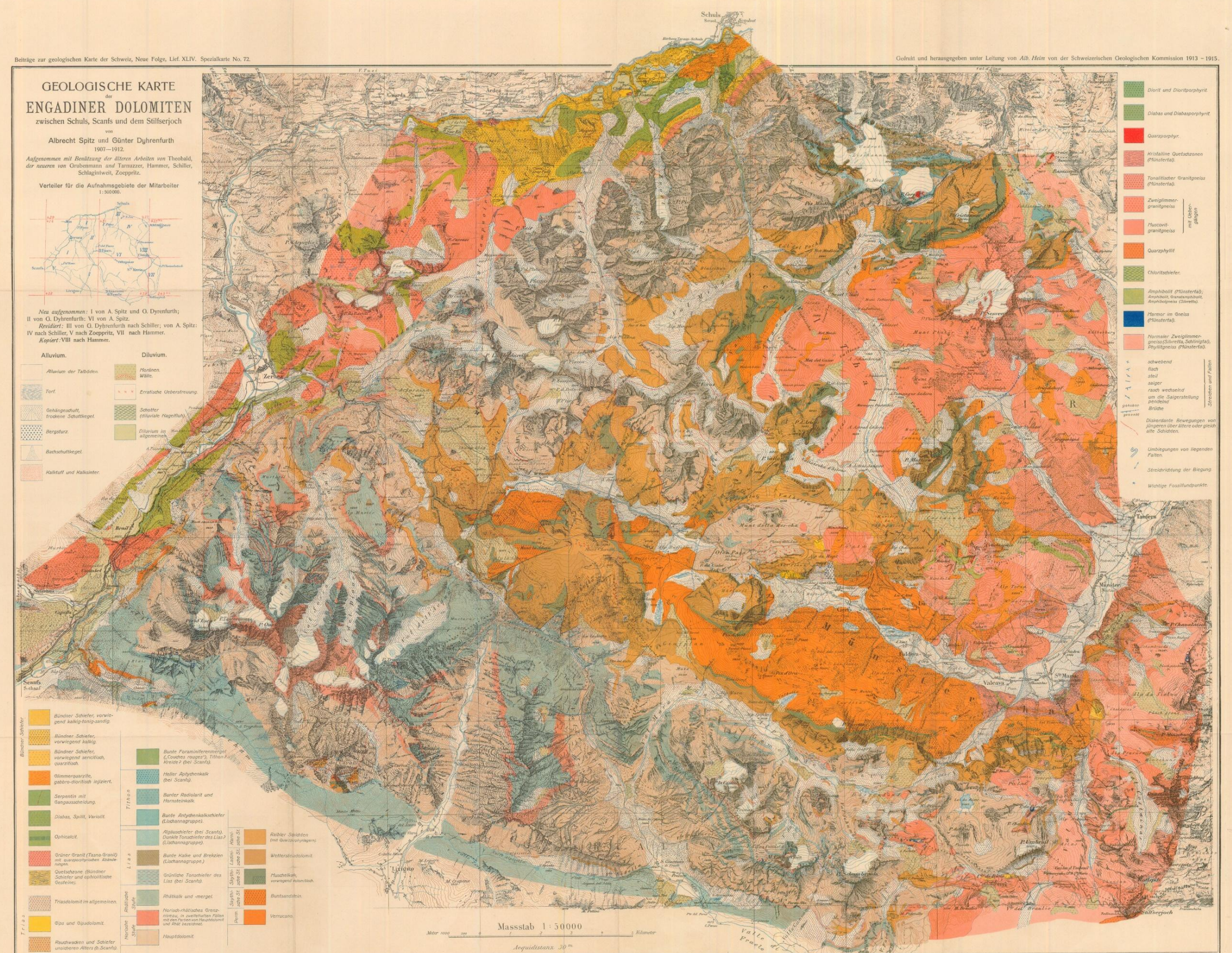




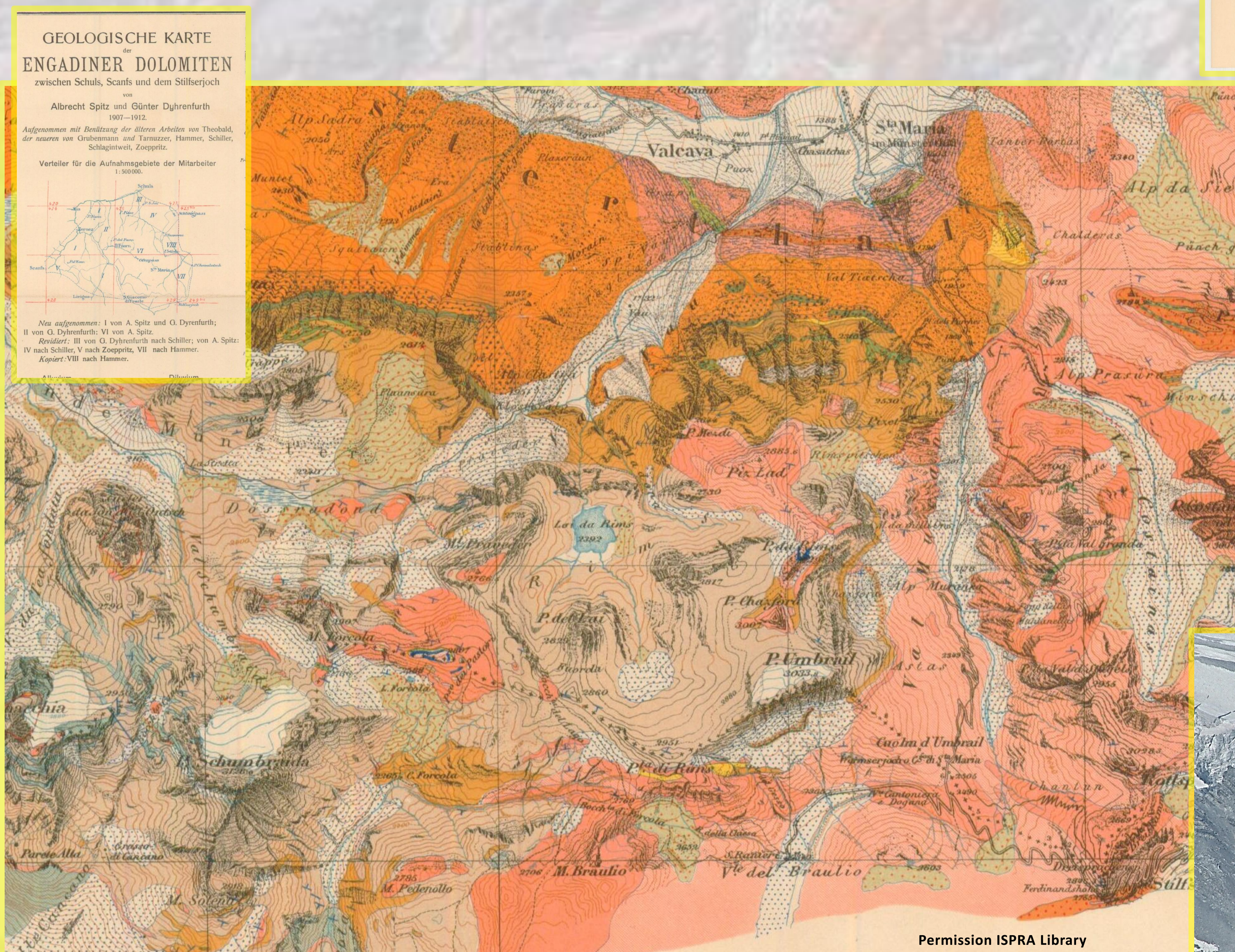
Central Alps: the Austroalpine units Early days of cartography

Since the end of the XIX century, the part of the Alps between Italy, former Austro-Hungarian Empire and Switzerland has been the subject of pioneering geological studies. These studies were performed in a complex tectonic setting, where, as we know today, different tectonic nappes of basement and sedimentary cover are overthrust.

Despite the tectonic complexity and the rough topography, one of the most striking geological map of the Alps was produced for this area by Albrecht Spitz and Günter Dyhrenfurth (1914).



