

Work carried out in the Textile Restoration-Preparation Workshop between the second half of 2012 and mid-2014¹

- The paper describes the preventive conservation and restoration work carried out in the Textile Restoration-Preparation Workshop of the Ethnographic Museum between the second half of 2012 and mid-2014: the work preceding the mounting of the *World of Toys* project, and preventive conservation work on objects in the Museum textile collections. On two occasions the Workshop engaged in conservation and restoration projects with the Textile, Paper and Leather Department of the Croatian Conservation Institute. The review of the work includes the involvement of the Workshop in the rescue of textile heritage items in the flood-affected areas of Županjska Posavina. Conservation and restoration operations on objects are described.

Key words: Ethnographic Museum (Zagreb)
museum object protection, preventive conservation, museum
object restoration

PREVENTIVE CONSERVATION

The Textile Restoration-Preparation Workshop of the Ethnographic Museum plans its preventive conservation work on textile objects from the Museum collections on an annual basis. As a rule, such work is sustained over the sev-

¹ The reports and records for the preparation and conservation work were prepared by the members of the staff responsible for the treatment of the respective items.

eral next years.² Because of the large quantity of material and unfavourable microclimatic conditions in the Museum, most of the work load, agreed with the curator in charge of the collection, is accounted for precisely by protection.

One of the major preventive conservation operations in the period between the first half of 2012 and mid-2014 regarded the preparation of objects for exhibitions within the *World of Toys* project, the preventive conservation of *peča*³ head-scarves, and the preventive conservation of objects from the Rug and Cover Collection and the Collection of World Culture objects.

WORLD OF TOYS PROJECT

The *World of Toys*⁴ Project of the Ethnographic Museum included five exhibitions: *Children's Toys from the Croatian Heritage*, *The World of Toys*, *Polish Traditional Children's Toys*, *Trains for Kids and Adults* and *The Toy Has a Heart*.⁵ Along with the technical staff of the Museum, the Wood, Ceramics and Metal

2 The textile collections of the Ethnographic Museum in Zagreb include the following: national costume collections of central Croatia, north-western Croatia, lowland Croatia, highland Croatia, Adriatic hinterland Croatia, coastal Croatia; and collection of linen furnishings, all with about 5,000 to 7,000 objects; collection of "Berger textile industry" objects; rug and cover collection; bag collection; collection of world culture objects; lace collection; textile fragment collection; collection of national costumes of European peoples; collection of national Croatian diaspora costumes; collection of modern clothing (each about 2,500 objects). Every member of the Textile Workshop staff is responsible for specific collections and, in consultation with the curator in charge, for preventive object protection, conservation and restoration work.

3 The *peča* from the region of Posavina is a head-scarf on married women's headgear, draped or tied over the *poculica* (cap) when going out of the house. Its form is a regular square with sides of about 80 cm. It was decorated by two techniques: the *prebor u zijev* technique during weaving and by a combination of *prebor u zijev* and *vutlak* with a *peča* stitch on finished linen, thinner linen (*redina*) or muslin (cf. Szenzi 973: 6). This area is distinguished by polychrome ornaments with madder-red as the basic tone, while white ornaments are characteristic of the Sunja area. "The motifs are Baroque, stitched with home-made woollen and silk yarn, characteristic for the earlier period, and geometrical, made with factory-made cotton thread by combining the weaving methods of *vutlak* and *prebor u zijev* from the mid-19th century" (Gušić 1955: 55).

4 The author of the Project, realised between 1 December 2012 and 2 June 2013, was Senior Curator Iris Biškupić Bašić, Ph.D.

5 The exhibitions presented exhibits from the collections of the Ethnographic Museum, the Museum of Toys and Play from Kielce (*Museum Zabawek y Zabawy*), and many valuable objects owned by citizens, collectors and associations. For more information on the *World of Toys* project see Matija Dronjić's text in this double issue of *Ethnological Research*.

Restoration-Preparation Workshop and the Textile Workshop were also included in the preparation of material for display and the technical implementation of the exhibitions.⁶

Most of the exhibits at the central exhibition, *Children's Toys from the Croatian Heritage*, were selected from the holdings of the Museum; they were either cottage industry products or manufactured by traditional craftsmen and rural cooperatives. Wood, branches, ceramics, clay and fabrics were used as material. The *World of Toys* exhibition on the first floor of the Museum displayed objects produced in smaller European factories:⁷ plush toys, and metal and mechanical toys, partly from the Museum collection and partly borrowed.

The preparation of objects for display included cleaning and smaller restoration operations preceding the taking of photographs and display. The materials used in production, such as metal, wood, twigs, ceramics, clay, textile and paper, were treated separately in order to meet the rules governing museum object protection and display.

