

POLYTECHNIC OF TORINO  
FACULTY OF ARCHITECTURE 2  
Degree in Architecture  
Honors theses

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**Setting value through cataloguing and acquaintance. Stone roofing in the Gesso valley**

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I carried out my work in the Gesso Valley assuming the principle that as to set off any architectural element, specifically "slate roofs" – there called "lose" – an attentive on – spot investigation is needed while specific knowledge as well as context are to be appraised.

The inspection of the whole Valley formed by three-side-converging valleys was mostly important. In the first side-valley flows the torrent "Gesso della Valletta" (examined from Sant'Anna di Valdieri to Valdieri). In the second one flows the Gesso of Entracque (comprehensive of Entracque and its suburbs) and in the last one flows the Biale (on the banks of which Roaschia lies).

The idea was to catalogue all original stone-roofs. I scheduled 174 non-religious buildings. Each schedule includes: a plan of the inhabited nuclei to make the photographic path easily comprehensible, the schedule called "Schedule of manufacturing building model and roofing materials" and finally two "photographic schedules". All schedules were realized after attentive bibliographical readings.

The analysis of both typology or structure of the settlements led to the choice of my subsequent research target that is the hayloft in Tetto Melan (Municipality of Valdieri).

The settlement is sited on a plateau and consists of parallel rows of longstaired houses built on the same level.



The hayloft in Tetto Melan. North East pitch

After detecting and describing the structure of the building I analysed the degree of decay of the wooden element of the roof.

A full description of each element can be found in the schedule “Wooden parts decay level Schedule” In addition a free-hand drawing in water colours technique corresponding to each degree of dacay is provided.

Careful attention was paid to the roofing stone material. I focused my research on and I realized nobody else had previously shown any interest to it.

I started looking for anarchives to trace back documents concerning the quarries in Bastia and Saben (Municipality of Valdieri).

Then I panned an on-spot investigation inside the quarry mining rooms and I carried out some laboratory tests.



Quarry in Bastia

Quarry mining room located inside the quarrying branch called Barca) I cut thin sections out of the four samples taken on spot as to develop a petrography. The macroscopic and microscopic description proved the examined rocks to be "calcareous schist". Each rock layer test was scheduled as "Petrography description schedules" containing their microphotos and full detailed description.

The calcimetric exam revealed a high percentage of calcium carbonate (58,27%) that is high sensitivity response to weather conditions.

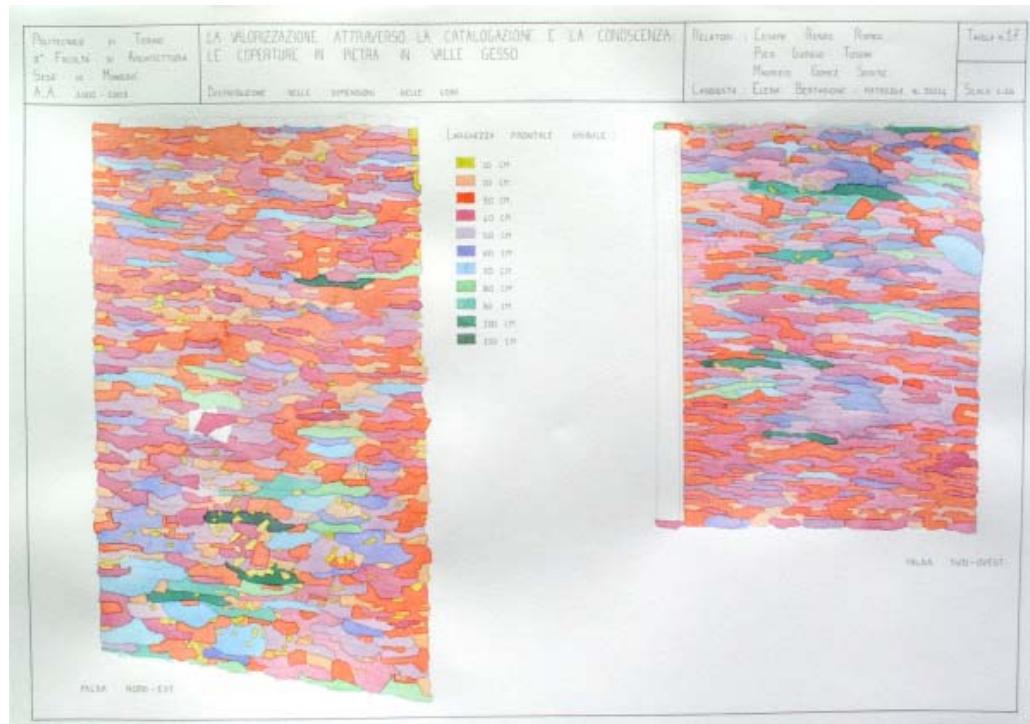
In addition 7 samples out of the 14 taken were submitted to a "freezing pattern test".

According to the procedure suggested by the "Bollettino Ufficiale" of the Regione Autonoma Valle d'Aosta" (n.10, 06 march 1990) I determined the Apparent Volumetric Mass of the 14 test bars. No relevant difference was shown by comparing the medium values of both bars submitted to the test or the others.

But the Coefficient of Imbibition Test surprisingly revealed different results. The bars submitted to the freezing test gave values as high as 0,44% whereas the non-submitted bars reached values of 0,36%.

However both data showed a 0,25% higher rate level if compared to the maximum accepted levels fixed by the Regulations of the Aosta Valley. Finally, the determination of the Indirect Tensile Resistance through bending test revealed a remarkable difference in the group submitted to ice-and-thaw cycles. The resistance capacity to bending had decreased of 25,3%.

Hence the evidence that a significant decay level occurs under freezing and thawing action. It was confirmed by statistics of the quantity and distribution of the dimensions of the "lose" (slates) carried out on the two pitches of the roof in exam.



Dimentional distribution of the slates "lose"

The chart concerning the roof real state, points out the dimentional classes through varied water – colour tones. They show both the position or the distribution on the whole roof.

The whole research aimed to carry out an experimental analysis involving a new argument as well as to state an effective procedure since no targeting improvement or simple renovation is ever possible without full and detailed know – ledge of the element under observation.

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