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UNCONVENTIONAL CULTURAL HERITAGE - CONSERVATION OF BRATEIU CART FROM ASTRA MUSEUM

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Abstract: *The paper refers to the conservation-restoration of an interesting and certainly less conventional artefact from the collections of Astra Museum. This was one of the objects restored by a team of 13 volunteers from the Faculty of Wood Engineering, of Transilvania University in Brasov, during the restoration camp 13 for Astra. The object was the cart from Brateiu, Sibiu County, a one horse drawn cart, dating from the end of XIXth century. The object with a complex construction including wood and metallic elements, though in a fairly good conservation state, needed interventions such as: cleaning, curative and preventive biological protection, consolidation of frail wood, restoration of metallic elements and minor completions and chromatic integration. The restored object was exhibited in Sibiu and Braşov.*

Key words: *cultural heritage conservation, horse drawn cart, structure, wood, metal, finishing layer.*

1. Introduction

Heritage is not an artefact or site… It is a medium of communication, a means of transmission of ideas and values and a knowledge that includes the material, the intangible and the virtual…. The attempt to causally relate heritage and identity raises a set of questions about the links between senses of time and senses of place. Neither heritage nor identity are inevitably place bound [2], [8].

Material cultural heritage refers not only to objects of great historical and artistic value belonging to museum collections but also to artefacts reflecting the daily life of a community, crafts and traditions, old techniques [5], [6], [9], [10].

The concept of intangible heritage can have significant implications for museums in the areas of collecting, making exhibitions and working with communities. Museums have a social, educational and cultural responsibility towards their public and therefore, special attention should be given to the satisfaction of the educational and cultural needs [1], [11].

The training of specialists is compulsory and imposes a scientific and practical background, by collaboration with institutions and attested specialists.

The ASTRA museum from Sibiu is both a cultural institution with a long tradition

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and a modern one, strongly dedicated in preserving cultural heritage in its whole complexity. Actions are undertaken to keep traditions alive, to inspire people of any age and help them understanding and enjoying folk traditions and history, as expressed through the heritage of Romania and its communities.

Universities, as higher education institutions have the mission of raising awareness of students and public of the importance of conservation of cultural heritage, in its whole diversity. More than that, volunteer actions for conservation of cultural heritage are important.

This paper is actually generated by the involvement of a team of 13 volunteers from the Faculty of Wood Engineering, of *Transilvania* University of Braşov in such an action. This was the restoration camp *13 for Astra*, happening during this summer at the Astra Museum in Sibiu. A group of three very different objects were restored in cooperation with the specialists from the Astra Cultural Heritage Centre, offering the chance of professional development. The paper refers to the conservation-restoration of one of these objects, the most interesting and certainly less conventional: the *cart from Brateiu*, a one horse drawn cart (Figure 1).

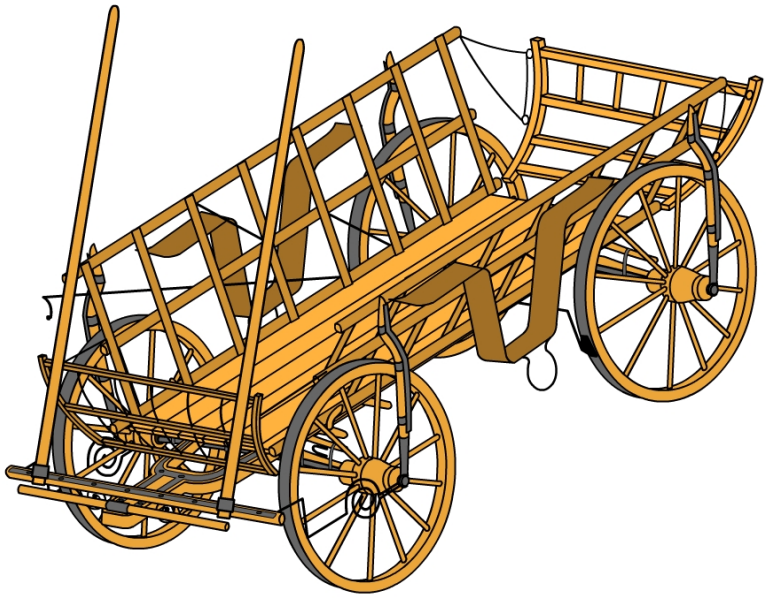


Fig.1. *The cart from Brateiu from the collection of ASTRA Museum – general view (original drawing)*