The exhibition *The Toy Has a Heart*, the result of cooperation between the Museum and the public, was the most demanding in terms of the work load. The citizens donated or borrowed to the Museum 1,100 toys, out of which 630 were singled out. The preparation of the material for display was very taxing because of the variety of material from which the toys were made (textile, paper, wood, metal, synthetic materials etc.) and because of the high share of toys from the late 19th century which were very susceptible to damage and brittle because of their age.⁸ Operations on the objects were reduced to a minimum and included vacuuming and, if required, minor restoration operations.⁹ Conservation and restoration work on paper objects (box with construction elements, inv. No. 50089 a-c; children's social game *Halma*, inv. No. 50077 a-c;¹⁰ *Fable* picture book in a box, inv. No. 50178; and toy post truck *Kinder post*, inv. No. 50071) was carried out in consultation with the Paper and Leather Department of the Croatian Conservation Institute.

6 The workshops participated in the realisation of three exhibitions: *Children's Toys from the Croatian Heritage*, *World of Toys*, and *The Toy Has a Heart*.

7 From Bohemia, Germany, Poland, Portugal, Russia, Slovenia, Slovakia, Sweden and Ukraine.

8 Paper and textile objects.

9 The displayed objects were treated by Jasminka Vujičić, senior preparator.

10 The restoration work is described in the report on conservation and restoration work.

After the exhibition the donated objects were inventoried and became part of the Museum holdings.¹¹

PEČA HEAD SCARVES FROM THE COLLECTION OF NATIONAL COSTUMES FROM CENTRAL CROATIA

The Collection of National Costumes from Central Croatia maintains a large number of *peča* head scarves (kept in the headgear storeroom.¹² The objects date from the 19th century and include some of the oldest textile objects in the Museum holdings.¹³

Most of the objects were cleaned with no liquid, by vacuuming, because of the material, *redina*,¹⁴ mainly used to make the *peča* scarves. When *redina* is wet-cleaned, the fibres swell and the typical texture of the fabric is lost. Another reason is the poor stability of the yarns used for the ornaments, and wet cleaning causes capillary expansion of dye to the fabric. After colour stability tests the wet-cleaned *peča* scarves from Sesevsko Prigorje made of ordinary linen were ornamented with rich polychrome embroidery.

After cleaning the material was protected with Tyvek foil and stored in boxes with the indication of the fabric and the technique used for ornamentation (Fig. 1/p. 334). Each box was accompanied by a list with the localities and the inventory number of the object.¹⁵

COVER AND RUG COLLECTION

The Cover and Rug Collection is one of the smaller textile collections in the

11 Along with the existing *Collection of Traditional Children's Toys*, a *Collection of Children's Toys and Games* was also established.

12 The facility has two levels: the top level stores the Headgear Collection and modelled heads with the representation of traditional combing and head covering, and the bottom level the Collection of National Costumes of the Peoples of Europe, the Jewellery Collection and Weapons Collection.

13 Very valuable head scarves derive from the estate of Salamon Berger.

14 *Redina* is the finest linen typical of Croatian Posavina, woven by a technique called *linen on linen*, whereby the introduction of thin thread into the comb yields a transparent ribbed structure (cf. Radauš Ribarić 1988: 22).

15 Preventive conservation was carried out by Ljiljana Vilus Japiec, senior preparator.

Museum and totals about 1,200 objects. The Collection storeroom is situated next to the Textile Restoration-Preparation Workshop. It is divided into two levels and outfitted with shelves on which the material is stored according to locality and type of object.

Preventive conservation of the material in the Collection started in late 2011 and 600 objects were treated by mid-2014. Treatment covered the material from the top storeroom level (Fig. 2/p. 334) with woollen kilims¹⁶ of Slavonia and the Pannonian basin.

Because of economy and object safety, the exhibits were vacuumed. Dry-cleaning was the second option, but it was not feasible because of the great number of objects and limited funding. After cleaning, the objects were marked (along with the existing label, a twill band with the mark of the Museum on which the inventory number was written with a water-resistant felt-tipped pen was sewn onto the objects). The objects were then photographed and protected with cotton fabric slips, also carrying labels with the inventory number, and stored.¹⁷

COLLECTION OF WORLD CULTURE OBJECTS

The collection of world culture objects comprises material donated to the National Museum in Zagreb by Croatian seafarers, explorers, travellers and artists at the turn of the 20th century. After the foundation of the Ethnographic Museum in 1919, the material passed to the Museum and became the foundation of the current Collection of World Culture Objects.¹⁸

16 Kilims were used as bed and bench covers, hung on the wall by the bed, and only fewer as floor rugs. Kilims were produced exclusively by women, from sheep shearing, wool washing, selection and spinning to dyeing and weaving, and embroidery on small light rugs. After the eighteen-seventies, when the Osijek merchant Sachs gave women, in exchange for old kilims, factory-made wool yarn dyed with new aniline dyes, the archaic colours of Slavonian kilims, distinguished by the dark palette of vegetable dyes, was lost, and bright pink and flashy green became very popular in the rural population (cf. Randić 2009: 149).

