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Neka iskustva u konzervaciji tekstila

na primjeru anterije iz kolekcija pojedinačnih dijelova nošnji Etnološkog odjeljenja Zemaljskog muzeja Bosne i Hercegovine

Pregledni rad
UDK: 712.02:903.04 (497.6 Sarajevo)

U ovom radu je predstavljen pristup konzervaciji predmeta izrađenog od tekstila. Prikazani su postupci koji se provode prilikom konzervacije: analiza predmeta, hemijska analiza materijala od kojeg je predmet izrađen, prijedlog predviđenih zahvata kao i opis urađenog konzervatorskog zahvata. Također je opisan i način deponovanja, odnosno preventivne zaštite predmeta od tekstila.

Ključne riječi: konzervacija, preventivna konzervacija, tekstil

Pravovremeno pažljivo i stručno čišćenje starih ili oštećenih tekstilnih predmeta jedan je od važnih preduvjeta za njihovo održavanje i čuvanje. U mnogo slučajeva do intervencije dolazi tek nakon vidljivih oštećenja koja su izazvana mehaničkim, fizičkim i hemijskim djelovanjem, ili djelovanjem insekata ili mikroorganizama na tekstilu. Kada bi se tekstil čuvao pod optimalnim uvjetima (koji se samo teoretski mogu ostvariti), ipak bi se odvijao proces starenja predmeta. Kod različitih vrsta vlakana (uglavnom se radi o vlaknima organskog porijekla, kao što su pamuk, svila, lan, vuna i druga vlakna biljnog i životinjskog porijekla) dolazi do različite degradacije unutar strukture vlakana.

Konzervacija je postupak koji se provodi u svrhu produljenja trajnosti materijala i zaštite od insekata i mikroorganizama, prirodnim i hemijskim sredstvima.

Restauriranje rješava probleme tehnološke i likovne prirode starog tekstila, služeći se iskustvima

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Some experiences of textile conservation

The example of an anterija from the collection of individual articles of costume in the Ethnology Department of the National Museum of Bosnia and Herzegovina

Review article
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In this paper is presented approach in conservation of textile objects. Procedures during the process of conservation are shown as follows: object decomposition, chemical analysis of the material from which the object is made, proposal of the planed conservation work as well as the report on undertaken conservation work. In addition to this, it is shown a way of storing objects and method of preventive conservation.

Keywords: conservation, textile, preventive conservation

The timely, careful and professional cleaning of old or damaged textiles is an important prerequisite for their preservation and safeguarding. In many cases, it is only after visible damage is observed, whether mechanical, physical or chemical, or caused by insects or microorganisms in the textile, that steps are taken. Even if textiles are kept in ideal conditions (which can be achieved only in theory), they will still age. Various kinds of fibre, mainly those of organic origin, such as cotton, silk, linen, wool and other fibres of plant or animal origin, are subject to various forms of degradation in the structure of the fibre.

Conservation is a procedure undertaken to prolong the lifetime of the material and to protect it from insects and microorganisms, using natural and chemical products.

Restoration resolves problems of a technological and aesthetic nature in old textiles, calling

i savremenim dostignućima, ovisno o vrsti eksponata i tehnici izrade. Kod toga se ni u jednom času ne smije zapostaviti umjetnički karakter samog tekstila, njegovo kulturno, umjetničko i dokumentarno značenje. Apsurdno bi bilo i pomisliti da bi se neki već oštećeni eksponat tretirao sa svrhom da se postigne prvobitno stanje. Kod saniranja starih tekstila potrebna je konsultacija sa kustosima koji poznaju stilske karakteristike pojedinih razdoblja tekstilne umjetnosti kao i sa ekspertima, tekstilnim tehnolozima, upućenim u probleme materijala, tehnike i boja, jer se njihova iskustva međusobno nadopunjuju. Kustosi tekstilnih zbirki i konzervatori tekstila imaju zadatak da u najboljem mogućem stanju očuvaju eksponate za sljedeće generacije.

Poslovi i zadaci konzervatora su brojni, od preventivne zaštite do konzerviranja, od smještaja eksponata u depoima do kontrole mikroklime u prostoru.

upon both experience and the latest techniques, depending on the type of exhibit and the technique by which it was made. Here the artistic character of the textile itself, and its cultural, artistic and documentary significance, must not for one moment be overlooked. It would be absurd to imagine that a damaged article could be restored to its original condition. When repairing old textiles, curators familiar with the stylistic features of textiles from various periods should be consulted, along with expert textile technologists familiar with questions of materials, techniques and dyes, as the experience of each complements the other. The task of curators of textile collections and textile conservators is to preserve exhibits for future generations in the best condition possible.

Conservators have many tasks, from preventive protection to conservation, and from keeping exhibits in store to microclimate control.

Konzervatorski zahvati na tekstilnim eksponatima

Jedna od bitnih etičkih obaveza konzervatora je da prati i primjenjuje nove spoznaje o preventivnim metodama i tehnikama konzerviranja. Svrha konzerviranja je da se predmeti sačuvaju za buduće generacije u što boljem stanju. Važno etičko načelo je da zahvat mora biti povratan, tj. da se predmet može vratiti u prvobitno stanje. Obrada ne smije izmijeniti karakter predmeta, već bi trebala sačuvati sva njegova svojstva, od cjelovitosti do detalja. Temeljita analiza postojećeg stanja za svaki predmet radi se sa istom pažnjom bez obzira iz kojeg je vremenskog perioda i koje je vrijednosti. Pri odlučivanju o vrsti konzervatorskih zahvata potrebnih na pojedinom predmetu pristupa se istraživanju koje podrazumijeva:

1. historiju predmeta, upotrebu, funkciju;
2. tehniku izrade;
3. identifikaciju vrste materijala;
4. opis prijašnjih zahvata;
5. hemijsku i fizikalnu analizu;
6. fotodokumentaciju i dokumentaciju.