It was our second experience as volunteers at Astra Museum and the area of our interest has expanded in order to learn about conservation-restoration of original carts. Our focus was to preserve the original structural components and decorative features of the artefact. Thus, minimum invasive active conservation and restoration work was carried-out to highlight the beauty of this artefact and ensure its preservation.

2. Understanding the object

To satisfy a transport functionality with trade needs and comfort, carriage and cart manufacturers created models tailored to

each activity, to each need: travelling, moving around the town and countryside, doing business, meeting social or daily obligations, agricultural work that need the power of animals to work the land and to transport the crop [12]. Over the centuries these vehicles developed technically, especially in the XIXth century[3].

In the France of the XVIIIth century a saying was familiar: "*The carriage is the goal that every man looks to achieve in the path to fortune*" [http://www.cheval.culture.fr/en].

The case-study of the present paper was a cart from Brateiu village, Sibiu County and belongs to ASTRA Museum with inventory number *21 128 AL*. It was dated in the XIXth century, based on metallic inscription „*Oberst Josef Cordier von Lőwenhaupt Marz 1892-Februar 1896*" fixed on the right lateral part and was purchased in the recent years from a local proprietary.

This means of transportation was used from the ancient times and nowadays is still frequently present in the Romanian country region. The terminology for this complex vehicle has a significant duality depending on each locality [7]. The painted finish, imitating robinia wood texture, present on the object indicates the origin of Sibiu County, where this type of carts is specific. It is a very nice, urban cart, pulled by a single horse and used either for moving supplies and goods or transporting people.

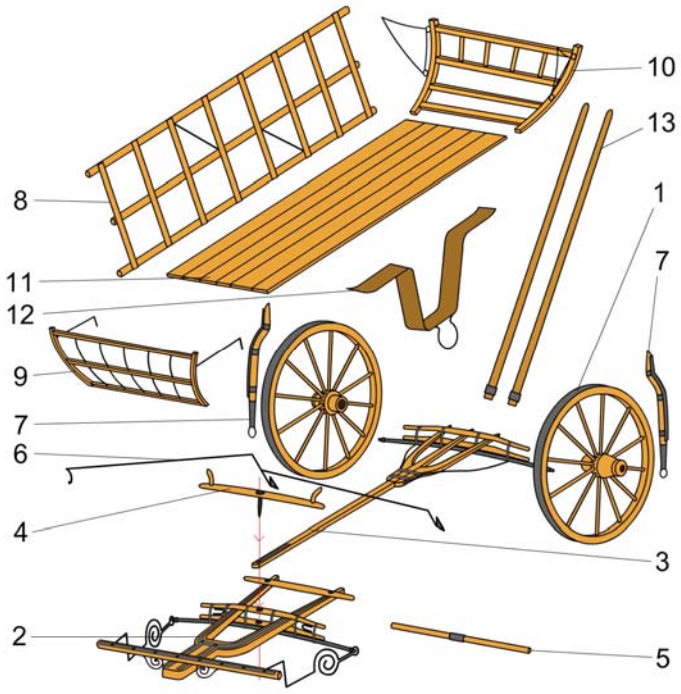


Fig. 2. *The main components of the Brateiu cart (original drawing)*
1-Wheel (made of axle, spokes, rims, iron plates), 2- Running gear, 3- Rear axle, 4-Wooden rod, 5- Horse hitch equipment (cross), 6- Manual brake, 7- Curved strong element, 8- Lateral framed part of the body, 9-Front part of the body, 10- Backside of the body, 11- Wooden platform, 12- U-shaped stair, 13- Front round wood

The complexity of the object required documentation related to terminology [4], [12], [13].