17 Preventive restoration was carried out by Marijana Najjar, senior preparator.

18 The collection comprises a number of smaller collections and single objects, and larger units, e.g., the significant objects donated by Dragutin Lerman who took part, as the representative of the Belgian government, in the expedition of the African explorer Henry Morton Stanley. After 1888, when Lerman sent the first part of his collection, and over several years thereafter, he donated altogether 498 objects – ritual masks, fetishes, everyday use objects, instruments, weapons

The storeroom of the collection is situated next to the permanent display of the world culture objects. The objects are stored, according to the type of material and locality, in cupboards with shelves (wood, ceramics, metal etc.) (Fig. 3/p. 334).

Work on preventive conservation of the material in the storeroom started in early 2013; until mid-2014 282 textile objects were treated preventively, including the restoration of an Ethiopian *burnoose*, inv. No. 643;¹⁹ a fragment of archaeological textile was conserved by *pressure mounting*²⁰ in cooperation with Katija Hrepić, senior restoration technician from the Croatian Conservation Institute.

Preventive conservation of textile objects included cleaning with a restoration vacuum cleaner, object marking (next to the existing label a twill band with the mark of the Museum on which the inventory number was written with a water-resistant felt-tipped pen was sewn onto the object), photographing, outfitting for storage with *Avos*²¹, and storage²² in drawers with the indication of localities. Lists of objects with inventory numbers were enclosed to the material.²³

and jewellery from the Congo (present-day Democratic Republic of the Congo). Another important group of items was donated by the explorers Mirko and Stevo Seljan, who lived in Ethiopia between 1899 and 1902 in the service of Negus Menelik II, who sent them to Central Africa. The Seljan brothers administered the province, Mirko as the governor and Stevo as his deputy. During their stay in the region they engaged in geographical explorations and collected ethnographic material. The objects donated by the Seljan brothers to the Museum, both from Ethiopia and from South America (about 400 items), and their overall records, constitute the basic holdings of the World Culture Collection of the Ethnographic Museum in Zagreb. The collection comprises clothing, jewellery, weapons, utensils, everyday use objects, musical instruments etc. Another important collection is the one contributed by Milka Trnina, who donated to the Museum, in 1930, thirty objects from China, Japan and India, presents of the Boston collector William Sturgis Bigelow. The collection also includes Salamon Berger's items from India, China, Japan, Persia, Arabia and Madagascar (cf. Gjetvaj 1989: 14).

19 Restoration work is described in the report on conservation and restoration work.

20 The method is described in the report on the work carried out on the archaeological fragment, inv. No. 1769.

21 Polyester wool for wrapping, protection and storage of museum objects.

22 Textile material was stored in cupboards with drawers of smaller dimensions and, contrary to recommendations on storage of museum textile objects, had to be adapted to the available space.

23 Preventive conservation was carried out by restorer Mihaela Grčević.

The objects from Salamon Berger's collection are stored in a cupboard with clothes-hangers; after preventive treatment they were protected with Avos and stored in boxes made of acid-free paper of dimensions adapted to the cupboard. The boxes are numbered and each contains the list of objects with inventory numbers and indications of localities.

ETHNOGRAPHIC HERITAGE RESCUE OPERATION IN THE FLOOD-AFFECTED AREAS OF ŽUPANJSKA POSAVINA

The operation for the rescue of ethnographic heritage in the flooded parts of Županjska Posavina was organised by Janja Juzbašić, M.S., from Županja. The operation involved all the museums in the Museum Association of Eastern Croatia which sent all their available ethnologists, restorers and preparators to the affected area.²⁴ The Ethnographic Museum in Zagreb also took part in the operation as the central ethnographic museum.

Members of the Museum staff visited the flooded area on three occasions.²⁵ The *Stjepan Gruber* Heritage Museum at Županja, Gunja, Račinovci and Rajevo Selo was visited on the occasion. Most of the material collected in the operation referred to home inventory – cupboards, shelves, beds, cradles, kitchen utensils, and farming and textile tools, as well as textile objects – linen furnishings and parts of costumes. This material was found in attics of homes earmarked for demolition, and most of it was picked out of garbage heaps. The collected objects are not protected but are a potential part of the holdings of the *Cvelferija Museum*.²⁶

Altogether 249 textile objects²⁷ were brought to the Textile Restoration-Prep-

24 <http://mdc.hr/hr/muzeji-u-hrvatskoj/akcija-mdc-spasimo-bastinu-od-poplava> (14 Oct. 2014).

