

A provenance study of lapis lazuli: The “Collezione Medicea” case study

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Summary. — Lapis lazuli is a semi-precious blue stone widely used for different purposes since the antiquity but, at present, there are still some lacking information about both its trade in ancient times and the quarries exploited from different civilisations. Although the Afghan mines are widely considered as now as the only sources of lapis lazuli in ancient times, other sources have been taken in consideration, even if an exhaustive provenance study of the raw material utilised in artworks is still lacking. In this work a systematic study of this fascinating stone comparing physico-chemical properties of rocks and historical objects is presented, to contribute in the solving of the lapis lazuli provenance problem. Since often it is impossible to take a sample from the object under analysis due of its extreme value, it is fundamental to use only non-invasive techniques: for this reason Ion Beam Analysis has been selected, complemented by some invasive techniques, like electron microscopy, just to speed up the characterisation of geological samples and to gain experience with the material. Some preliminary but encouraging results relating to a “Collezione Medicea” artwork from the “Museo di Storia Naturale” in Firenze are also presented.

PACS 91.65.Rg – Minerals, occurrences and deposits.

PACS 91.67.Pq – Minerals, major and trace element composition.

PACS 29.30.Kv – X-ray spectroscopy, nuclear physics.

PACS 78.60.Hk – Luminescence, cathodoluminescence, ionoluminescence.

1. – Introduction

Semi-precious stones have been used since Neolithic Age for the manufacture of jewels, objects of social prestige and veneration articles. The few fragments of Sumer cuneiform script, survived till now through clay tablets, exalt not only the beauty of the semi-precious stones but also their meaning in connecting the people with the divinity [1]. Some of these stones are very rare, because they can be found in very few places on

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