Figure 2 presents an exploded view of the cart highlighting its main elements, noted from 1 to 13.

Beneath the cart body is the *undergear* or *undercarriage*, consisting of the running gear and chassis. The wheels and axles, in distinction from the body, are the *running gear*. The wheels revolve upon bearings or a spindle at the ends of a bar called an *axle*. Front wheels are smaller than back wheels and they are streaked with iron, a method of nailing iron plates onto the rims to protect against wear on the ground and to help bind the spokes together (1).

The cart has two axles. On this solid four-wheeled vehicle, the forward part of the *running gear* (2) is arranged to permit the front axle to turn independently of the fixed *rear axle* (3). Several structural members form parts of the *chassis* supporting the carriage body. The front axle and the splinter bar above it are joined by metal elements. To strengthen and support, a *wooden rod* (4) with two lateral leaning parts fixes the end of the rear axle to the running gear by a big iron nail [http://en.wikipedia.org/wiki/Carriage#Body].

The body comprises five distinct parts (8 right/left, 9, 10, 11). On the lateral parts there are *two framed grid elements* (8). On the front part and backward there are *two curved elements* that close the body and are fixed by lateral parts with iron chains or hooks. The *backside* (10) is bigger than *front side* element (9). A *wooden platform* is placed on chassis as a floor of the cart (11). On lateral places *curved strong elements* (7) fixe the body with axles. *Two U-shaped stairs* with metallic steps facilitate the climbing into the cart (12).

A system of *manual brake* (6) that work on the back wheel is fixed on the right part.

In front of the cart there is attached a *horse hitch equipment* comprising a *cross* (5) and *two long round woods* (13) that are hung on the running gear.

The painted surfaces are a significant component of the object and contribute significantly to the visual impact. A variety of wood species were discovered: the preponderant was oak, black locust on spokes, beech on rims and stairs, resinous wood on the platform.

3. Initial conservation state

The cart has been stored in open air space, under roof, for a number of years and was in a sorry but sound condition. The carriage integrity and functionality were not affected. A first visual inspection of the object envisaged structural integrity, relatively sound wood without major biological attack, though areas of frail wood due to fungal decay were present. The metal elements were functional, but rusted and dirty.

Wood degradation (fungal decay leading to wood softening) and deterioration (cracks, ruptures, missing parts) were present mostly at the wheels, due to the intense use and sustainment of the entire weight of the cart (Figure 3a, 3b). Signs of wear and tear were also present, but considering the oldness of the artefact and conditions of utilization and storage, it could be said that wood was in a fairly good condition. Areas with fragile wood were also observed on the lateral parts, at the contact with metallic parts or beneath them, due to water retention between the wood and metal reinforcements (Figure 3c).

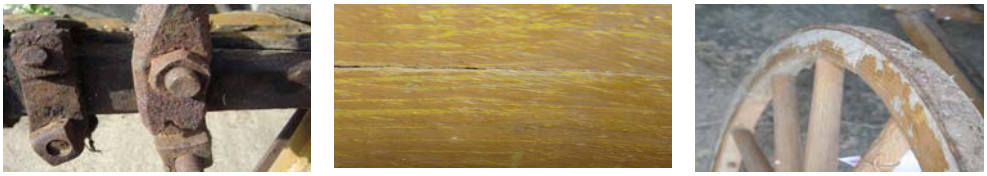
Metal parts had serious problems of corrosion (Figure 3d). Following exposure to degradation factors, most of the elements had a thick layer of rust. The screws were corroded and very difficult to be removed. Signs of wear as result of intense use were also identified.

A previous repairing intervention was

observed, because the finishing layer was not identical for all the elements. The original finishing layer, in two colours (yellow and brown) imitating the wood texture (Figure 3e), alternated with areas of opaque ochre paint. The original finish was still preserved on the wheels, stairs, lateral parts, back and front parts of the cart (Figure 3e), though serious adherence problems and film losses were obvious (Figure 3f).

