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DEL LAMA, E.A.

BOOK OF ABSTRACTS

# COLOURS 2015

## BRIDGING SCIENCE WITH ART



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## THE COLOUR OF THE GRANITE THAT BUILT THE CITY OF SÃO PAULO, BRAZIL

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The city of São Paulo, until the 1900s, was restricted to a small nucleus downtown, also called historic triangle, which concentrated the oldest monuments and buildings of the city. They are built with a few ornamental stones but one was the most important: Itaquera Granite. It is a biotite monzogranite, pale gray, with a slightly oriented structure and inequigranular texture, with variable size, giving the rock a heterogeneous and anisotropic aspect. Currently, it is not explored anymore but its exploration dates back to 1888 [1]. It was replaced by the Gray Mauá Granite after the 1940s, either because the Itaquera Granite quarry was exhausted, or due to better technological characteristics of the Mauá Granite [2].

There are numerous examples of cultural heritage monuments and buildings made with the Itaquera Granite in the city of São Paulo. The ones selected for this study were: the church of Santo Antonio (Saint Anthony Church) (1899-1919 - present façade), A Menina e o Bezerro (The Girl and the Calf) (1911-1913), Nostalgia (1920), Faculdade de Direito (Faculty of Law) of University of São Paulo (1934), Depois do Banho (After the Bath) (1941) and Índio Caçador (Indian Hunter) (1940).

The purpose of this paper is to characterize the Itaquera Granite according to its colourimetric aspects and its colour variation in a range of five years by using a spectrophotometer.

Colourimetric changes in the stone can be caused by many factors, such as cleaning methods, deposition of atmospheric pollutants, biological colonization, leaching of bronze, dissolution and reprecipitation of mortar, or even by natural causes such as the oxidation or alteration of minerals present in the stone.

Measuring the change in color can be useful to monitor the evolution of natural changes, analyze the effectiveness of treatments with repellents and consolidants, and monitor the installation of biological colonization in the monuments. In the long run, these data may aid in the treatment and restoration of these monuments.

[1] A.E. Azevedo. Subúrbios orientais de São Paulo. 1945, 184 p.

[2] E.A. Del Lama, L.K. Dehira, A.C. Reys. 2009. Visão geológica dos monumentos da cidade de São Paulo. Revista Brasileira de Geociências, 39(3), 2009, 409-420. Available in: [http://www.sbg.org.br/pub\\_sbg/rbg/vol39\\_down/3903/11163.pdf](http://www.sbg.org.br/pub_sbg/rbg/vol39_down/3903/11163.pdf).