

The geo-structural relevance of the quarry basin

This macroscopic, complex situation resulted in the subdivision of the quarrying part into three areas (Figure 4 and Figure 1 in "Geological evolution and structural lay-out"); the southerly area of granite and Palaeozoic marbles (South Alpine), the central beola-gneiss zone (Middle/Upper Pennine Nappe), and the northern area of serizzo and Mesozoic marble (Lower Pennine Nappe).

In the southern area, between Cusio, Verbano and the extreme south-eastern part of Ossola, plutonic rocks of Mottarone-Baveno and Montorfano are quarried, namely, granite calc-alkalines with a generally consistent medium or medium fine granular structure (Figure 2). Together with the other granite substances of the area, these belong to the batholite composite from the Permian age (275 ÷ 283MY), along a NE-SW direction, where it is exposed, for about 30 sq. km from Biella to Lake Maggiore. They are both clean and erratic intrusions into the Schists of the Lakes, the Palaeozoic bed grouping which extends up to the Cossato-Mergozzo-Brissago and Pogallo Lines.

A little to the north of this area, calcitic marbles of Candoglia in banks of limited thickness - from 8 to 30 metres - are quarried, and which extend along a transversal line through the valley axis; they are formed from metamorphic sediment from the Palaeozoic era and are inserted into the paragneiss of the Kinzigite Ivrea-Verbano Complex (Figure 2).

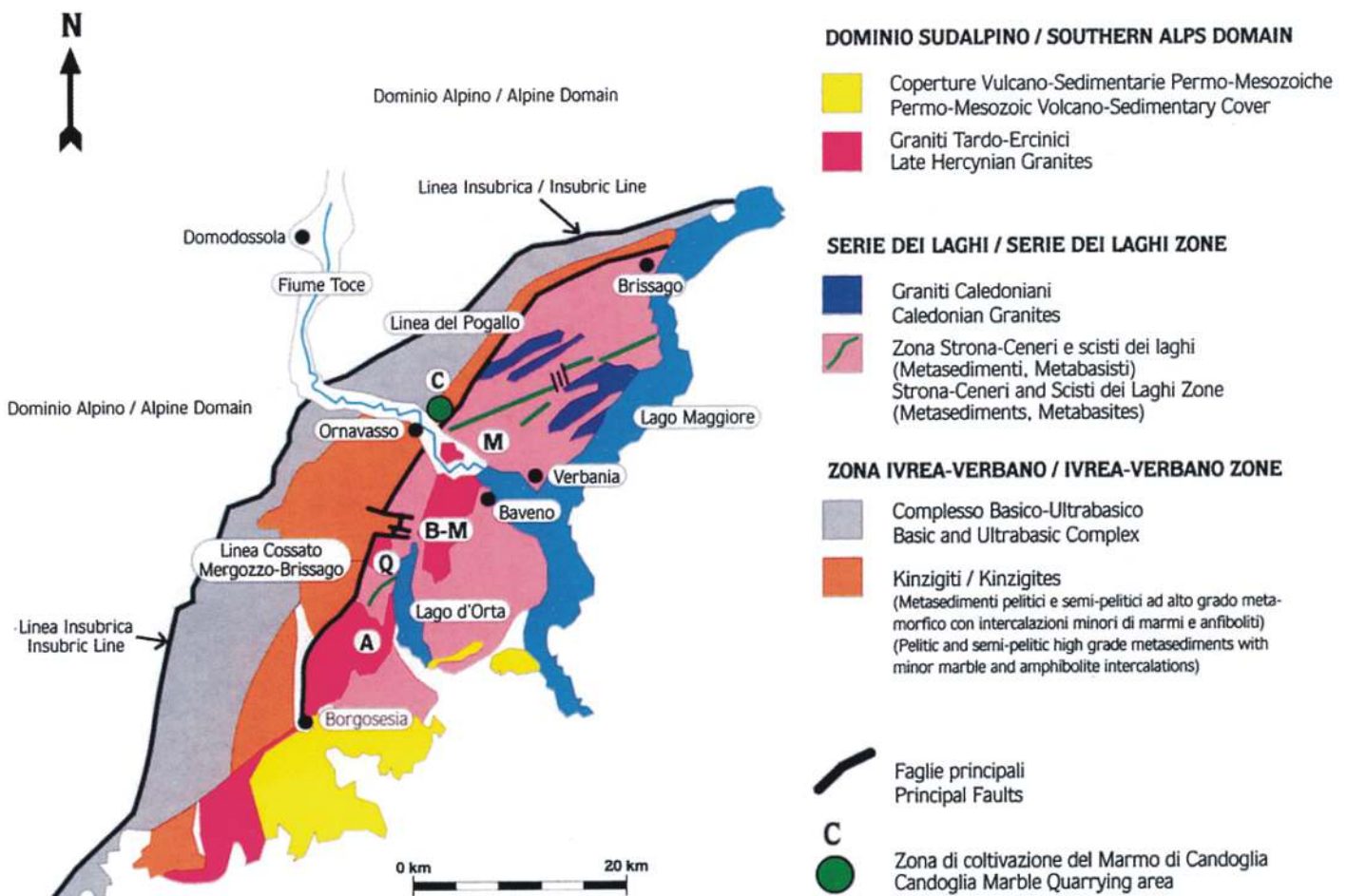


Figure 2
Simplified geological sketch map of Graniti dei Laghi (after Boriani et al., 1988, modified).

