

**МАТЕРІАЛИ КРУГЛОГО СТОЛУ:
«КАМ'ЯНА ДОХРИСТИЯНСЬКА СКУЛЬПТУРА
УКРАЇНИ»
(21 березня 2025 р.)**

УДК 902'15.02

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**CONSERVATION, RESTORATION
AND EXHIBITION OF STONE MONUMENTS
AS EXEMPLIFIED BY THE ART
OF STELAE AMONG NOMADS**

**КОНСЕРВАЦІЯ, РЕСТАВРАЦІЯ
ТА ЕКСПОНУВАННЯ КАМ'ЯНИХ ПАМ'ЯТОК
НА ПРИКЛАДІ МИСТЕЦТВА СТЕЛ КОЧІВНИКІВ**

The basic conservation assumption in the case of monumental stone sculptures is to stop the degradation processes of statues caused by environmental factors and destructive human activity, and to restore the aesthetic exhibition of the monuments. All activities on the objects should be preceded by a careful inspection and discussion, which will allow for the selection of optimal conservation methods and measures. The decision on whether to carry out technical and full-plastic conservation, as well as aesthetic (conservative) reconstruction, should be based on: the technical condition of the monument, the type of raw material, its scientific and artistic value, the permanent method of exhibition, and the financial resources available to the museum.

The outline of archaeological and conservation works should consist of:

1. decisions regarding actions to be taken on the sculpture (technical and conservative conservation, full conservation, exhibition),

2. archaeological and conservation description of the sculpture and full drawing and photographic documentation,

3. conservation and restoration of monumental artifacts should consist of the following activities:

a) preparation of photographic and descriptive documentation at each stage of work, if possible, performance of 3D scanning before undertaking conservation activities,

b) taking stone samples for petrographic analysis, samples for chemical analysis (degree of salinity, type of pigments and mortar, microbiological analysis) [1, c. 143-144],

c) removal of loose layers and impurities not integrally connected with the object, using soft brushes with natural and artificial bristles (insects, cobwebs, dust, soil),

d) cleaning with brushes and brushes of surface dirt, washing it off with water, water with a small amount of surfactants (biodegradable detergents), steam and, if the degree of stone allows it, with water under regulated and controlled pressure (e.g. Kärcher pressure washer). Improper use of a water jet under pressure can lead to serious mechanical damage to the sculpture! Any washing should be performed in stable temperature conditions that allow the sculpture to dry calmly,

e) removal of secondary unfavourable layers (replenishment of cement mortar, paints, traces of old renovations). Any permanent dirt or splashes should be removed only by the art conservator. This is also important when performing other possible conservation procedures (e.g. hydrophobisation of a sculpture) [1, c. 138: Fig. 2],

f) removing the sealing patina chemically or mechanically (using chemical preservatives),

g) desalination (method of salt migration to the extended environment using compresses); the method of desalination depends on the type of stone, sometimes it is enough to gently rinse the sculpture with a large amount of water to eliminate salt efflorescence, in other cases the desalination process must be repeated [1, c. 142],

h) disinfection from microorganisms (e.g. with a solution of Preventol ON in ethyl alcohol, wrapping the monument in foil for 24 hours) [2, c. 122: Fit. 6.3],

i) crack injections (e.g. Winacet DP 50/00) [2, c. 123: Fig. 6.4],
j) filling in the cavity that threaten the structure of the sculpture (mineral putty from Remmers: Funcosil Restoration Mortel, mortar based on the Aida Haftfest preparation for making),

k) possible unification of the colors of the putties. After cleaning the sculpture from dirt, pigmentation is often not necessary, because it does not disturb the aesthetics of the natural porosity of the stone or does not differ from its color [2, 131: Fig. 6.13],

l) possible reinforcing impregnation for porous types of stone (e.g. Remmers Steinfestiger 300),

m) possible hydrophobic impregnation for less porous types of stone (e.g. Funcosil SI),

n) documentation of the object after conservation, taking photographs and 3D scanning.

If the sculpture is exhibited in the open-air space, the following should be done:

1. control of the greenery growing in the immediate vicinity. The statue should also be protected from potential vegetation. It cannot touch the surface of the object or overgrow the immediate space around the exhibit [2, c. 159: Fig. 6.34],

2. construction of preventive drainage channels in the vicinity of the exposure,

3. changing the exhibition layout – if the environment requires it,

4. broader reconstructions of a preventive nature, including aesthetic ones.

