

Other evidence supporting the existence of the paleolandslide: Colle Isolato

Edoardo Semenza discovered other important evidence for the paleolandslide beneath the village of Casso. In *The Story of Vaiont* p. 70-1 he comments: *“it was a rocky mass with a form and appearance that differed entirely from the adjacent wall [...] The difference consisted primarily in the clearly evident and heavy vertical fracturing which was completely absent in the surrounding outcrops (consider for example, the present-day training wall for climbers). Then there was the difference in dip of the strata which was predominantly horizontal”* [similar to that of the north wall and, above all] *“clearly discordant with the regular dip of the strata of all the right slope”* [of the valley]. *“Essentially, this mass seemed almost like the natural continuation of the northern wall”* [of the southern slope of Monte Toc].

After the 1963 landslide, he named this mass “Colle Isolato”, the Isolated Hill.

Based on this evidence – the cataclasites, the presence on the north side of the valley of rock masses with abnormal attitudes resting on loose material, and the geological discordance in the east wall (the Col Tramontin Fault) – Semenza located the basal failure surface of the paleolandslide and the eastern limit of the landslide. He also included within the body of the paleolandslide the mass of Colle Isolato and other rock masses separated by the furrow of the Vaiont Stream.

Part of the paleolandslide mass (Colle Isolato) is visible at the top; loose material (colluvial and alluvial deposits) fill the ancient streambed at the lower left, exposed bedrock to the lower right.

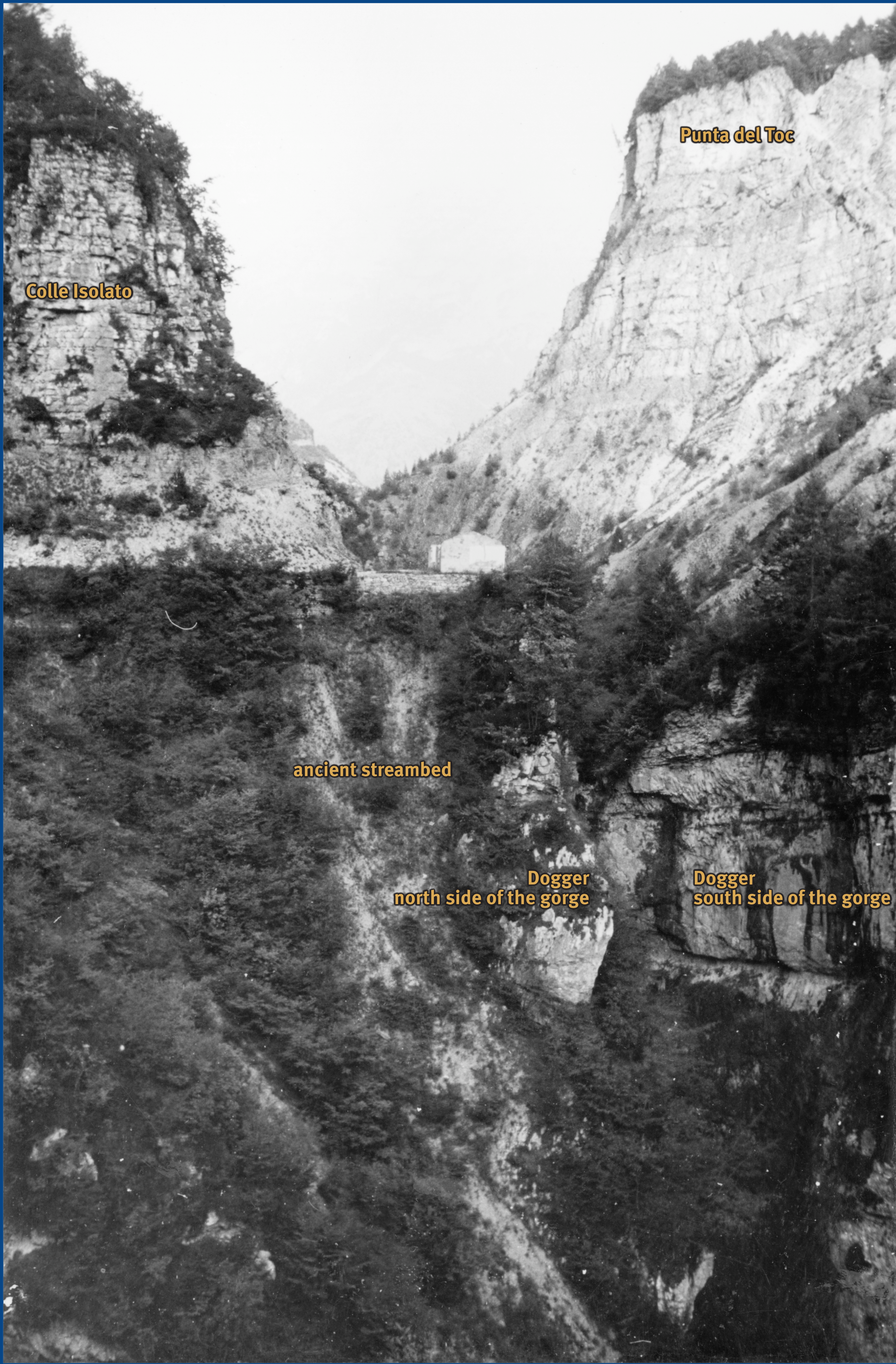
13 - Detail of the failure surface below Colle Isolato

Photo Edoardo Semenza, 26 August 1959 | from Le foto della frana del Vajont - GS_56



14 - Vaiont Gorge and Colle Isolato, seen from downstream

Photo Edoardo Semenza, 26 August 1959 | from Le foto della frana del Vajont - GS_61



In the summer of 1959, Semenza (*The Story of Vaiont* p. 77) formulated a “detailed diagnosis”, “more than a hypothesis”: *“the mass which aroused suspicion was located on the left [south slope] of the valley and outcropped over an area estimated at the time about one km² with a volume of about 50 million m³. It was the material that remained from a larger paleoslide [...] which had descended from the northern slope of Monte Toc and blocked and filled a section of the ancient bed of the Vaiont Stream which later eroded it.”*

Note the rocky buttress under the unroofed house, bordered on the left by loose sediment. Although not clearly visible in this photograph, Colle Isolato rested on loose material. It was located in an extremely narrow (15 m wide) section of the Vaiont Gorge. In contrast, the gorge is approximately 50 m wide at the same elevation another 250 m downstream at the site of the dam.

A lake was created by obstruction of the valley by the paleolandslide, and water flowing out of the lake incised a new channel through the paleolandslide mass. The channel was south of the old stream course and is a classic example of an “epigenetic”, or new, channel that was much narrower than the old one that was buried in several places.

The paleolandslide mass on the south side of the valley was thus bounded by a basal slide plane and a fault on the east. It broke away from the upper part of the slope and slid north-northeast on the underlying Fonzaso Formation, becoming heavily fractured in the process. The smaller masses of the slide resting on the north side of the Vaiont Valley (Colle Isolato and analogous masses) must have been emplaced during the same event, but detached from the main mass later due to stream incision.

To the south was the Pian della Pozza depression that Semenza initially thought was the upper limit of the paleolandslide.

“From this diagnosis, the hypothesis evolved that the old landslide mass could move again once the lake was created, especially if the slide plane were inclined considerably toward the north.” (*The Story of Vaiont* p. 78). Edoardo Semenza discussed this hypothesis immediately, at the end of August 1959, with Eng. Carlo Semenza.