

SCANNING ELECTRONIC MICROSCOPE

Total Cost: € 380.000,00

The Patrons of the Arts have greatly helped the Laboratory in support of high technology scientific instruments such as the scanning electronic microscope SEM EDS. In 1992 the California Chapter of the Patrons of the Arts donated this microscope which proved essential for the restoration of Michelangelo's frescoes in the Sistine Chapel. Thanks to the scanning electronic microscope, the scientific team was able to study the non-original and repainted areas as well as the alterations that the work had suffered as a result of old interventions such as those found on the Last Judgment. This microscope was essential for one of the most interesting portions of the investigation: the study and attribution of the "trouser" censorship on the nudes of the masterpiece. It was with this instrument that the restorers succeeded in defining the historical cycles in which these censoring veils were applied.

Studies on pigments and painting techniques were also performed on the paintings in the cycle of Raphael's Rooms. They observed how the artist applied the copper-based blue pigment (azurite) on a layer of iron oxide (red ochre) in order to obtain a violet tone.

Over the years, the Scanning Electronic Microscope has been essential for many applications. The observations and analysis with this instrument are now applied not only to study paintings but also to study the deterioration of stone materials, the characterization metal alloys alterations, the analysis of tapestry threads, the study of protective coating for statues, and in all those other areas where it is necessary to accurately study the different surfaces and their damage.

Currently, the instrument donated by the Patrons of the Arts is still in use in the laboratory but, after almost twenty years of daily use, there is a certain loss of quality in the optical resolution. This happens over time in spite of the fact that the instrument is subjected to constant maintenance. The purchase of a scanning microscope of the latest generation, such as model JSM-7001F JEOL Company, would be the ideal solution for our lab. The high optical resolution of this equipment, together with the sensitivity of the microanalysis, would allow for a decisive qualitative difference for the study and restoration of works of art in our museums.