Tek nakon detaljno sakupljenih informacija moguće je, u saradnji sa kustosom, odlučiti o odgovarajućoj metodi obrade. Osim toga, moramo znati namjenu predmeta u budućnosti: da

Conservation works on textile exhibits

One crucial ethical duty of conservators is to keep up to date with and apply new findings concerning preventive conservation methods and techniques. The purpose of conservation is to preserve articles for future generations in the best condition possible. An important ethical principle is that the intervention must be reversible, i.e. that the article can be restored to its previous condition. Conservation should not alter the character of the article, but should preserve all its qualities, as a whole and in individual details. A thorough analysis of the existing state of each article is conducted with the same care, regardless of its date or value. Research is required for each article when deciding what kind of conservation to undertake. This consists of:

1. research into the history, use and function of the article;
2. identification of the manufacturing technique;
3. identification of the type of material;
4. a description of previous interventions;
5. chemical and physical analyses;
6. photographs and documentation;

It is only after this detailed information has been gathered that appropriate methods of treatment can be decided upon in consultation with the curator.

li će se izlagati na povremenoj izložbi, trajnoj izložbi ili će biti pohranjen u depou (Čukman, Srša,1996).

Oslabljena i oštećena tkanina pojačava se podlaganjem odgovarajućeg materijala i prošivanjem oštećenih dijelova svilenim filamentima. Vez metalnim i svilenim nitima nikada se ne rekonstruira. Pretrgane i slobodne niti veziva dovoljno je postaviti u izvorni položaj i prišiti na podlogu pazeći na njihov estetski izgled.

Smještajem predmeta iz konzervatorske radionice u stalni postav nastavlja se nadzor i praćenje njihovog stanja. Pod tim podrazumijevamo pravilno održavanje temperature i relativne vlažnosti zraka, zaštitu od svjetla, onečišćenog zraka i djelovanja bioloških nametnika.

Metode konzerviranja i restauriranja tekstila

Najčešće korištene metode konzerviranja tekstila su iglom i koncem ili lijepljenjem. Konzerviranje iglom i koncem moguće je kod očuvanih eksponata. Eksponati kod kojih nije moguće konzerviranje iglom i koncem konzerviraju se metodom lijepljenja. Za zaštitu tekstila prvo bi se trebalo pristupiti pranju eksponata (ako to uvjeti dopuštaju). Strana tijela koja mogu uzrokovati oksidaciju i propadanje mogu se ukloniti pranjem, tako da vlakna ponovno postaju sjajna, a materijal postaje mekši. Tom prilikom se na tekstilu uočavaju oštećenja koja i nisu bila vidljiva te ih je potrebno pronaći i podložiti odgovarajućom podlogom. Izbor materijala koji će služiti kao podloga za konzerviranje vrši se po principu da podloga ne smije biti oklop za tkaninu koja će biti konzervirana. Podloga mora odgovarati materijalu koji se konzervira. Najčešće korišteni materijali za podloge su svileni ili pamučni krepelin, pamuk, svila, lan. Materijal koji koristimo kao podlogu za konzerviranje potrebno je prije svega oprati u vrućoj vodi ili posebnim hemijskim sredstvima kako bi se uklonila apreturna sredstva ili ostaci boje, bjelila itd. Estetska uspješnost konzerviranja ovisi o osjećaju za boju i pažnji koju posvećujemo prilikom bojenja podloge. Najvažnije je dobiti što sličniju nijansu podloge materijalu koji konzerviramo.

Osim izbora podloge za konzerviranje jednako je važno izabrati i konac kojim će se vršiti konzerviranje. Konac mora biti jak, ali ne i krut. Konac bi trebao

One must also know the future use of the article: whether it will be on temporary or permanent display, or kept in storage (Čukman, Srša, 1996).

Fragile or damaged fabric is reinforced by backing with suitable material and oversewing damaged areas with silk filaments. Metal and silk thread embroidery is never reconstructed. It is sufficient to lay torn and loose threads in their original position and stitch them to the backing, with due care for their aesthetic appearance.

Once articles have been moved from the conservation workshop to permanent display, they are still kept under observation and their condition monitored. This includes maintaining the correct temperature and relative air humidity, shielding them from light, and protecting them from polluted air and the action of parasites.

Textile conservation and restoration methods

The usual methods used to conserve textiles are needle and thread and adhesives. Conservation using needle and thread can be used on articles in a reasonable state of preservation. Those that cannot be conserved by needle and thread are conserved with adhesives. If conditions allow, the first step in protecting textiles is to wash them. Foreign bodies that could cause oxidation and decay can be removed by washing, to restore the shine of the fibre and render the material softer. This also reveals damage that was not previously visible, which must be identified and backed with an appropriate backing. The choice of fabric to be used as backing for conservation is made on the principle that the backing should not act as armour for the fabric to be conserved. It must be appropriate to the material being conserved. The usual materials used as backing are silk or cotton crepeline, cotton, silk and linen. The fabric to be used as backing must first be washed in hot water or special chemical products to remove dressing agents or traces of dye, bleach and so on. The aesthetic success of conservation depends on one's feeling for colour and the care taken when dyeing the backing fabric – it is vital to obtain a shade as close as possible to that of the material being conserved.

As important as the choice of backing fabric is the selection of the thread to be used. It must

biti što tanji, čvrst i elastičan da bi dao starom tekstilu potporu i zaštitu bez uništavanja. Bojadiše se po istom principu kao i podloga, istim bojilima.

Zajedno sa veoma finim i tankim nitima za konzerviranje koriste se i ekstremno fine igle, ravne i okrugle, tako da se stari materijal ne ošteti, čak i ako igla prođe kroz vlakna. Za pričvršćivanje se koriste iglice koje su dugačke, tanke i savitljive.

