

Geological Research in the Area

Up until the 19th century, geologists thought that mountains and valleys formed because of the shrinking of the Earth (as an apple becoming old). This shrinking was explained by the supposed cooling down of the Earth. Studies and interpretation on rock structures at the Glarus thrust caused violent discussions but led finally to the actual model: Folds and overthrusts as well as the resulting mountains that are the result of dynamic movements of the Earth's crust. In 1809 already, Hans Conrad Escher von der Linth had noted correctly, that older rocks lay on top of younger ones in the Glarus Alps. The German Leopold von Buch, the most influent geologist at this time denied this idea – even after having visited the site. He thought that Grauwacke (term used for Verrucano at this time) is part of the transition rocks and may not and never lay on top of alpine limestone. Arnold Escher, the son of Hans Conrad Escher, studied the Glarus thrust very intensively and in 1841 he ended up with the conclusion that it was in reality one single overthrust. However, this opinion was in contradiction with the current scientific ideas. Therefore he was afraid to publish his theory. He thought that nobody would believe him and that people would consider him as a scientific clown.

In 1841, Arnold Escher showed the area of the Segnespass to his British colleague Sir Roderick Impey Murchinson, who also agreed with the interpretation of the structures as overthrusts. Nevertheless, Escher proposed in 1866 his theory of the double fold of Glarus: two recumbent folds, one from the north and one from the south meeting at the Foopass in a tobacco pouch-like Flysch trough. Albert Heim, the most famous Swiss geologist at this time, adopted and defended the theory of Escher. In 1864, Marcel Bertrand, a French mining engineer who never had been in the Glarus Alps made a new interpretation of Heim's sections and descriptions. He showed that the problem can be solved with a single thrust from south to north. Only in 1901 Heim recognised the fact of a single overthrust and the triumphal procession of the theory could not be stopped anymore. In 1921, Heim wrote in his standard work about the geology of Switzerland that anybody doubtfully about nappe tectonics should first come to the Lochsite outcrop.

Since that time, many geologists have visited the outcrops of the Glarus thrust and continued research on structures and mechanism of overthrusts. A lot of questions are still discussed and the Glarus thrust will also contribute in the future to a better understanding of the formation of mountains.

Text partly modified after:

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