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Summary

Valley history between Domodossola and Locarno: Valle d'Ossola, Val Vigezzo and Centovalli (Prov. di Novara and Ct. Ticino)

In the Miocene, the drainage of the upper Toce river with the Antrona, Ogliana di Pozzolo and Vigezzo valleys as southernmost source branches, took place northwards to the Gries and Grimsel passes. As a Miocene Aar river, the upper Toce deposited in the Swiss Lowland – as gravels testify – the Molasse fan of the Napf mountain area. The continental divide was located between Monte Rosa and Gotthard farther south, in the Ossola valley between Domodossola and the Anza river mouth, in the Vigezzo tributaries near Malesco.

In the younger Miocene the forming of the Helvetic nappes at the Pennine front, their advance and sliding northwards with uplifting of the Aar massif interrupted this river course: the drainage was reversed. At the former divide S of Domodossola a lake was dammed. Along joints its outlet, cut the rock bar. From the rising Monte Rosa it took up the Anza river and followed its lower course.

During cool phases, first at the Miocene/Pliocene boundary, the Toce glacier entered the Vigezzo valley. From Locarno Ticino ice entered the lowermost Maggia valley and directed Maggia and Onsernone ice into the Centovalli. Therefore the Vigezzo ice was pushed to the southern slope. It could only reach the Ticino glacier as a small ice flow with reduced erosion power.

Beside Würmian moraines and erratic boulders, the maximum extension of the north-alpine glaciers gives indications of older maximum stages also in the south-alpine areas. Uppermost carved rocks and transfluences in the Vigezzo valley show the highest ice level at 1900 m in Rissian, Mindelian or even older glacial times, at 1700 m in Würmian.

From Malesco Vigezzo ice flowed over the Finero pass to the SE and reached the Ticino glacier. From the Lago Maggiore basin Ticino ice entered the lowermost Cannobina valley, dammed the overflowed Vigezzo ice and caused the formation of roches moutonnées.

Rissian till, cemented debris flows, interglacial lake deposits with a thermophilous flora, overlying Würmian gravel and till represent the Pleistocene sequence in the Vigezzo valley filling. The youngest deepening of the Melezso river ends in Rissian till. Still in the early late-Würmian, Toce ice entered the Vigezzo valley as far as Malesco and took up the Melezso and Loana glaciers. From the Gridone mountain hanging glacier tongues descended into the Centovalli; Onsernone, Maggia and Ticino glaciers had become independent.

Für die Durchsicht des Summary danke ich Herrn Dr. J.-P. Beckmann recht herzlich.

Eine Literaturübersicht wird im 2. Teil, voraussichtlich in Nr. 4/87 erscheinen.