Za rad prilikom konzerviranja primjenjuju se sljedeći bodovi:

- trčeći, uzastopni, neprekinuti ubod – za potporu linija;
- položeni ubod – nastao od starog samostanskog uboda, za učvršćivanje uništenih dijelova i potporu vlakana;
- križni ubod – za učvršćivanje stražnjih dijelova.

Ovo su najčešće korišteni ubodi za konzerviranje. Ovim načinom konzerviranja se postižu najbolji efekti.

Za veoma oštećene ili materijale u fragmentima koristimo svileni krepelin koji postavljamo ispod i iznad kako bi se izvršila što bolja zaštita od štetnih vanjskih uticaja. Svileni krepelin se bojadiše u odgovarajuću boju, tako da on postaje što manje vidljiv i ne umanjuje estetski izgled eksponata (Flury-Lemberg).

be strong but not stiff: it should be as fine, strong and elastic as possible, to support and protect the old fabric without damaging it. It is dyed on the same principle and with the same dye as the backing fabric.

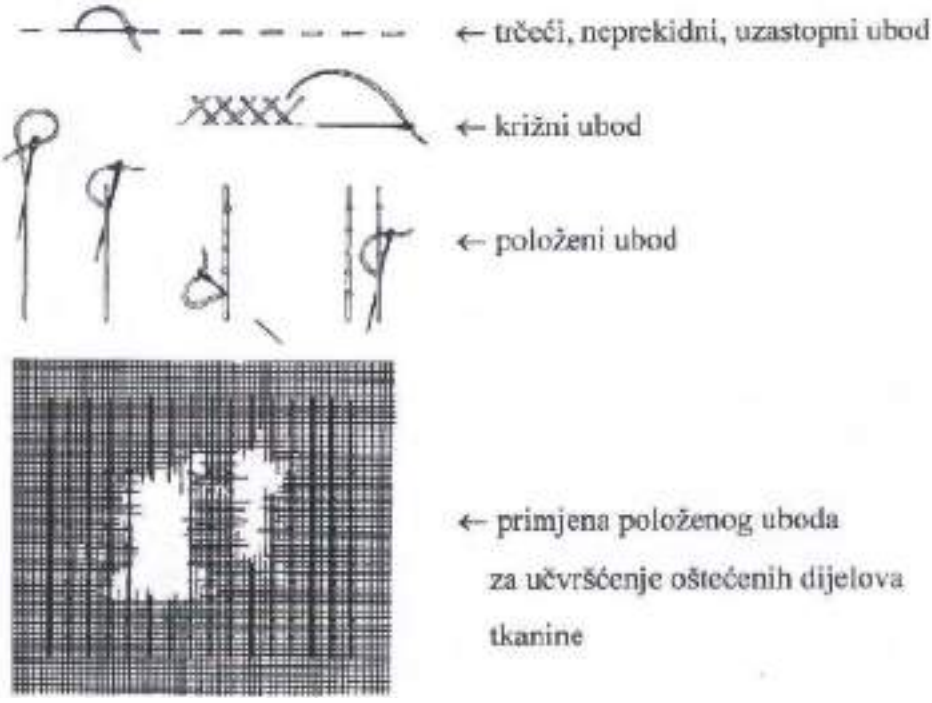
Extremely fine flat and round needles are used with the fine thread, to avoid damaging the old material even if the needle goes through a fibre. Long, thin, flexible needles are used to attach the material.

The following stitches are used in conservation:

- running stitch, to reinforce lines;
- couching stitch, derived from an old monastery stitch, to consolidate damaged areas and add strength to fibres;
- cross-stitch, to reinforce the reverse side.

These are the most common conservation stitches, producing the best results.

For badly damaged or fragmented fabric, we use silk crepeline above and below, to protect the fabric as far as possible from damaging external influences. The silk crepeline is dyed to a suitable colour to become as nearly invisible as possible and to avoid diminishing the aesthetic appearance of the exhibit (Flury-Lemberg).



Sl. 1. *Shematski prikaz različitih vrsta konzervatorskih bodova*

Fig. 1. *Various conservation stitches (top to bottom: running stitch, cross stitch, couching stitch, use of couching stitch to reinforce damaged areas of fabric)*

Eksperimentalni dio

Osnovne karakteristike eksponata

Naziv eksponata:	Anterija, ženska
Inv.br.:	9099/I
Vrijeme nastanka:	nije utvrđeno
Mjesto:	Sarajevo
Kupljeno:	od Avdage Bojadžića
Datum:	19. 4. 1893. godine

Opis (iz inventarne knjige Odjeljenja za etnologiju): "Od žućkastozlatnog brokata sa šarom od nizova lišća koji su rešetkasto postavljeni u kosom toku tako da obrazuju polja u vidu romba gdje su smješteni srebrenasti i bijelosmeđi cvjetovi sa zelenim i crnim listićima, a nizovi lišća su optočeni crnom bojom. Gornji dio leđa je izrađen od različitog materijala sa krupnijim motivom. Karakteristična je zlatna tehnika anterije zbog našivenih zlatnih širita (kupovni) koji su korišteni obilato, a ima ih i vrlo širokih (do 6 cm), i takvi su: od srednje strane grudi, preko ramena niz čitava leđa – na desnoj plećki ovaj ukras je prekinut u razmacima od 7 cm (možda zbog nedostatka širita) i od visine struka uz spoljne širite (koji teku od grudi) prišivena su još dva ista širita. Obje strane prema unutra, sprijeda od grudi nadole, vode širiti iste širine kao uz unutarnji rub prednjih pola (od vratnog izreza do donje ivice i uz rub rasječenih klinova koji su ubačeni sa strane). Jedan od visine prsa, drugi (unutarnji) nešto niže – na desnoj strani za oko 11 cm, na lijevoj 14 cm niži i s tim što se ovi unutarnji odvajaju od bokova pa sve više do donjeg ruba anterije gdje je razmak 6 cm, kao ukras korišteni su i na donjem rubu, prišiven je široki širit cijelom širinom, tako da prelazi preko onih uspravnih, a u uglovima je dijagonalno sastavljen. Kao ukras korišteni su i nešto uži širiti (3 cm) oko vratnog izreza po jakici i na rukavima uz rubove.