25 Between 23 and 25 June 2014: museum adviser and registrar Vesna Zorić and senior preparator Ljiljana Vilus Japec. Between 1 and 3 July 2014: senior preparator Marijana Najjar and restorer Marko Gašparić. Between 7 and 9 July 2014: museum adviser and registrar Vesna Zorić, museum adviser Aida Brenko, senior preparator Ljiljana Vilus Japec and curator Matija Dronjić.

26 The name *Cvelferija* derives from military terminology. During the existence of the Military Frontier the present-day territory of Croatia was divided into areas controlled by regiments consisting of smaller companies. Such a smaller unit, the so-called *Twelfth* (German *zwölf*), was responsible for the eastern area of Županja, hence the name *Cvelferija* for the region (cf. Opačić 2003).

27 Costume set (1 blouse and 1 skirt); women's dresses (8 objects); petticoats (7 objects); woman's shirt, *oplećak* (7 objects); scarves (16 objects); socks (3 pairs); men's waistcoats (4 objects); pil-

aration Workshop of the Ethnographic Museum in Zagreb. They were listed, divided into groups according to the type of material, and assigned numbers from 1 to 249. Work on the objects included photographing before, during and after the work, cleaning (vacuuming, wet cleaning or dry cleaning), ironing and outfitting for storage.

Objects made of wool (hat and overshoes, *nazuvci*) and leather (*opanci*) were vacuum-cleaned and then treated by freezing.²⁸ The leather bag and belt were dry-vacuumed and then coated with a leather treatment agent (*Lederweicher SR*). Some objects (small decorative pillows, small light rugs, rugs) were dry-cleaned.

Other materials, linen furnishings and parts of costumes, were cleaned by flushing under cold water in order to remove mud and silt deposits. After drying, the objects were disinfected; objects made of white cotton fibres (linen furnishings) were disinfected in a mild sodium hypochlorite solution, while parts of costumes made from linen or hemp fibres and decorated with embroidery and glass beads, and other materials, after the testing of colour stability, were disinfected in 70% alcohol. After disinfection and drying, the objects were wet-cleaned in a neutral detergent solution in distilled water, dried and ironed.

The treated material was outfitted for storage with *Avos* and prepared for return with instructions for the safekeeping of textile materials.²⁹

low cases (13 objects); doilies (120 objects); towels (27 objects); tablecloths (13 objects); apron (1 object); men's draweres (2 objects); men's shirts, *rubine* (4 objects); tapestries (6 objects); bag, *uprta* (1 object); part of footwear, *obojak* (1 object); part of footwear, *nazuvak* (1 pair); part of footwear, *opanci* (1 pair); rug, *krpara* (3 objects); small light rug, *ponjavac* (5 objects); small pillow (1 object); leather bag (1 object); leather belt (1 object); hat (one object).

28 Before freezing the object was vacuum-cleaned in order to remove dirt and fallen-off fibres, and traces of parasites, eggs, larvae. The object is placed in the deep freeze compartment at -18°C. When it is taken out, it is left on a flat surface for one day for slow warming-up. Objects treated in this way must not contain wax, glass, synthetic materials, varnish, bones or horny material.

29 The provision of favourable microclimate conditions (18°C and 45-55% RH) is very important in order to prevent the development of mould.

CONSERVATION

PRESSURE MOUNTING

The *pressure mounting* method was presented to the workshop by Katija Hrepić, who spent (in 2009) three months at the Department of Conservation and Scientific Research of the British Museum.³⁰ *Pressure mounting* is used in conservation but also to prepare objects for display. It is mainly used for smaller archaeological or other flat textile fragments which are brittle and fragile because of age and of the conditions in which they were found. The materials used for preparing objects for display in this way derive from the construction industry (*Hexlite* boards). This requires the determination of possible harmful effects on textile, which is why the British Museum laboratory developed the Oddy test.³¹

An archaeological textile fragment from the Collection of World Culture Objects underwent conservation under the supervision of Katija Hrepić. In this connection due mention needs to be made of cooperation with Edita Vujasinović, Ph.D., associate professor at the Faculty of Textile Technology, where microscopic analyses of the fibres from the mentioned object were carried out at the Institute for Materials, Fibres and Textile Testing.

