

## **Diagnostic Research on Icons from Albania**

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The program “**Conservation of icons from the National Museum of Medieval Art of Korce**”, which took place in the laboratories of the Museum of Byzantine Culture, Thessaloniki, provided the opportunity for a series of diagnostic methods to be put into practice. The object of this presentation is to describe these destructive and non-destructive methods of diagnosis and research, and the way in which their results were utilized.

The eighty eight icons which came from the collections of the Museum of Korce were restored over a period of five years. During the conservation program, the laboratory personnel were able to undertake a thorough study of the construction technology of the icons, their state of preservation and their pathology. The analytical examination of the icons’ pathology and its documentation was indispensable in order for safe interventions to be achieved.

The uncontrolled environmental conditions in which the icons had been stored, and later inadequate conservation interventions had brought about deep changes in their structure, in such a way that they presented, in certain cases, irreversible deteriorations.

Another factor which made the conservation even more complex was the lack of documentation of previous interventions, since the constitution of the materials used, as well as the technique used to apply them remained unknown.

Evaluating the abovementioned data with a view to successful conservation interventions, the methodical application of certain physico-chemical methods of analysis and diagnosis was considered imperative. The results of these methods documented the pathology of the icons and enabled their conservation needs to be met.

The laboratory of icon conservation has at its disposal technological equipment which allows for the application of certain non destructive diagnostic methods on the Museum premises, such as:

- The X-ray of icons with Roentgen beams.
- The study of icons by means of fluorescence in ultraviolet radiation.
- The study of icons by means of infrared reflectography.

The Museum's photographic workshop possesses equipment which fulfils the needs of icon conservation in terms of macrophotography, microphotography and video recording of the various stages of the process.

The icons were grouped according to the problems and particularities which they presented. Of the general total of icons, forty were selected for submission to the diagnostic methods. The methodology for studying them followed their stratigraphy, from the wooden support to the superior layers, emphasis being given to their particular problems. The results of these studies yielded important information regarding the manufacture of the icons and their pathology. These findings provided the material for the creation of a database. In this database each icon constitutes a separate unit, in which the details of its identity and technological characteristics, as well as the results of the diagnostic methods applied to it, appear analytically.

The database made it possible to form graphics and statistical tables of centralized information. From these tables, significant information was gathered regarding *diagnostic methods of investigation*. Studying this information shows how effectively each method of inquiry meets the demands of research. Next, another *centralized table of diagnosis of pathology* was created for each icon. This table shows the information provided by the diagnostic methods with reference to the state of preservation of each icon. Finally, information about the *technological characteristics* of icons by century was obtained.

During the conservation process, certain icons presented difficulties regarding the removal of oxidised layers of varnish and topical over-paintings. On top of the initial painting came later successive coats of varnishes, waxes, oils and other materials of unknown composition. These layers, in combination with the bad environmental conditions of high temperature and humidity to which they were submitted, became hard and difficult to dissolve using the usual combinations of

solvents. In order to achieve a homogeneous cleaning and ensure the integrity of the underlying initial painting, chemical analyses were carried out.

The objective of these analyses was the identification of the components of the coats and their stratigraphy on the surface of the icons. For this purpose, the Museum of Byzantine Culture collaborated with some distinguished institutions in the field of research into works of art. The analyses applied to samples of icons related to the decomposition of their organic and inorganic components. The methods used were: gas chromatography (GC), optic microscopy,  $\mu$ Raman spectroscopy, x-ray fluorescence spectroscopy (XRF).

Utilization of the results from these analyses contributed considerably to the clarification of conservation problems and to the determination of the most suitable method for removing the varnishes and over-paintings.

All of the abovementioned methods of analysis are complementary as far as diagnosis is concerned and no single technique can provide an answer to all possible questions about artistic composition, construction technology and pathology. The modern approach to the study of the materials in objects of cultural heritage requires the synergy and the complementarity between different methods. The general inter-scientific collaboration aims to strengthen the perception that through technical investigation and documentation, safe conservation interventions can be achieved.