Uz sve vanjske ivice (osim oko vratnog izreza) prišiven je ukras od zlatastog gajtana koji slobodno stoji izvan materijala, a izrađen je u obliku stiliziranog biljnog ornamenta i sitnog prepleta. Za ukrašavanje je upotrebljavan i širi zlatasti gajtan (3 mm) sasvim na rubovima pored širita, jednostruk uz vratni izrez i prednje pole, dvostruk oko razreza rukava, trostruk na donjem dijelu iskruženih rukava.

Od ukrasa još se moraju spomenuti bobice od zlatnog konca upletenog cijelom površinom

Experimental section

Basic details of the exhibit

Name of the exhibit:	Woman's anterija
Inv.no.:	9099/I
Date:	not identified
Place:	Sarajevo
Purchased:	from Avdaga Bojadžić
Date of acquisition:	19 April 1893

Description (from the inventory records of the Ethnology Department): "Of golden-yellow brocade with a design of leaves in a diagonal grid pattern to form rhomboid panels containing silver and white-brown flowers with green and black leaves, while the rows of leaves are set in black. The upper back is of different material, with a bolder pattern. A particular feature is the gold-work technique of the anterija, consisting of applied gold braids (ready-made) which are used in abundance, and include some that are very wide (up to 6 cm), such as on the middle of the breast, over the shoulders and down the whole of the back – on the right shoulder-blade this decoration is interrupted by gaps of 7 cm (perhaps because of a shortage of braid) and at waist level two rows of the same braid were sewn along the outer braid running from the breast. On both inner sides, on the front from the breast down, is braid of the same width as along the inner edge of the front half (from the neck slit to the lower edge and along the edge of the loose panels to the side). One [is] at chest height, the other (inner) rather lower – by about 11 cm to the right and 14 cm to the left; these inner braids diverge from the hips to the lower hem of the anterija, where the gap between them is 6 cm; also used as decoration on the lower hem, where a wide braid was stitched along the full width crossing over the vertical ones, and joined diagonally at the corners. A rather narrower braid (3 cm) was used as decoration around the neck slit, on the collar and on the sleeves along the hem.

A decoration of gold braid in the form of a stylized plant ornament and small interlace was applied along all the outer edges except the neck slit, standing clear beyond the material. A wider gold braid (3 mm) was also used as decoration along the edges by the braid, single by the neck slit and front, double around the sleeve slits, and triple at the ends of the sleeves.

sa crvenom perlom na vrhu koje su kao ukrasna dugmad prišivene na sasvim jednakom odstojanju na unutarnjem rubu razreza rukava što vodi do lakta, bobica ima po deset, a perle su ostale samo na njih tri sa desnog rukava i četiri sa lijevog.

Anterija je dugačka do članaka, uobičajenog kroja, nadole se širi zbog umetnutih širokih klinova koji su po sredini rasječeni, a vode od visine prsa. Rukavi su dugački, izrez oko vrata je dubok, jakica uska, jedva nešto naglašena. Na grudima se zakopčava sa dvije bobice od zlatne niti (bez perli u vrhu) koje su prišivene na desnoj strani uz sami gornji dio ispod slobodnog ukrasa zlatastog gajtana, a na lijevoj strani odgovarajuće dvije petlje od žutog gajtana. Podstava na leđima bijela pamučna, a na peševima ružičastocrvena svilena kao u rukavima, ali boje ciklame."

Further decoration consists of bobbles of gold thread interwoven over the entire surface with a red bead on top, stitched as decorative buttons at equal intervals on the inner edge of the sleeve slit up to the elbow, ten bobbles each but with beads only on three of them on the right sleeve and four on the left.

The anterija is ankle-length, of the usual cut, widening at the base because of the insertion of wide gussets slit along the middle and running from chest height. The sleeves are long, the neck slit is deep, the collar narrow and barely indicated. It is fastened at the breast by two bobbles of gold thread (without beads on top) sewn to the right side by the upper part below the free decoration of gold braid, and two corresponding loops of yellow braid on the left side. The lining of the back was white cotton, while the reddish-pink silk skirts and sleeves were also lined with cotton, but cyclamen-pink in colour.

Materijal i tehnika, način izrade i upotrebe

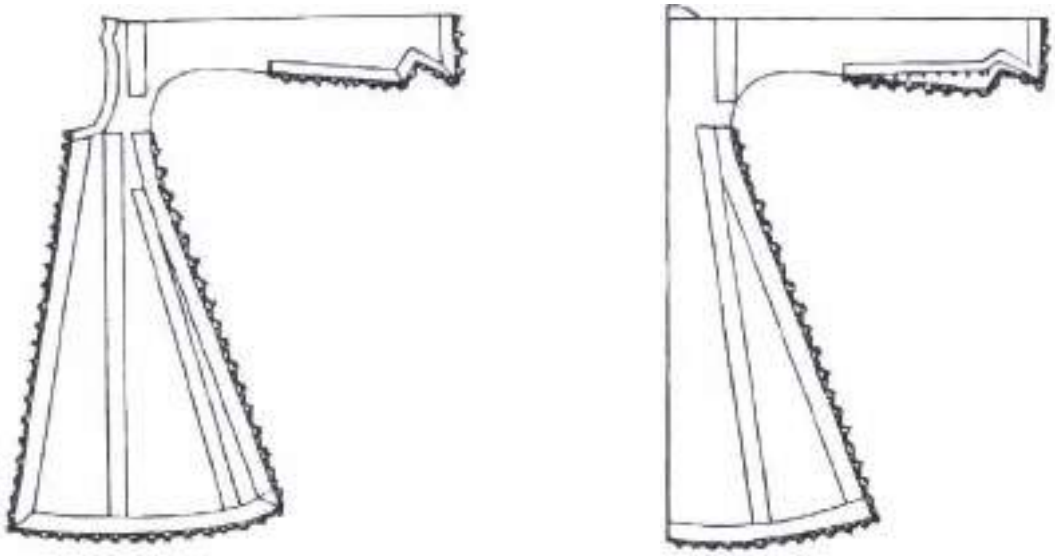
Kupovni materijal, terzijski rad, dio gradske nošnje nošen preko košulje, danas neuobičajen.