In the case of a decision on full technical conservation, a conservation work programme should be prepared individually for each sculpture.

After the conservation has been carried out, an optimal methodology for the exhibition concept, its design and implementation should be developed. Regardless of the choice of the presentation location, the objects should be prepared for vertical exhibition. For this purpose, the sculptures should be stabilized. There are known cases of tamping and breaking off the lower part, stabilizing the anthropomorphic stele in the ground. It is considered troublesome and unimportant. In the case of the lack of the lower part, it should be remembered to design an appropriate non-invasive frame or «foot»

for the object, stabilizing it, but not permanently binding it to the sculpture, taking into account the guidelines of the art conservator. Its task is to maintain the sculpture's body by means of pressure and ideal negative fit. Such a structure can be easily masked during the exhibition process, safe for both the exhibited statue and the viewers. The design and execution of the stabilizing structure should be created in cooperation with a art conservator or designer with construction qualification.

In the case of exposure in the open-air space, in addition to stabilization, it is necessary to provide the sculpture with vertical insulation, perform drainage to drain water, protect it from harmful micro- and macro-organisms, including controlling the growth of vegetation. The specificity of the exposure also requires constant conservation care and carrying out cyclical works consisting of cleaning, gluing, disinfecting, impregnating the sculpture. If exposed to a metal frame, the substrate should be protected from excessive moisture to avoid exposing the steel to corrosion. An important role is played by the information and graphic setting, arranged in a place that does not disturb the exhibition values.

Leaving the sculptures *in situ* combined with a comprehensive, multidisciplinary research programme with integrated physical, conservation, engineering and design protection and monitoring of the entire barrow complex would be the ideal.

In case of a decision to designate a sculpture for exhibition inside a museum building or exhibition pavilion, it is advisable to prepare the appropriate arrangement of the place, information and graphic setting necessary for the exhibition of a three-dimensional object, appropriate play of light or selection of lighting, and, to the extent that financial resources are available, to prepare multimedia visualization. It is important not to forget to provide favorable climatic conditions. It is necessary to take care of preventive conservation activities, consisting of cleaning the statue from dust, gluing weakened fragments of stone, etc. Outdoor exhibitions within the museum require seasonal protection of the sculptures in the autumn and winter by enclosing them in protective structures. It is important to provide them with protection against theft or vandalism, e.g. through monitoring.

Regardless of the place of exhibition, the most important and most often overlooked action is the lack of caution when transporting statues. Most mechanical damage today is caused by poor assessment of the size and weight of statues, carelessness during loading and unloading of objects, as well as lack of proper insulation and stabilization during transport. The sculpture should be immobilized, placed in a lying position, on its back. It should be secured with soft pads. The object can be wrapped thickly in a blanket, previously insulating it from the ground with thick sponge or polystyrene. The stabilization of the sculpture during transport can be reinforced with a type of formwork made of wooden boards or beams, using tensioning tapes or rubber bands, etc. It is important that the protection is located under the entire surface of the object! Particular care should be taken with protruding elements (all edges and protruding elements).

The whole process aimed at including an object in museum collections should be supervised by a conscious museologist, archaeologist or conservator, cooperating with a team of museum employees or maintaining contact with local administrative and cultural-educational authorities. This cooperation is important at every stage of inventory, conservation and exhibition of the monument, starting from well-documented exploration in the field, through well-thought-out, designed and professionally made elements for loading and unloading the object, its protection and stabilization during transport, through conservation, to a well-thought-out exhibition vision with an extensive didactic and educational function.

The method of exhibition may be a problematic stage. In the case of nomadic art of stelae, the specimens of which are three-dimensional objects, intended from the outset for outdoor exhibition should be presented with a surplus of space. Due to their age, they should be protected from extreme weather conditions. The ideal place for exposition could be a courtyard enclosed by a glass roof, where it would be possible to arrange a barrow. Then, an insulated figure can be inserted into the prepared background, using the original technique of its placement.

Monumental sculptures are a great source of research for archaeologists, ethnologists, cultural anthropologists, and art historians. Therefore, their publication is an important activity.

The art of stelae is a phenomenon on a European and world scale, and the matter of saving them opens up possibilities of broad scientific contacts with foreign institutions [2; 3].

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