Oberland. To give you an idea of scale, the pictures were taken from about 1770 m and the highest point on the distant ridge, the Fiescherhorn, is 4049 m. Since 1977, the ice-foot, which was then some distance off to the right of the picture, has retreated more than 2 km. In the 2009 photograph, the ice ends at the edge of the lake and the lateral and vertical thinning is obvious. The glacier is a shadow of its former self. The second pair shows a much larger glacier, the Mer de Glace, in the Mont-Blanc massif, from the tourist viewpoint of Montenvers at 1900 m, with the 4200 m ridge of the Grandes Jorasses forming the distant skyline. The amount of debris on the surface of the glacier has increased enormously in the last 25 years, making it difficult to estimate where the actual ice surface is. However, the energetic and daring inhabitants of the French Alps have for several decades maintained access to artificial grottos in the glacier via a walkway suspended on girders driven into the rock wall. They have extended the walkway as the glacier has retreated and attached plates to the rock at intervalsmarking the ice surface over time. It is deeply impressive to stand where the glacier was in only 2000 and look down on tiny figures entering the grottos below.'

As someone who has recently become involved in providing geological interpretative boards in the West Highlands of Scotland, it seems to me that the Alps provide almost unlimited potential for gently introducing the public to the geological wonders around them, and to events both ancient and on-going. Pierrette and I found boards showing cute little marmots and beautiful wild flowers, but virtually no references to any aspects of the processes which led to these stunningly beautiful mountains. Can we perhaps sow a small seed in the minds of our French and Swiss readers?

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PARTING QUOTE

IF WE KNEW WHAT IT IS WE WERE DOING,
IT WOULD NOT BE CALLED RESEARCH, WOULD IT?

Albert Einstein

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