Permission ISPRA Library



Permission ISPRA Library

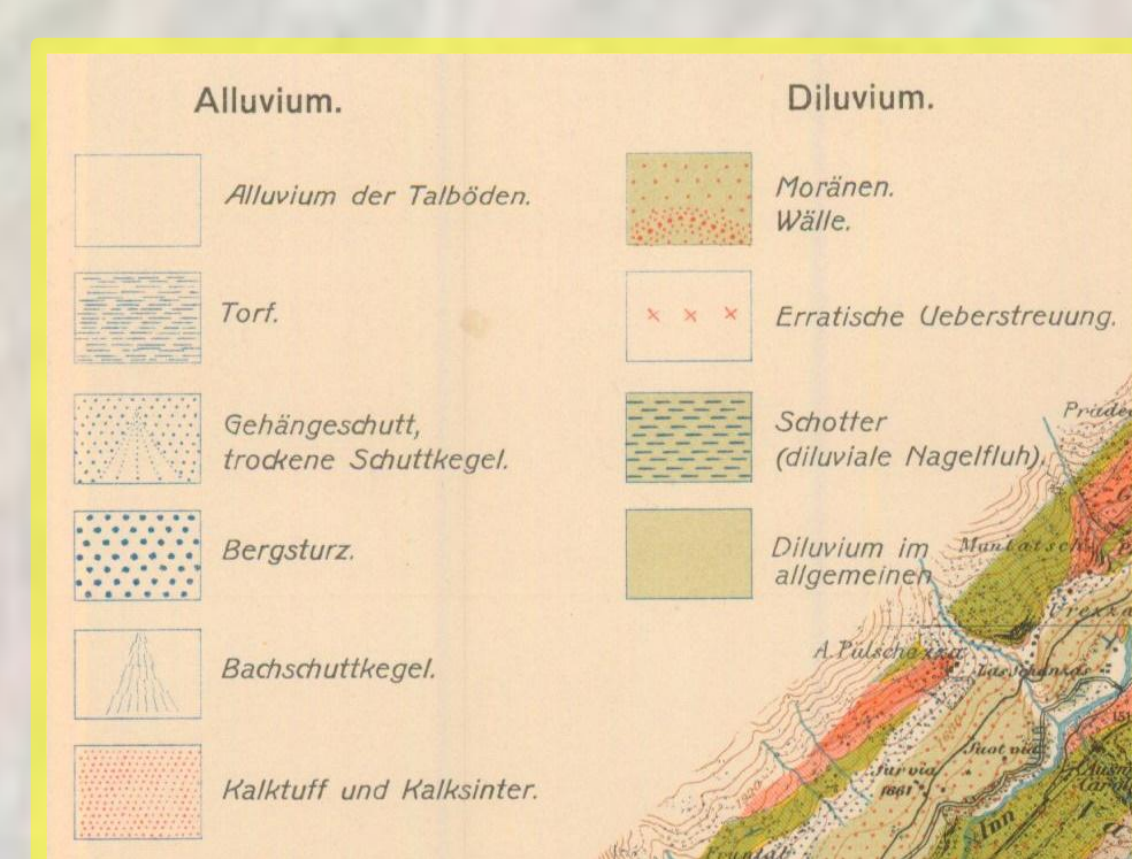
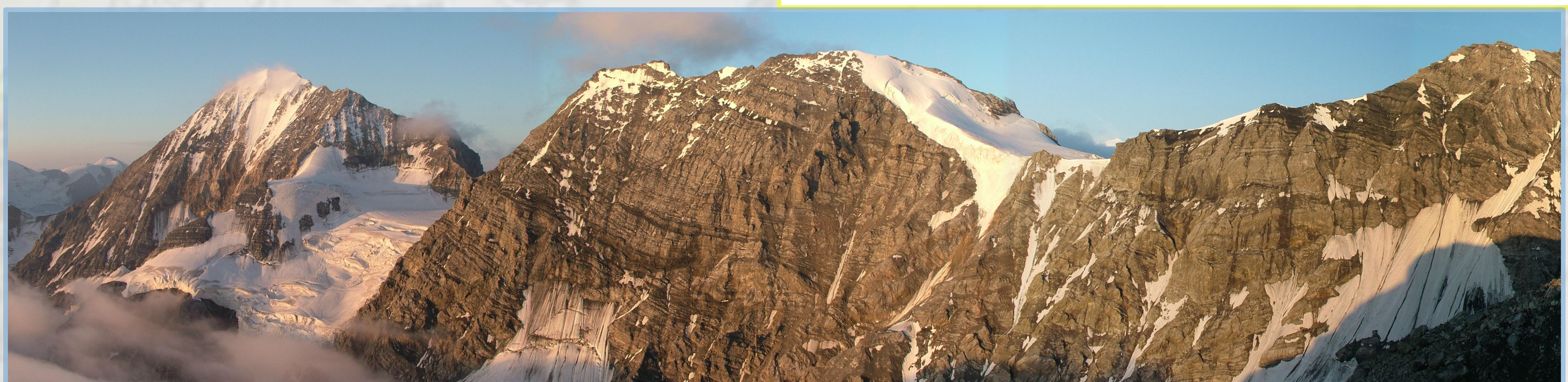
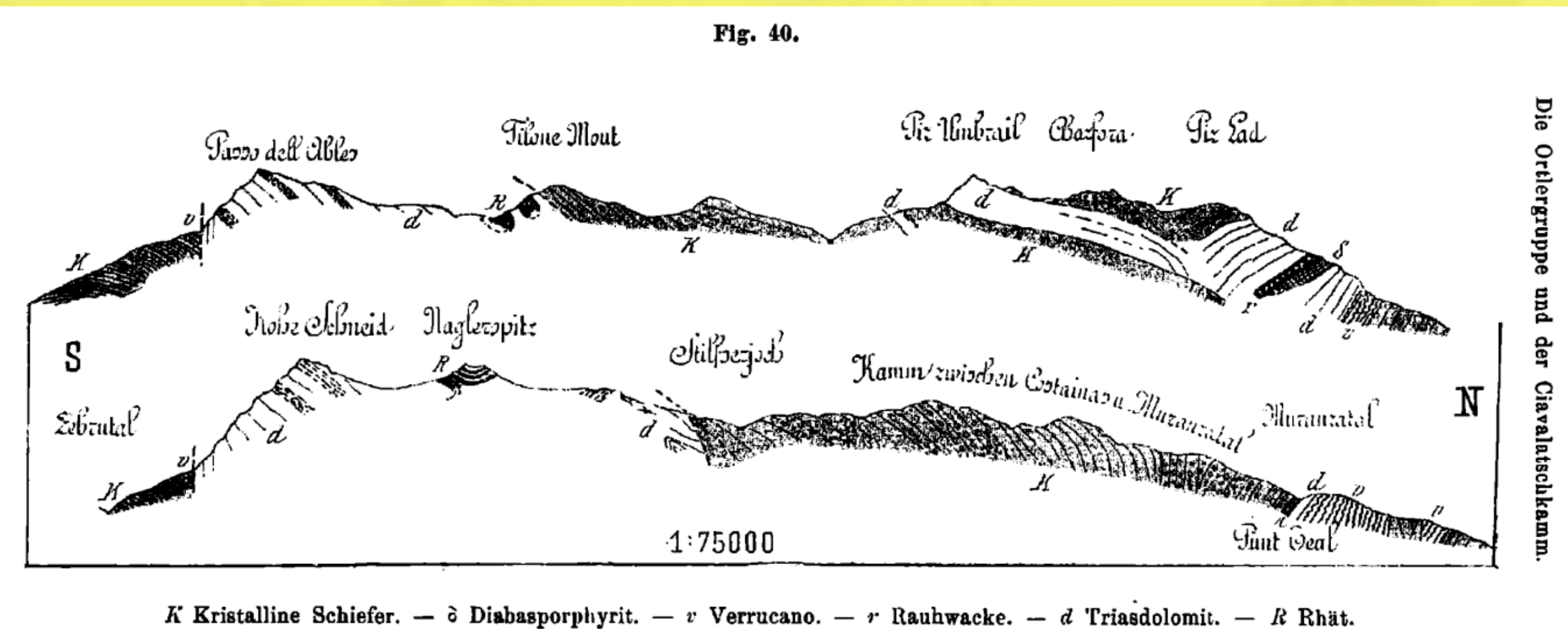
Spitz and Dyhrenfurth (1914) produced the first geological map of this complex part of the Alpine chain, an impressive geological work, produced before the First World War (Dyhrenfurth died during the War while making geological survey). Most of their lithological subdivisions are still recognizable in recent maps.

Below: note the intense folding (left) and the different facies in the Norian succession (below).



Geological cross sections from Hammer (1908): note that some tectonic contacts are interpreted as complex folds. This interpretation is congruent with the approach followed by Spitz & Dyhrenfurth in their map.

Hammer (1908) proposes a detailed lithological subdivision in the thick Norian carbonate succession of the Dolomia Principale/Hauptdolomit, identifying limestone intercalations that can be clearly observed in the picture below, from the summit of the Ortles.



Permission ISPRA Library

Criteria followed by Spitz & Dyhrenfurth:

- 1) **Quaternary deposits:** classification based upon the type of deposit
- 2) **Basement:** lithological classification
- 3) **Sedimentary cover:** partly «lithostratigraphical», partly «chronostratigraphical»
- 4) **Tectonics:** reduced number of tectonic contacts, fault only where anomalous contacts between rocks of different ages or between sedimentary and overlying metamorphic rocks are observed

On the right, time line of the major evolution of the geological sciences (right), the major events in the Italian geological mapping (left, in black) and the maps of the considered area (left, in red)

