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UNESCO World Heritage Sites

Swiss Tectonic Arena Sardona

A clear, razor-sharp line slicing across the Glarus Alps catches the attentive observer's eye where the Swiss cantons of Glarus, St Gallen and Grisons meet.

The Glarus Thrust is one of the best places in the world to understand how mountains are formed and the role of tectonic plates in this process. The defining natural feature of Switzerland – the Alps – is the result of a collision of the European and African continents. In this collision, continental plates pushed older, deeper rocks over much younger rock formations some 40 million years ago, proceeding at a snail's pace of a few centimetres a year.

The Glarus Thrust is so important that the American Museum of Natural History in New York has created a down-scaled reconstruction of it and Unesco inscribed it as a World Heritage site in 2008: Swiss Tectonic Arena Sardona.

So how did it all happen? The so-called Helvetic nappes, layered slices of rocks, were pushed by the movement of continental plates to the north. In this process, older sedimentary rocks were pulled along the thrust over younger ones. Above the "magic line" of the Glarus Thrust lie the darker rocks of the Verrucano group (250–300 million years old). Below the line

are light grey lime stones (100–150 million years old) and slaty "Flysch" rocks (35–50 million years old).

The thrust is exposed in a number of areas in the Glarus Alps. Famous outcrops include Lochsite near the township of Glarus and along the Tschingelhörner between Elm and Flims. In this tooth-edged mountain cliff is also a natural hole called the Martinsloch.

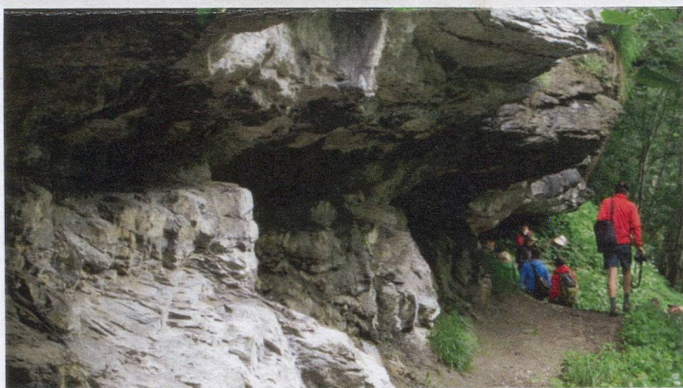
The topsy-turvy world of the Glarus Thrust explains why in 2000, scientists found the foot tracks of dinosaurs on the Tödi Mountain at an altitude of 2300m. These dinosaurs from the Thecodont group were large, lizard like reptiles between two and four meters long. They lived during the Triassic age some 230 million years ago on the beaches of a shallow sea.

Other fossil finds on the Tödi stem from the later Jurassic period some 180 million years ago, when the region was close to the edge of the Thetys Sea which opened between the new continents of Africa and Europe. Some of you may recall this from our articles on the dinosaurs of Monte San Giorgio in an earlier Helvetia issue.

It is amazing how scientists, over nearly 200 years of research and debate, have put this complex story of the Alps and the earth's evolution together. It's almost too much to take in! Nonetheless, you will probably look at the Glarus Alps with different eyes next time you have a chance to see them.

Sources:

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Lochsite near the township of Glarus

<http://www.myswitzerland.com/de/lochsite-glarner-hauptueberschiebung.html>



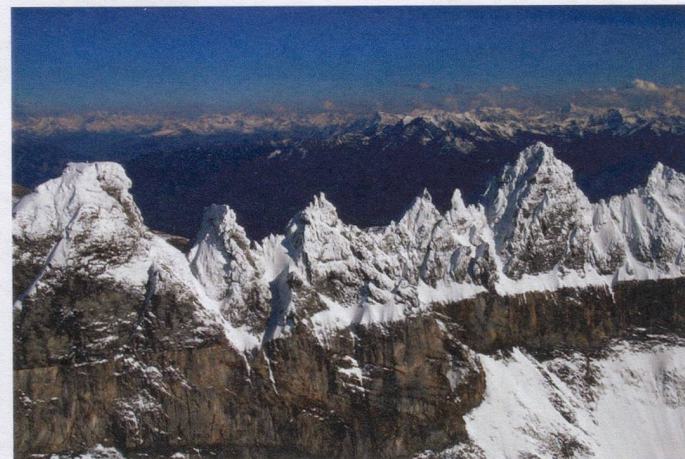
Martinsloch

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Lake Chüeboden above Elm, with views of Piz Sardona (3056m) and Tschingelhörner (2849 m)

http://en.wikipedia.org/wiki/File:Am_Ch%C3%BCebodensee_bei_Elm.jpg, Photo: Matthias Zepper



The magic line at the Tschingelhörner (Photo: R. Homberger, Arosa)

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