Conservation of object inv. No. Ex 1769 by the *pressure mounting* method

Object data

Inventory number	Ex 1769
Collection	World Culture Objects
Object name	poncho fragment
Date	unknown
Locality	Machu Picchu
Dimensions	75 cm long by 65 cm wide
Material	llama hair

30 During her stay at the British Museum Hrepić used the method in the conservation of four grave goods fragments from Peru.

31 The Oddy test is an accelerated material corrosion test used when displaying or preserving a cultural heritage object. It is carried out by using three metals - lead, copper and silver – in special airtight test tubes heated together with the tested sample under high humidity for 28 days. If there are no changes on the sample after opening, the tested material can be used in the display or conservation of cultural heritage object.

Technique	weaving
Condition of object	poor

Object description

The poncho fragment is made of naturally coloured llama hair, i.e., not dyed. It was found among grave goods at Machu Picchu. The object was donated to the Museum by Branka Šrepel on 7 March 1979.

Description of as-found condition

The condition of the poncho fragment was very poor, the fibres were weak, and mechanical damage was visible (Fig. 4a/p. 335). The object was displayed for many years in the *Latin America* glass showcase of the permanent world culture display.

Structural analysis of object

The object was carefully taken out of the glass frame and photographed in all the work phases – before, during and after treatment. The damage was graphically documented and the fibres analysed structurally.

Relaxing

The fragment was cleaned with a restoration vacuum cleaner, and then relaxed. The object was covered with a *SympaTex* membrane and a wet blotter on top of it, and closed with *Melinex* film. Through the perforations on the membrane the object received a small quantity of moisture and became suitable for flattening. For drying the object was flattened with glass weights, and left to dry in the air.

Pressure mounting

The *Hexlite* board is a honeycomb board used to mount objects for display. Along the rim of the panel, at points intended for screws, the honeycomb part is removed by a chisel and hammer. The recesses are filled with soft wood fillets. After drying the filling is ground and levelled with the board.

The edges are then taped with a linen band and two 5 cm frames are marked on the back. The marked frame is coated thickly with *Mowilith DM C2* glue. The panel is coated with thin cotton *domette*. On the back of the panel the fabric is pasted by means of an iron within the outer marked frame. The corners must be pasted as neatly as possible.

The contours of the object need to be outlined on the *Melinex* film, with 0.5 cm added. The obtained form is transferred to a thicker cotton *domette* and

the wanted form cut out. The fabric with the cut-out form is placed on the support and fixed with thread. The thickness of the fabric must match the thickness of the fragment.

The layer placed on top is the final layer; therefore, its fineness and colour must match the displayed object. Cotton fabric is pasted for the purpose with an iron within the second drawn frame.

The final layer is fixed to the support with a thread and needle along the edge of the cutout form; the object is placed into the clearly defined form. The same final fabric layer is also attached at the back and fixed with a cross stitch along the edge.

The object is laid on the support and closed with plexiglass by means of screws for which holes are driven on the previously filled places on the support (Fig. 4b/p. 335).

Work performed by: Katija Hrepić, senior restoration technician, Croatian Conservation Institute; Ljiljana Vilus Japec, senior preparator; Mihaela Grčević, restorer.

RESTORATION

DYEING OF TEXTILE MATERIAL DURING CONSERVATION AND RESTORATION WORK

The Textile, Paper and Leather Department of the Croatian Conservation Institute hosted on 17 and 18 September 2013 a workshop demonstration on dyeing³² with pigments used in conservation and restoration. The workshop was led by Katija Hrepić who had mastered the dyeing technique during her specialisation course in the British Museum. The pigments donated to the textile restoration institutes for the workshop were provided by the Foundation of Lady Jadranka Njerš Peirse in cooperation with the Croatian Conservation Institute.

Dyeing is a process whereby textile material is given a specific colour by dipping in a dye solution. The solution contains water, pigment, fibre and

32 The workshop was attended by staff members of the Textile, Paper and Leather Dept. of the Croatian Conservation Institute, of the Textile Dept. of the Ludbreg Restoration Division, of the Textile Restoration Workshop of the Museum of Arts and Crafts, and of the Textile Restoration-Preparation Workshop of the Ethnographic Museum in Zagreb.

additives helping to promote dye absorption by the fibres. Through the interaction of the molecules of water, dye, fibre and additive the dye molecules bind to the fibres and colour them. The rate of diffusion increases with the temperature of the solution, and so does the rate of dyeing and dye consumption (cf. No. 2008: 6).

