LIGIA BOCȘE[1]

THE RESTORATION AND CONSERVATION OF A CAMERA

Abstract: Choosing the treatments to be applied to composite museum exhibits must take into account the types of support material and the degree of degradation of each layer, as well as to respect, along with the other well-entrenched principles, the principle of least intervention.
In choosing active substances with antifungal, insecticidal or bactericidal purposes, it is advisable to take into account their degree of toxicity, their remanence in time and their possible side effects. What may be noticed is a return to traditional methods used since time immemorial. "Through millennial empirical practice, the inhabitants of Carpathian settlements, good connoisseurs of the environment, of the vegetation and of the biological calendar, have found depending on the phases of the stars, methods whose effects and purposes they were familiar with, even without knowing the in-depth processes that were taking place or their chemical composition."[2]

Keywords: conservation, restoration, bellows, camera (late 19th century), composite material.

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The movable national cultural heritage encompasses an extremely varied range of objects. Their variety entails awareness of the type and/or types of support materials, the value of the object, the degree of its degradation, the manner of scientific valorization. The process of "returning to life" museum exhibits involves not only thorough documentation and scientific research, but also the correct application of procedures and the selection of the specific optimal treatment, each piece featuring structural peculiarities, influenced by various factors that determine, in time, a particular interaction with the environment.

The object presented here, subject to conservation-restoration process, consists of the component parts of a camera: bellows and wooden frames, in a fragmentary state (**Fig. 11**) Dating: last quarter of the 19th century.

From a structural point of view, the bellows comprise three layers: canvas on the inside, leather on the outside and, between the two layers, a thin cardboard across the entire area.

When evaluating the conservation state through visual analysis, several types of degradation may be identified **Fig. 5, Fig. 6**: mechanical – multiple fractures with non-uniform distribution on the surface, component parts that are detached from the ensemble (sides and strips of canvas completely separated **Fig. 2**), scratches, frays, layer exfoliations **Fig. 4** and also biological degradations – fungal attack, with a uniform distribution across the surface, conglomerate area of white adhesive deposits

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[1] Chemical engineer, conservation expert, National Museum of Transylvanian History Cluj-Napoca, ligiabocse@gmail.com

[2] Ligia Mihaiu, "Rolul plantelor in conservarea traditionala a textilelor si posibilitatile de aplicabilitate muzeistic," *Revista Muzeelor* 4, 1993, p. 37.

and massive deposits of adhesive and/or partially adhesive dust and dirt being detectible. **Fig. 1, Fig. 3**

Disinfection, as a stage in the process of conservation-restoration, has been achieved through the method of aerosols with an alcoholic 7% thymol solution, in two successive sessions of 48 hours with an airing interval of 24 hours, followed by light mechanical cleaning by brushing off and vacuuming the resulting residual materials.

The restoration of the bellows required, prior to reconstituting the ensemble structure, cleaning and consolidating each layer and each fold, respectively. The fact that the piece undergoing restoration is a composite object was taken into consideration. Theoretically, there existed the possibility of separately cleaning each type of support material - the canvas washed by immersion in 5% hydro-alcoholic solution with surfactants, the cardboard layer mechanically cleaned and the outer layer undergoing a treatment of dry and wet mechanical cleaning, followed by one of humidification and emollition. This option, however, entailed the complete detachment of the three layers because, otherwise, the application of treatments with hydro-alcoholic solutions or hydration treatments posed the risk of new tensions in the layers, thus producing additional mechanical degradations, a differentiated, excessive amount of moisture or, on the contrary, increased dehydration.

In the case examined here, what was noted was the existence of several points and areas where the three layers of the bellows show a high degree of adhesion between them. As a result, respecting the principle of minimum intervention, it was decided that a different treatment should be applied. Dry mechanical cleaning tests were conducted and it was found that by using a soft brush and, in some areas, a cotton cloth (as cotton wool could leave lint behind) good results can be obtained in removing the residual layer. **Fig. 7**. The canvas layer was not threadbare and did not feature tears and frays **Fig. 8**) so it could be cleaned by brushing and vacuuming. Vacuuming was achieved by keeping an optimal distance between the support material and the vacuum cleaner.

After the complete cleaning of all three layers, light hydration was suggested and applied for restoring the ensemble. It was a controlled process of hydration, with the constant verification of the UR, with no direct contact, through aerosols, on a suspended sieve. In the distilled water of the aerosol bath there were added volatile oils of Himalayan cedar (*Cedrus deodara*), lavender (*Lavandula angustifolia*) and thyme (*Thymus vulgaris L.*) in order to achieve a curative and preventive conservation against biological attacks. The choice of the volatile oils as active substances in the conservation process was determined by their proven qualities. Thus, it is well known that thyme oil, which has "no less than 7 chemotypes, among which the most important commercially is the 'thymol' chemotype, the quality of thyme oil being higher or lower depending on the concentration of this compound,"[3] has a rich chemical composition, thymol amounting for a significant percentage thereof. Thanks to this, it had an important bactericidal and antiseptic effect. In

[3] Georges Radoias, Alin Bosilcov, Ioan Bâtiu, *Odorante naturale in parfumeria moderna*, Cluj-Napoca, Casa Cărţii de Ştiinţă, 2005, p. 181.

lavender oil – "more than 300 ingredients have been identified in the species of Lavandula over the course of time … The main components are linalool and linalyl acetate."[4] An insecticide that is non-toxic for people and livestock, having also an antimicrobial effect, linalool – used through volatile oils or dried lavender plant – has proved its effectiveness in museum heritage preservation, successfully replacing other synthesis products. Synthesis substances present some risks due to their remanence in time and their side effects on humans. There also exists the possibility that, in time, certain unwanted chemical reactions develop. The experience acquired over the years and through the study of millennial empirical practices evinces an increasingly clear orientation towards a return to the use of plants and plant extracts in the conservation-restoration methodology. There are numerous examples of plants which can be or are already used in conservation-restoration laboratories: lavender, tobacco, irises, walnut trees against insects, soapwort (*Saponaria officinalis*) – "commonly used in wet conservation operations through immersion in the Textile Restoration Laboratory of the National Museum of History."[5]