Dimenzije 150 × 41 cm, 65 × 17 cm rukavi.

Material and technique, manufacture and use

Bought material, tailor-made, part of urban costume worn over a shirt, now uncommon.

Measurements 150 × 41 cm, 65 × 17 cm sleeves.



Sl. 2. *Shematski prikaz prednjeg i stražnjeg dijela anterije*

Fig. 2. *Diagram of the front and back of the anterija*

Stanje eksponata

Iz opisa stanja u inventarnoj knjizi može se vidjeti da je anterija bila u lošem stanju prilikom reinventarisanja 1968. godine.

Brokat je dosta oštećen na cijeloj površini, posebno na dijelovima rukava, od ramena do lakta

Condition of the exhibit

The description of the anterija's condition in the inventory record shows that it was in poor condition when re-inventoried in 1968.

The brocade was quite badly damaged over the entire surface, particular on the sleeves, from

(slika 8), a najviše na mjestima oko "motiva" gdje se prepliću svilene niti (slika 5). Mjesta koja su rađena srmom su dobro očuvana, posebno na "motivu", dok je na ostalim dijelovima svilena osnova mjestimično oslabila pa niti vise. Intenzitet boja je tijekom godina također oslabio, no na naličju tkanine tonovi su ostali očuvani. Na naličju tkanine je vidljivo da su izvorne boje bile nešto intenzivnije.

Oštećenja koja možemo vidjeti golim okom možemo podijeliti u nekoliko skupina: manja oštećenja, odšiveni otvori u tkanju, prorijeđena potka; veća oštećenja, potka koja se potpuno raspala. Najmanja oštećenja su na klinovima (vjerovatno radi načina deponiranja i izlaganja anterije). Prilikom prijašnjih zahvata izvršeno je "štopanje" koncem koji ne odgovara ni po boji, ni po finoći (slike 4 i 8).

Vez gajtanom na ivicama mjestimično je poremećen i prilikom prijašnjih zahvata pogrešno su se spajali segmenti (slika 16).

Svilena podstava na prednjim peševima dosta je oštećena i krta. Prilikom prijašnjih zahvata je fiksirana crvenim koncem (križnim bodom) da se ne bi dalje kidala (slika 12).

Podstava na rukavima je, također, oštećena, pri rubovima duljine i raspora na rukavima, ali nije krta (slika 10). Svilena podstava na rukavima i peševima je različite kvalitete, finoće i boje.

Bijela pamučna podstava je požutjela, naročito u donjem dijelu, i dosta je uprljana.

Crvena pamučna podstava, koja se nalazi na jednom dijelu prednjih peševa, nije izrazito oštećena zbog toga što je bila zaštićena svilenom podstavom (slika 12).

Obrada koja se predlaže

Pažljivo vakumiranje radi uklanjanja prašine koja se sakupila tijekom godina. Potrebno je prvo pažljivo ukloniti konac kojim se vršilo ranije konzerviranje. Odlučila sam se za metodu konzerviranja iglom i koncem, s tim da zahvat bude što manje vidljiv. Oštećenja treba učiniti što manje vidljivim, prilikom konzerviranja potrebno je puno pažnje pokloniti tome da niti osnove i potke budu pravilno raspoređene i povezane. Za konzerviranje gornje tkanine (brokat) potrebno je bijele svilene filamentne niti obojadisati u odgovarajuću boju (žuta). Svilenu podstavu na peševima radi

shoulder to elbow (fig. 8), but most of all around the "motif" where the silk threads were interwoven (fig. 5). The areas worked in silver thread were well preserved, particular on the "motif," while the other parts of the silk ground were worn in places, with loose threads. The colour had faded over the years, but was preserved on the reverse of the fabric, where the original colour could be seen to be somewhat deeper.

The damage visible to the naked eye can be separated into a number of groups: minor damage, gaps in the fabric, worn weft; major damage, weft falling apart. The least damage was to the gussets (probably on account of the way the anterija was stored and displayed). It had been "mended" using thread that was unsuitable in both colour and fineness (figs. 4 and 8).

The braid embroidery along the edges was coming apart in places and the pieces had been wrongly joined together on a previous occasion (fig. 16).

The silk lining of the front skirts was quite worn and fragile. It had previously been fixed with red thread in cross-stitch to prevent further tearing (fig. 12).

The sleeve lining was also damaged along the edges and split seams, but was not fragile (fig. 10). The silk lining of the sleeves and skirts varied in quality, fineness and colour.

The white cotton lining had yellowed, particularly at the base, and was rather dirty.

The red cotton lining on part of the front skirts was not particularly damaged because it was protected by the silk lining (fig. 12).

Proposed treatment

Careful vacuuming to remove dust accumulated over the years. The thread used in earlier conservation should first be carefully removed. I selected the needle-and-thread method of conservation, to make the work as little noticeable as possible. The damage should be rendered as unobtrusive as possible. Care should be taken to ensure that the warp and weft are properly aligned and joined. White silk filament thread died to the appropriate colour (yellow) is needed to conserve the outer fabric (brocade). The silk lining of the skirts is in very poor condition and should be

vrlo lošeg stanja bi trebalo potpuno izmijeniti, a na rukavima podložiti svilu koja je prethodno bojadisana u odgovarajuću nijansu i izvršiti konzerviranje položenim ubodom. Vez gajtana je potrebno rekonstruirati i vratiti u prvobitni položaj.

