

## **Relation of historical quarrying, material utilization and performance on buildings in Eastern Finland**

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Finland might seem to have lower stone heritage compared to other southern European countries, but it has been the main exporter of dimension stone to the majestic buildings that made St.Petersburg a recognized cultural heritage. In Finland, though, the stone seems undervalued. The only dramatic and predominant stone buildings are those of agencies and administrations located in the towns, where the stone has been used to impress and symbolize value. Romantic style used massive bossy stone in building's full height and created fine traditional carvings. Otherwise the communities have mainly built settlements in contact with the nature, with materials easily available and of low cost, following architectural trends of the periods and producing interesting stone details.

During the past years, research has been conducted on historical buildings interconnecting scientific and artistic approach to evaluate material durability and cultural relevance of the artifacts.

Generally until mid 20th century the stone has been traditionally used massive for basements and walls. The materials still present good mechanical characteristics and most often the weathering level after hundreds of years of exposure had reached only the first millimeters from the curst. Instead the old methodology for deposit exploitation has left visible signs on the buildings.

Some examples are visible from Kuopio. The exploitation of small, easy-to-reach surface deposits, even if planned by local experts, has affected quality and appearance of historical buildings. As an example the excavation of shallow quarries where also weathered crop was kept as a product has characterized the basement of the Niirala school that presents change in colors due to original material more than to weathering on site. Fissuring is also visible on a couple of blocks while marks on the rocks depict the old excavation method.

Most often the deposits had been in the vicinities, frequently hidden by further construction activities under urban development. In cases where extension of relevant buildings, as for example Kuopio Lyceum, required new material, the original quarry might have not been any more available. Alternative material had to be found and changes in appearance between the construction ages might still be readable from the heterogeneity of the material.

In few cases the material had been extracted from remote areas, for buildings symbolizing the town and when the appearance had been a predominant choice. In these cases the quarries are still visible and have been exploited also in more recent years. It might happen that their economical value is not anymore competitive with modern requirements, but still they represent an important material source to avoid restructuration with similar but unsuitable materials.