The dyeing of textile material undergoing conservation and restoration needs to meet criteria differing from those applied in commercial dyeing. Dyeing stability is important, and the dyeing process must not leave any surplus of chemicals on the fibres because that could harm the restored textile. Bearing in mind all this, after selecting the material for dyeing the restorer must choose the appropriate dye in terms of the fibre (cellulose, protein), the dyeing method, and the pigments and additives to be used (cf. No. 2008: 3).

Dyeing requires the provision of an appropriate working facility which must be clean; protective working clothes are also called for (overalls, gloves and protective glasses). When weighing pigment a protective mask has to be used in order to prevent the inhalation of dust, and if the pigment or the bath are spilled, the area must be cleaned. All the tools used in preparing the dyeing bath need to be kept in proper working order, the bottles and containers must be properly marked, and the dye solution may not be kept for more than seven days.

The use of additives facilitates the dyeing process by improving the bonding of the dye to the fibres and even dyeing (cf. No. 2008: 8). All the additives are envisioned for use in distilled water. *Solophenyl* dyes are used when dyeing cellulose fibres; when using *Lanaset* dyes (for protein fibres), acetic acid, sodium sulphate, sodium acetate and *Albegal set* are used as additives.

Conservation-restoration work on object Inv. No. 643

Object data

Inventory number	Ex 643
Collection	World Culture Objects
Object name object	burnoouse
Date	unknown
Locality	Ethiopia
Dimensions	130 cm long by 267 cm wide
Material	atlas silk
Technique	weaving, sewing
Object condition	poor

The *burnoose* belongs to the Collection of World Culture Objects of the Ethnographic Museum, and it is one of the 133 objects from Ethiopia donated by the Seljan brothers to the National Museum in Zagreb in 1902/1903.

Object description

The *burnoose* was part of the uniform of the French colonial *Spahi* troops. This specimen, Inv. No. Ex 643, was the present of Negus Menelik II to Mirko Seljan. It is made of black (face) and red (lining) atlas silk. It is semicircular with a hood, which carries one big and several small black silk pompons. On the front the object is trimmed with a gilded silver band. Also in front the cloak is held together by a silk insert and a row of eleven small brass buttons.

Description of object condition

The cloak was displayed for a long time in the permanent World Culture exhibition of the Ethnographic Museum. The face of the cloak, made of *weighted silk*,³³ dyed black, was in a very poor condition (Fig. 5a/p. 336). One of the disadvantages of weighted silk is that it lasts a much shorter time than silk with no added weight because evaporation and exposure to the sun weaken and destroy the fibres and the fabric breaks all over the surface. Although the object was publicly displayed many years, there was no colour degradation on the face.

The colour of the red silk lining lost its intensity, and fibres were damaged at some points along the edges and round the neck cutout. The condition of the pompons, made of silk threads that did not lose their colour, was also poor. However, the fibres were very weak, and many threads were missing and continuously crumbling.

Structural fibre analysis

The object was photographed before, during and after the operation. The fibres used in the production of the object were structurally analysed, and damage documented graphically.

Conservation-restoration work

After vacuuming, the face was partially separated from the lining in order to gain access to the damaged spots. Damage on the face was padded with black *crepe de chine* silk and closed with silk filament by using restoration stitches.

33 In order to get weighted silk, the material is treated with metal salts. By absorbing metal silk compensates the loss of weight lost in degumming (flushing of sericin, silk resin). In addition to weight, the procedure increases density and folding quality.

Damage on the lining was consolidated in the same way. The face and the lining were joined by cotton thread using the bead stitch, which imitates the machine stitch with which the face and the lining were originally joined (Fig. 5b/p. 336). Because of pronounced brittleness and fragility of the object, handling was reduced to a minimum.

After conservation and restoration, the object was stored in an acid-free box and protected with *Avos*. Because of its dimensions, it was folded by using cylinders wrapped in polyester padding and *Avos* in order to avoid the breaking of fibres on the folds. Because of its great brittleness and instability the object cannot be displayed.

Work performed by: Mihaela Grčević, restorer

Conservation-restoration work on object Inv. No. 6298

Object data

Inventory No.	6298
Collection	National costumes from North-western Croatia
Object name	jacket, <i>surka</i>
Date	1848
Locality	Zagreb
Dimensions	84 cm long by 120 cm wide
Material	cashmere
Technique	sewing
Ornament	stylised floral
Condition of object	poor

During the Croatian National Revival, in accordance with the ideas of civil society to create its own culture with national features under Habsburg Monarchy rule, great attention was also devoted to clothing. Croatian urban fashion then began to include a jacket called *surka*, a picturesque type of national dress richly ornamented with braids, appliqués, embroidery and fur. With such clothing the nobility expressed their national feelings by donning it solemn occasions. In the words of Katarina Nina Simončić, senior lecturer at the Textile and Clothing Design Institute of the Textile Technology Faculty of the University of Zagreb:

“Red, white and blue began to dominate the dress culture in the streets and dance halls of Zagreb... Soon after the men, women also began to complete

their fashion dresses with the *surka* demonstrating thereby their solidarity and support of the political idea.”