Analiza tkanine

Gornja tkanina (brokat)

Osnova se sastoji od jednog sustava niti (žuta boja), dok se **potka** sastoji od nekoliko sustava niti (žute, crne i zlatne niti, srma).

Za identificiranje vrste vlakana korištene su metode gorenja i promatranja vlakana pod mikroskopom. Radi malih uzoraka dostupnih za analizu korištena je metoda promatranja uzdužne slike vlakna.

Ispitivanjem vlakana osnove i potke metodom gorenja zaključilo se da se radi o svilenim nitima, jer je uzorak gorio slabim plamenom, i to samo u onom dijelu gdje sa nalazi plamen, dok su vlakna prestala da gore odmah nakon izlaska iz plamena. Prilikom gorenja osjeti se slab miris zapaljene kose, a ostatak je u vidu crne kuglice koja se može zdrobiti u prah.

Koristeći metodu promatranja uzdužne slike vlakana osnove i potke pod mikroskopom, zaključilo se da se radi o svili, jer je površina bila blago valovita.

Prilikom ispitivanja trećeg sustava niti potke (srma, unutarnji dio oko koga je omotana metalna nit), kao i u prethodnim slučajevima, koristile su se metode gorenja i mikroskopskog promatranja i zaključeno je da se radi o svilenim nitima.

Osim ova tri sustava niti, na tkanini postoji i uzorak (cvijeće) koji je nastao preplitanjem svilenih niti različitih boja i srmenih niti koje imaju srebrenu boju. Ispitivanjem se ustanovilo da je unutrašnjost oko koje se omotava metalna nit također svila.

Tabela 1 – *Izračunavanje srednje vrijednosti gustoće osnove i potke*

Broj mjerenja	Broj niti osnove / cm	Broj mjerenja	Broj niti potke / cm
1	36	1	28
2	37	2	28
3	37	3	30
4	34	4	27
5	34	5	30
Σ	35,6	Σ	28,6

replaced in its entirety, and a lining of silk dyed to the appropriate shade should be applied to the sleeves and conserved using couching stitch. The braid embroidery should be reconstructed and restored to its original position.

Analysis of the fabrics

Outer fabric (brocade)

The **warp** consists of a single yarn (yellow), and the **weft** of several yarns (yellow, black and gold thread, silver thread).

The type of fibre was identified by burning and microscopic examination. Because few samples were available for analysis, the method used was observation of a longitudinal image of the fibre. The conclusion was that these were silk threads, as the sample burned with a feeble flame and only under the flame, and stopped burning as soon as it was withdrawn from the flame. During burning there was a faint odour of burning hair, and the residue was in the form of black globules which could be crushed to powder. Observation of a longitudinal image of the warp and weft fibre under the microscope also led to the conclusion that it was silk, as the surface was slightly undulating.

Examination of the third set of weft threads (silver thread, the inner part around which the metal thread was wound), as in the previous cases, was by burning and microscopic examination, and the conclusion was that these were silk threads.

The fabric also had a floral pattern created by interweaving silk threads of various colours and silver threads that were silver in colour. It was determined by examination that the inner thread around which the metal thread was wound was also silk.

Table 1 – *Calculation of average warp and weft density*

Measurement number	Thread number of warp / cm	Measurement number	Thread number of weft / cm
1	36	1	28
2	37	2	28
3	37	3	30
4	34	4	27
5	34	5	30
Σ	35,6	Σ	28,6

Svilena podstavna tkanina na rukavima

Tkanina je izrađena u platno prepletaju.

Osnova i **potka** se sastoje od jednog sustava niti.

Ispitivanjem vlakana osnove i potke metodom gorenja zaključilo se da se radi o svilenim nitima, jer je uzorak gorio slabim plamenom, i to samo u onom dijelu gdje sa nalazi plamen, a vlakna su prestala da gore odmah nakon izlaska iz plamena. Prilikom gorenja osjeti se slab miris zapaljene kose, a ostatak je u vidu crne kuglice koja se može zdrobiti u prah.

Koristeći metodu promatranja uzdužne slike vlakana osnove i potke pod mikroskopom, zaključilo se da se radi o svili, jer je površina bila blago valovita.

Tabela 2 – *Izračunavanje srednje vrijednosti gustoće osnove i potke*

Broj mjerenja	Broj niti osnove / cm	Broj mjerenja	Broj niti potke/ cm
1	43	1	35
2	44	2	38
3	42	3	34
4	43	4	35
5	42	5	37
Σ	42,8	Σ	35,8

Svilena podstavna tkanina na prednjim peševima

Zbog oštećenosti tkanine nije se mogla odrediti gustoća osnove i potke.

Kao i u prethodnim slučajevima, za analizu osnove i potke koristila se ista metoda ispitivanja vlakana. Koristeći metode gorenja i mikroskopskog promatranja, zaključeno je da se radi o svilenim nitima.

Pamučna podstavna tkanina na prednjem i stražnjem dijelu (bijela)

Tkanina je izrađena u platno prepletaju.

Osnova i potka se sastoje od jednog sustava niti.

Ispitivanjem vlakana osnove i potke metodom gorenja zaključilo se da se radi o pamučnim nitima, jer se uzorak lako zapalio, gorio je svijetlim plamenom, nastavio da gori i nakon

Silk lining fabric of the sleeves

The fabric was linen (plain) woven.

The **warp** and **weft** consisted of a single set of threads.

The identification of the warp and weft fibre by burning and microscopic led to the conclusion that these were silk threads, as the sample burned with a feeble flame and only under the flame, and stopped burning as soon as it was withdrawn from the flame. During burning there was a faint odour of burning hair, and the residue was in the form of black globules which could be crushed to powder.