The two round wood elements from the front of the cart seem to have been recently renewed, as both wood and the ochre paint being in a better condition than the rest of the artefact. A new paint layer occurred sporadically also on the wheels and on the back and front sides of the carriage. These are proof of a less professional previous intervention. However, the present restoration concept did not attempt to remove all these interventions, considered to be part of the object history.

a. Cracks in wood *b. Missing wood part* *c. Fragile wood at the contact with metal*



d. Extreme rust *e. Finishing imitating the wood texture* *f. Non-adherent painting film*

Fig.3. *Most frequent defects present on the object before restoration*

The Romanian flag colours appear on metallic elements and on the axles of the wheels (Figure 4 b).

Even though the historical inscription is in German language (Figure 4a), the signs of Romanian identity are obvious and could be related to the historical evolution of Transylvania.

A *B*

Fig. 4. *Evidence of history and identity (a- German inscription, b- colours of Romanian flag painted on metal and wooden parts)*

It could indicate a former German owner and after that a Romanian? It is a question that requires a documented answer. Further historical studies should go more in depth and relate to local communities and interaction between them.

3. Conservation-restoration

The conservation –restoration approach was systematic. First of all a museum ethnographer helped us to identify the structural system of the cart and to label the constituent elements. Afterwards, dismantling assisted by another specialist was done. For dismantling the components, the screws were lubricated and heated to be more easily removed from the joints. Finally, a number of 13 individual elements or subassemblies were labelled, investigated and further restored (see Figure 2). The elements identified for restoration were: wheels made of: axles, rims, spokes, iron plates, running gear, rear axle, wooden rod, horse hitch equipment (cross and front round woods), manual brake, curved lateral elements, lateral framed parts of the body, front part of the body, backside of the body, wooden platform, U-shaped stairs. The dismantling allowed an easier cleaning, a good consolidation of frail wood, completing the missing parts and a thorough preventive preservation treatment of all elements.

Distinct operations according to the type of material and degradation stage were carried out on metal and on wooden parts.

A very difficult problem was to remove severe rust from metal elements. Mechanical and chemical methods were used for cleaning. Therefore, the metallic surfaces were cleaned using scratch brushes and a chemical solution Evipass, followed by brushing, water cleaning and drying. The operation followed the principle of patina conservation, so that cleaning was stopped before obtaining completely clean and shiny surfaces. All metallic elements of the cart were similarly treated against corrosion. In order to prevent further rusting, a final treatment with graphite black powder in a solution of Paraloid B72 (solution 2% in ethyl acetate) was applied. This also gave a nice grey aspect to the metallic elements. (Figure 5)

Wooden parts required specific operations. The conservation-restoration schedule included generally common operations such as: dust and dirt cleaning, curative preservation, consolidation of fragile wood, gluing of cracks and ruptures, completing the missing parts, preventive preservation and finishing.

Cleaning operation started with dust removed by brushing and continued with wet cleaning employing a water solution of neutral soap C2000 with ethyl alcohol and ammonia. After drying, the surfaces were gently sanded and the non-adherent finishing paint was removed. The next step in conservation was the curative preservation against insects attack. A repeating treatment with solution of Per Xil 10 was employed by injecting into the galleries. After conditioning, the frail wood was consolidated with Paraloid B72 (solution of 5-6% in ethyl acetate) and repeated until the timber was consolidated and saturated.

The gluing of cracks, broken parts or completing parts was made using rabbit-skin glue 30%. Wooden strips were used to fill the large cracks after a previous cleaning of surfaces by sanding and wiping out with ethyl alcohol. The missing part from the right stair and the vertical element of the back side were completed (Figure 4).

These new elements were chromatically integrated in the context of the old object with tempera colours. A preventive treatment with Biotin (fungicide) was applied on the whole the wooden surfaces, followed by beeswax finish to obtain hydrophobic and aesthetical surfaces.