As the turbulent days of the national (Illyrian) movement came to an end the *surka* was not used any more, and in the late eighteen-sixties and early eighteen-seventies it was replaced by tails.

Object description

The woman's national *surka* was made of white cashmere, cut widely and spaciouly, trimmed with a white woollen ribbon and decorated with a narrower, red woollen braid. The sleeves are semi-long and very wide at the lower end. The lining was made of light white silk. It was closed with a decorative clasp at the front of the collar.

Description of object condition

The condition of the *surka* is very poor (Fig. 6a/p. 335). Damage is due to the storage of the object in inadequate conditions. The main fabric and the silk lining are moth-eaten in many spots. The red woollen trim is also very damaged and completely missing at some points. The red ornamental braid is also damaged and missing at some points. The silk lining presents minor damage in the form of small holes. Soiled spots (stains) of unknown origin are visible on the main fabric and on the lining.

Structural fibre analysis

The object was photographed before, during and after the operation. The fibres used in the production of the object were structurally analysed, and damage documented graphically.

Conservation-restoration work

The object was cleaned with a restoration vacuum cleaner. Damage on the main fabric was partly padded with woollen material and closed with restoration stitches using silk filament of matching colour. The trimming ribbon and the missing part of the braid were not reconstructed. The existing parts of the trimming ribbon and braid were attached to the main fabric with dark red silk filament (Fig. 6b/p. 335).

After the operation the object was stored in an acid-free box of matching dimensions, outfitted with polyester padding pillows and protected with Avos.

Work performed by: Marijana Najjar, senior preparator.

Conservation-restoration work on hat, Inv. No. 48162

Object data

Inventory number	48162
Collection	National Costumes of Central Croatia
Name of object	hat
Date	1930
Locality	Hrganj, Vrbovec
Dimensions	6 by 33 cm
Material	straw, silk, cotton fabric
Technique	sewing
Ornament	stylised floral
Condition of object	poor

The hat is a head covering. It consist of the *crown* which extends into the *brim* of varying width. It is made of various materials. It is used as protection from adverse weather but also frequently has an aesthetic function. Since it became fashionable up to the nineteen-sixties the hat was a compulsory dress item for both men and women.

Object description

The woman's hat was donated to the Ethnographic Museum together with the shop inventory and other personal objects of the shop owner from the village of Haganj near Vrbovec. It dates from the nineteen-thirties It was used primarily as a fashion accessory, and it is part of the Collection of National Costumes of North-western Croatia. It is made of straw and has a wide brim bent a little downwards. The crown is draped with silk fabric shaped at one end into a decorative bow. A decorative branch with lily of the valley flowers and leaves is laid and sewn on the silk along the inner brim edge. The crown is padded on the inside with cotton fabric; a rubber band holding the hat on the head is sewn on the bottom inner rim of the crown.

Description of object condition

The condition of the hat was relatively good. The straw and the decorative branch were soiled. The silk band round the crown was dirty and considerably damaged. There was no mechanical damage on the fabric lining the inner side of the crown, but like the rubber band, which lost its elasticity, it was dirty (Fig. 7a/p. 337).

Conservation-restoration work

After detailed photographic recording, the decorative branch, silk ribbon, tulle ribbon and rubber band were removed from the hat.

The 37 cm decorative branch was made of thin metal wire wrapped in green paper. White lily of the valley flowers were attached to the wire along with green and brown leaves made of waxed fabric. The branch was sewn by hand with cotton thread with the stitch passing at several points through the silk band on the brim and the crown. The hat was vacuum cleaned.

The hat is made of naturally coloured straw; it is 6 cm high and the brim diameter is 33 cm. It was vacuum cleaned. After vacuuming the hat was also wet-cleaned with Q-tips soaked in 96% ethyl alcohol and distilled water (30:70). The whole surface of the hat was cleaned in this way together with the inner side of the crown lined with white cotton fabric. The fabric was sewn by hand to the crown with cotton thread, and was not removed during cleaning.

The decorative band, 58 by 33 cm, was made of plain weave silk (warp density 46 threads/cm, weft density 44 threads/cm). It was very damaged, so that both warp and weft threads are missing on about 60% of the surface. The damage is due to fibre weakening caused by exposure to dirt. One side of the band was hemmed by hand with a hidden cotton thread stitch, while the other side was left untrimmed. It was sewn to the hat so that the side was folded in several wide folds and sewn by hand with several wide stitches pulled to the side of the crown, and wrapped round the crown. On the same spot the other end of the band was shaped as a bow and sewn on in the same way.