Observation of a longitudinal image of the warp and weft fibre under the microscope also led to the conclusion that it was silk, as the surface was slightly undulating.

Table 2 – *Calculation of average warp and weft density*

Measurement number	Thread number of warp / cm	Measurement number	Thread number of weft/ cm
1	43	1	35
2	44	2	38
3	42	3	34
4	43	4	35
5	42	5	37
Σ	42,8	Σ	35,8

Silk lining fabric of the front skirts

The fabric was too badly damaged for the warp and weft density to be established.

The same methods were applied as to the previous fibres. Burning and microscopic examination led to the conclusion that these were silk threads.

Cotton lining fabric, front and back (white)

The fabric was linen (plain) woven.

The **warp** and **weft** consist of a single set of threads.

Examination of the warp and weft fibres led to the conclusion that they were cotton threads, as the sample caught fire easily, burned with a bright flame, and continued burning after the flame was withdrawn.

izlaska iz plamena. Prilikom gorenja osjeti se miris zapaljenog papira, a ostatak je rastresiti pepeo sive boje.

Koristeći metodu promatranja uzdužne slike vlakana osnove i potke pod mikroskopom, zaključeno je da se radi o pamuku, jer vlakno ima oblik uvijene vrpce. Uvoji mjestimično mijenjaju smjer slijeva nadesno i obratno, u sredini je vrpca najšira, a vrh vlakna je zaobljen.

Tabela 3 – *Izračunavanje srednje vrijednosti gustoće osnove i potke*

Broj mjerenja	Broj niti osnove / cm	Broj mjerenja	Broj niti potke/ cm
1	21	1	18
2	20	2	17
3	21	3	18
4	22	4	19
5	22	5	19
Σ	21,2	Σ	18,2

Pamučna podstavna tkanina na dijelu peševa (crvena)

Tkanina je izrađena u keper prepletaju.

Osnova i potka se sastoje od jednog sustava niti.

Kao i u prethodnim slučajevima, za analizu osnove i potke korištene su iste metode ispitivanja vlakana. Koristeći metode gorenja i mikroskopskog promatranja, zaključeno je da se radi o pamučnim nitima.

Tabela 4 – *Izračunavanje srednje vrijednosti gustoće osnove i potke*

Broj mjerenja	Broj niti osnove/ cm	Broj mjerenja	Broj niti potke/ cm
1	27	1	24
2	28	2	22
3	27	3	25
4	28	4	24
5	29	5	24
Σ	27,8	Σ	23,8

Pamučna podstavna tkanina na rukavima (bijela)

Tkanina je izrađena u platno prepletaju.

Osnova i potka se sastoje od jednog sustava niti.

There was an odour of burning paper as it burned, and the residue consisted of a scattering of grey ash.

Observation of a longitudinal image of the warp and weft fibres under the microscope revealed that the fibre looked like a slightly twisted ribbon, indicating that it was cotton. The twist changed direction from right to left and back again in places, the “ribbon” was widest in the middle, and the end of the fibre was rounded.

Table 3 – *Calculation of average warp and weft density*

Measurement number	Thread number of warp / cm	Measurement number	Thread number of weft/ cm
1	21	1	18
2	20	2	17
3	21	3	18
4	22	4	19
5	22	5	19
Σ	21,2	Σ	18,2

Cotton lining fabric on part of the skirts (red)

The fabric was twill woven.

The **warp** and **weft** consist of a single set of threads.

The same methods were used to identify the warp and weft fibres as in the previous cases. The conclusion from burning and microscopic examination was that these were cotton threads.

Table 4 – *Calculation of average warp and weft density*

Measurement number	Thread number of warp/ cm	Measurement number	Thread number of weft/ cm
1	27	1	24
2	28	2	22
3	27	3	25
4	28	4	24
5	29	5	24
Σ	27,8	Σ	23,8

Cotton lining fabric of the sleeves (white)

The fabric was linen (plain) woven.

The **warp** and **weft** consist of a single set of threads.

Kao i u prethodnim slučajevima, za analizu osnove i potke korištene su iste metode ispitivanja vlakana. Koristeći metode gorenja i mikroskopskog promatranja, zaključeno je da se radi o pamučnim nitima.

Tabela 5 – *Izračunavanje srednje vrijednosti gustoće osnove i potke*

Broj mjerenja	Broj niti osnove/ cm	Broj mjerenja	Broj niti potke/ cm
1	19	1	12
2	18	2	12
3	17	3	11
4	18	4	12
5	18	5	12
Σ	18	Σ	11,8

The same methods were used to identify the warp and weft fibres as in the previous cases. The conclusion from burning and microscopic examination was that these were cotton threads.

Table 4 – *Calculation of average warp and weft density*

Measurement number	Thread number of warp/ cm	Measurement number	Thread number of weft/ cm
1	19	1	12
2	18	2	12
3	17	3	11
4	18	4	12
5	18	5	12
Σ	18	Σ	11,8

Upotrijebljeni materijal i pomagala prilikom konzervacije

Materijal

Prilikom konzerviranja anterije korištene su svilene filamentne niti koje su bojadisane u odgovarajuću boju. Za gornju tkaninu korištene su žuto bojadisane niti, a za konzerviranje svilene podstave na rukavima niti bojadisane u ružičastoljubičastu boju.

Za rekonstrukciju čipke sačinjene od gajtana na rubovima anterije korišten je konac od merceriziranog češljanog pamuka (12 tex x 3), mašinski konac br. 50, *Dalmatinka Sinj*.

Za zamjenu podstave na prednjim peševima korištena je svila bojadisana u ružičastoljubičastu boju. Za ušivanje svile na peševe korišten je konac od merceriziranog češljanog pamuka (10 tex x 3), mašinski konac br. 60, *Sateks, Tekstilna industrija Sarajevo*.