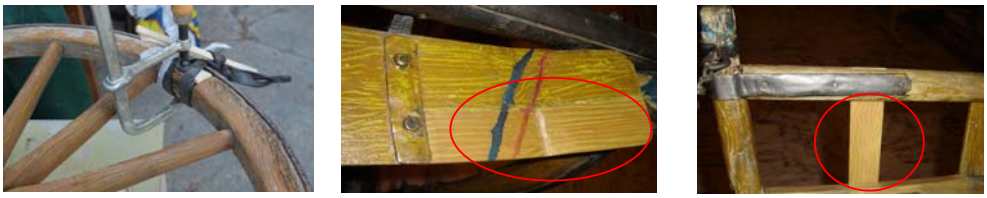
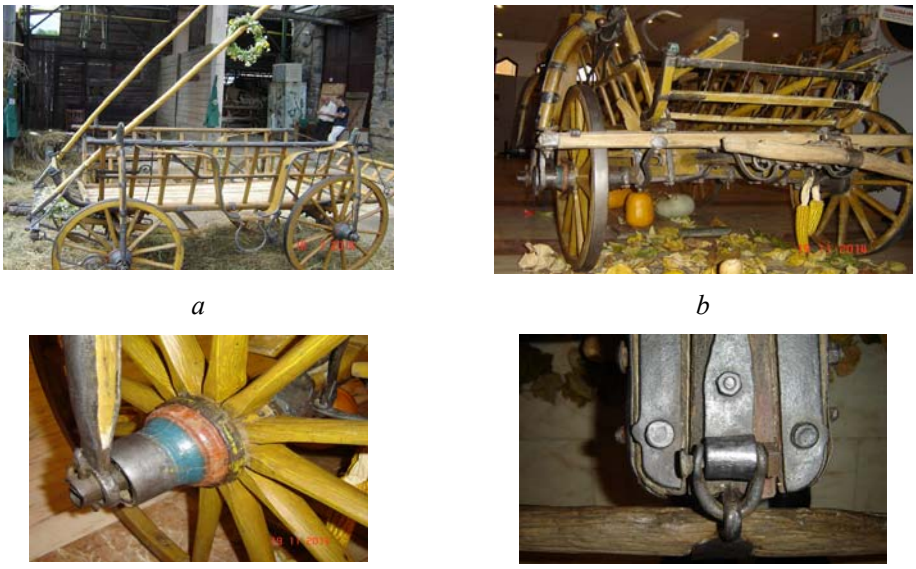


Fig. 4. *Gluing and completing the missing parts*

After complete restoration the elements were reassembled and the cart was reconstituted. An image of restored object is presented in Figures 5 a, b, alongside some details of restored wooden and metallic parts (Figure 5 c, d).



a *b*

c *d*

Fig.5. Brateiu Cart after restoration exhibited in Sibiu (a) and Braşov (b) and details of restored wooden (c) and metallic elements (d)

4. Conclusions

The cart presented in this paper is an example of less conventional but equally important item of cultural heritage, carrying both technical and historical information. The beauty of the object resulted from the forms, shapes and the association of metal and wood has to be also highlighted. Its conservation and restoration allowed a special experience and development of conservation skills in retaining and preserving original elements, finishes and patina. Also, the carriage construction and the techniques involved were opportunities to learn more about folk traditions and crafts.

The challenge of restoring such an unconventional object was voluntary undertaken and resolved. However, at this moment many questions related to the origin and history, owners and uses, are expecting a documented answer.

Who was Oberst Josef Cordier von Lőwenhaupt? What represents the period Marz 1892-Februar 1896? How is related this artefact to the historical changes in Transylvania at the end of XIXth century

and the beginning of XXth century? Anyone knowing more or wanting to make historical research on these aspects is invited to join us.

The present conservation-restoration case-study represents a strong effort to disseminate good practices in order to encourage our students and colleagues to undertake voluntary actions for cultural heritage conservation and valorisation by exhibitions and published papers. The restored Cart of Brateiu was recently exhibited at the Aula of *Transilvania* University within the Etnovember 2014 festival.

Carts, carriages and other transportation means, with their technical and aesthetic dimensions, may be interesting topics for further research and restoration actions.

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