In parallel and subsequent to the hydration, the detached canvas layer was fixed back and the folds were gradually restored, starting from the base and, at the same time, in circular fashion, in order to eliminate the tensions in the layers. Prior to the operation of canvas attachment, visual and chemical analyses of the original adhesive composition were made. It was found that this adhesive has a starch component. **Fig. 9**. Carboxymethyl cellulose was used to secure the layers: fine dots thereof were applied in order to avoid overloading the surface with extra adhesive and to maintain a uniform degree of hydration.

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[4] *Idem*, pp. 272- 273.
[5] Ioana Lidia Ilea, *Metode de conservare si restaurare a pieselor textile*, Cluj-Napoca, Casa Cartii de Stiinta, 2006, p. 17.

Fig, 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

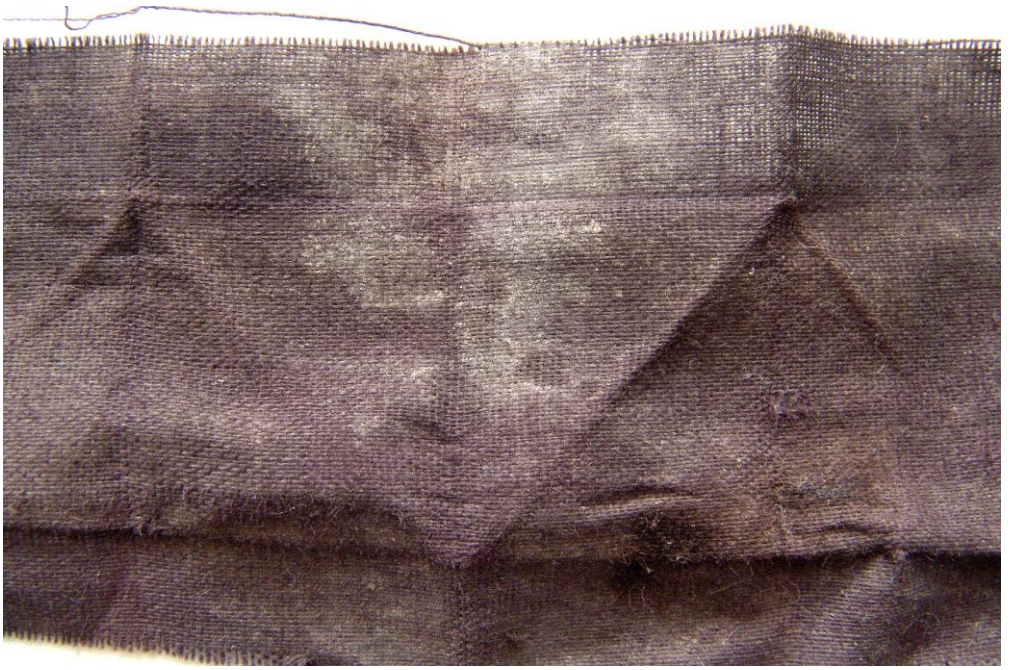

Fig. 8.

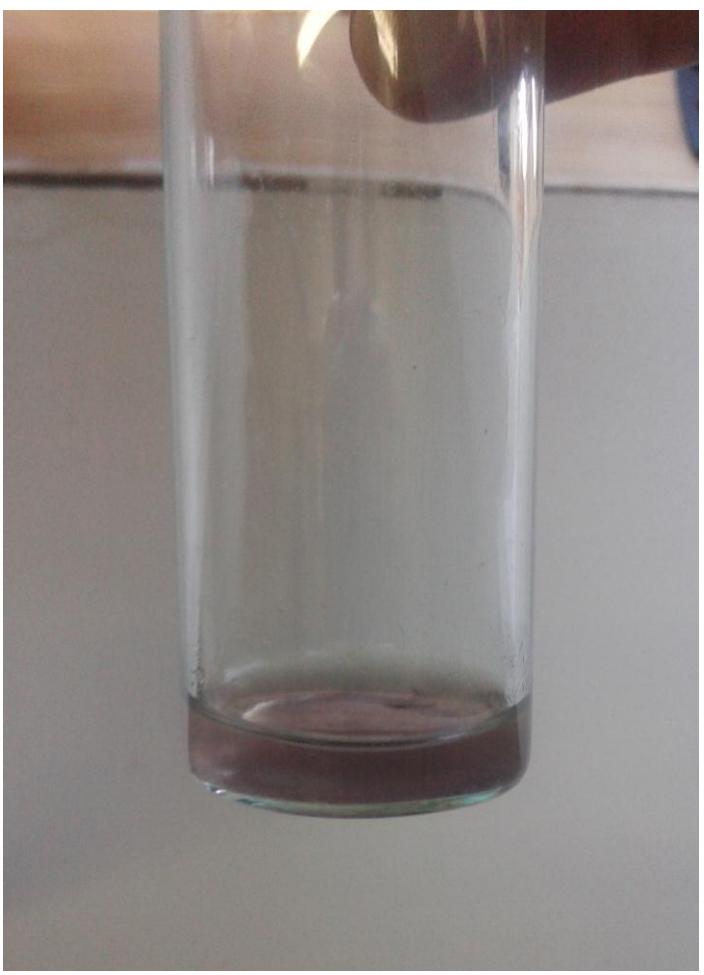

Fig. 9.

Fig. 10.

Fig. 11.