M: Montorfano; B-M: Baveno-Mottarone; Q: Quarna; A: Alzo.

In correspondence of Kinzigitic Complex is displayed the extraction area of Candoglia Marble.

The most northerly area is, instead, characterized by the present of Lower Pennine strata overlapping which really defines the Alpine geological structure of Upper Ossola (Figure 3 and Figure 1 in "Geological evolution and structural lay-out").

Serizzo, biotitic orthogneiss with amphibole groupings, comes from a structure called the orthogneissic Stratum of Antigorio and is composed of granodioritic-granite with a thickness of 1200-1300 metres. The material is more or less a light grey colour and foliated, with host groupings of feldspathic minerals of significant size. It can also be compact, in which case it is quarried for blocks and successive cutting into slabs, or, if highly fissile, it is used for riven slabs. Thus, serizzo is the material of greatest importance from an economic point of view.

Inserted into the orthogneissic stratum of Antigorio (the underlying structure) and Monte Leone (lying above), which themselves are deformed and overlapping edges of the Palaeozoic bed, the Dolomite marbles of Crevoladossola, just north of Domodossola, are located and quarried here and form part of the metamorphic calcareous and calcareous-silicate sediment covering of the Alpine age, and dating back to the Mesozoic (Figure 3 and Figure 1 in "Geological evolution and structural lay-out").

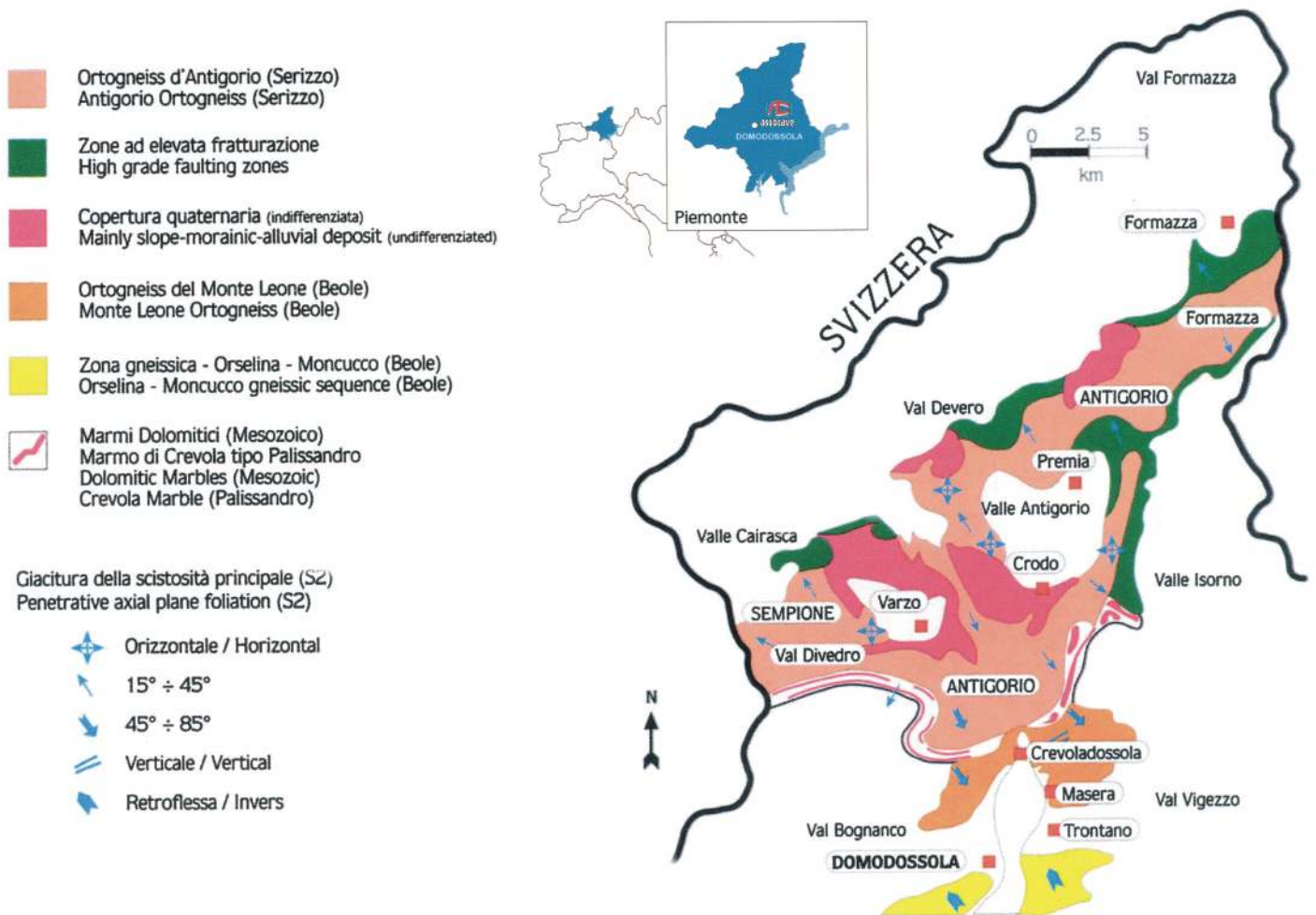


Figure 3 Geolithological sketch map of Northern Ossola region with reference to principal commercial stones extracted in this area. (M. Coluccino, Assocave, 1998, modified from Aquater, 1983).