The band was wet-cleaned next: it was laid on a blotter, smoothed out and sprayed with a neutral *Restore Detergent* solution (a few detergent drops to 500 ml of distilled water). The solution was lightly tapped in with a sponge so that the dirt was released and bound to the blotter. It was rinsed in the same way with clean distilled water, after which the blotter was changed. After wet cleaning the band was air-dried and then relaxed. It was laid on *Melinex* film, covered with *Sympatex*, another wet blotter, and closed again with *Melinex*. The object received a small quantity of moisture through the perforations on *Sympatex*, and was suitable for levelling. After the levelling of the band and of all the threads, they were all covered with *Melinex* and pressed with inox weights for drying. In order to protect the original band – considering the brittleness of the silk and large missing areas – the band was placed between two layers of new *crepeline* silk (warp density 29 threads/cm, weft density 28

threads/cm) stitched through with silk filament.

The tulle ribbon and the rubber band were wet-cleaned in a neutral *Restore Detergent*/distilled water solution (a few drops to 300 ml of water), and washed in clean distilled water baths. They were air-dried in a horizontal position.

After cleaning, all the parts of the hat were attached to the original spot with appropriate thread and stitch (Fig. 7b/p. 337). The hat was stored: the crown was placed on a block of acid-free paper of matching dimensions, wrapped with *Tyvek* foil and placed in an appropriate cardboard box.

Work carried out by: Ljiljana Vilus Japec, senior preparator.

Conservation-restoration work on object Inv. No. 50077 a-c

Object data

Inventory number	Et 50077 a-c
Collection	Children's Toys and Games
Object name	<i>Halma</i> children's social game
Date	1920
Locality	Germany
Dimensions	32.5 cm long by 20.5 cm wide
Material	cardboard
Technique	printing, pasting, bending
Condition of object	poor

Object description

The *Halma* children's social game is made of red cardboard with the name of the game in silver letters. The object dates from the nineteen-twenties. On the inner side of the cover there is an inscription with the rules of the game and the words:

“A very interesting game for the young and for the old. *Halma* is the name of an ancient Greek game. It is so interesting and funny that it is worth saving from oblivion.”

It is played on a double board by up to six players. On one side of the board is the *Stern-Halma* (star *Halma*) and on the other the square version. The game was invented in 1883 by the American surgeon George Howard Monks, who named it *Halma* (Greek for “leap”). The star-like version was subsequently

developed in Germany in 1892. The rules of the game are printed on the box.

Description of object condition

The box is very damaged (Fig. 8a/p. 337). One side is missing on the bottom and on part of the cover. The box is worn and dusty because of long-term use and storage. The owners tried to preserve the box by using adhesive tape which over time left glue marks on the cardboard, causing extensive damage.

Conservation-restoration work

Photographs of the object were taken before, during and after the operation. The object was restored in consultation with the Paper and Leather Department of the Croatian Conservation Institute.

The dirt was removed by a restoration vacuum cleaner, and the adhesive tape by acetone vapour. From the Paper and Leather Department of the Croatian Conservation Institute we obtained the necessary 2 mm acid-free paper for the replacement of the missing parts, after which the reconstructed segments were coated with paint matching the colour the box body. The damage was consolidated by using Japanese paper and a 1:4 starch glue solution in distilled water (Fig. 8b/p. 337).

After the completed conservation and restoration work the object was placed in an acid-free box, protected with Avos and stored in the Museum storeroom.

Work performed by: Jasminka Vujičić, senior preparator

CONCLUSION

The work of the Textile Restoration-Preparation Workshop is focused on preventive conservation with indirect procedures intended to stabilise the material from which the museum object is made (cf. Vokić 2007: 9). This implies the cleaning of the material, proper marking and outfitting for storage. The Museum building does not have the adequate microclimate conditions or adequate storerooms, and the storage of preventively preserved material has to be adapted to the situation.

Along with preventive conservation the Workshop also engages in conservation&restoration work. A number of objects selected by the curators as priorities are treated every year. The work includes preparing the documentation, photographing objects in every phase of the work, minimum intervention on the object, and the use of reversible methods and materials.

The Work shop will continue to operate along the set lines based on the preventive protection of material securing the survival of the Museum' textile collections. By implementing protection measures and thereby securing a relatively stable environment for the object and protection from unfavourable microclimate conditions we slow down the process of textile object degradation and reduce the need for conservation and restoration work.

TRANSLATED BY: JANKO PARAVIĆ

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