Pomagala

Za konzerviranje su korištene različite vrste igala, ovisno o upotrebi i mjestu koje se konzervira. Korištene su okrugla igla i tanke dugačke igle. Za pridržavanje materijala korištene su fine, dugačke i elastične iglice. Za ispravljanje niti na gornjoj tkanini korištena je dugačka tupa igla. Kao druga pomagala prilikom konzervacije korišteni su skalpel, makaze i pincete.

Material and aids used in conservation

Material

Silk filament threads dyed to the appropriate colour were used to conserve the anterija. Thread dyed yellow was used for the outer fabric, and thread dyed lilac-pink for the silk sleeve lining.

The braid border on the edges of the anterija was reconstructed using mercerized combed cotton thread (12 tex x 3), machine thread no. 50, *Dalmatinka Sinj*.

Silk dyed lilac-pink was used to replace the lining of the front skirts. Mercerized combed cotton thread (10 tex x 3), machine thread no. 60, *Sateks Sarajevo textile industry*, was used to stitch the silk to the skirts.

Aids

Various types of needle were used for the conservation, depending on the particular purpose and the part of the garment being conserved. Round needles and long, thin needles were used, with fine, long, flexible needles used to attach the material. A long, blunt needle was used to straighten out the threads on the outer fabric. Other aids used were a scalpel, scissors and tweezers.

Sl. 3. *Pomagala za rad*

Fig. 3. *Tools of the trade*

Prilikom rada također se koristila i lupa sa izvorom svjetla, čijom upotrebom se bolje vide detalji oštećenja, a i sam rad je lakši i učinkovitiji.

Za pažljivo uklanjanje prašine koja se sakupila tijekom godina korišten je usisavač sa odgovarajućim nastavcima i mogućnošću reguliranja snage usisavanja, proizvođač *Electrolux*, te polietilenska mrežica radi što bolje zaštite vlakna.

A magnifying glass with a light source was also used, to make it easier to see the details of the damage and to make the work itself easier and more effective.

An Electrolux vacuum cleaner with suitable extensions and suction control was used to remove the dust that had accumulated over the years, with polyethylene netting to protect the fibres.

Restauriranje i konzerviranje

Pripremni procesi

Jedna od predradnji nakon utvrđivanja stupnja oštećenosti, a prije početka izvedbe konzervatorskog ili restauratorskog zahvata, jeste fotografiranje.

Anterija je tijekom godina apsorbirala mnogo prašine i prljavštine. Čvrste čestice nečistoća sa anterije uklonjene su vakumiranjem preko polietilenske mrežice (otvori veličine 1×1 mm) kako bi se što više zaštitila vlakna.

Nakon vakumiranja bilo bi potrebno izvršiti pranje anterije, ali zbog neadekvatnih uvjeta nije pristupljeno pranju eksponata. Svrha pranja je da se

Restoration and conservation

Preparatory work

Preparatory work, once the extent of the damage had been determined but before the actual conservation and restoration began, included photographing the garment.

Over the years the anterija had absorbed a great deal of dust and dirt. Solid dirt particles were removed by vacuuming through 1×1 mm polyethylene netting to protect the fibres as far as possible.

After vacuuming it would have been desirable to wash the anterija, but the conditions for washing were unsuitable. The purpose of washing is to

otklone nečistoće sa tekstila, pri čemu treba paziti da način i metoda ne postanu preagresivni za eksponat. Prije nego što se pristupi postupku pranja potrebno je ispitati postojanost boja kako ne bi došlo do prelaska nepostojanih boja na susjedna područja. Pranje bi se trebalo izvršiti u metalnoj kadi (koja u vrijeme rada 1998. -99. godine nije bila u funkciji).

Priprema (bojadisanje) materijala za konzerviranje

Svilene filamentne niti korištene za konzerviranje gornje tkanine bojadisane su bojama za tekstil *Iberia*. Niti su bojadisane u boje koje su najbolje odgovarale boji tkanine na kojoj je vršeno konzerviranje. Zbog osjetljivosti niti na temperaturu, one su bile u kupelji za bojadisanje pet minuta, nakon čega su stavljene u otopinu sirćeta (kako je predviđeno u uputstvu za upotrebu), a potom je vršeno ispiranje u destiliranoj vodi.

Bojadisanje svile za rekonstrukciju svilene podstave na prednjim peševima i rukavima je urađeno u laboratoriji *Tekstilno-tehnološkog fakulteta* Sveučilišta u Zagrebu, uz pomoć prof. dr. sc. Đ. Parac-Osterman.

Konzerviranje anterije

Prije početka konzerviranja pristupljeno je skidanju svilene podstave na prednjim peševima (slika 12) i deponiranju iste, a zbog velike krtosti i opasnosti od potpunog uništenja.

Konzerviranje gornje tkanine vršeno je iglom i koncem. Na ovaj način se oštećenje vlakana svodi na minimum, naročito ako se koristi lupa sa izvorom svjetlosti. Prilikom konzerviranja gornje tkanine nije korišten materijal za podlaganje iz razloga što se ispod gornje tkanine nalazi pamučna podstava, koja u ovom slučaju služi kao podloga. Konzerviranje je rađeno položenim bodom. Zbog velike oštećenosti gornje tkanine izvršeno je konzerviranje na cijeloj površini anterije. Prilikom rada korištena je okrugla igla i svilene niti koje su prethodno obojene u žutu boju. Ispravljanje i postavljanje u pravilan položaj metalnih i svilenih niti rađeno je dugačkom tupom iglom. Za pričvršćivanje niti, da bi ostale u pravilnom položaju, korištene su fine iglice (slika 18). Nakon toga je pristupljeno konzerviranju položenim bodom (slika 19).

Nakon konzerviranja gornje tkanine pristupilo se rekonstrukciji čipke urađene od gajtana koja se nalazi na svim rubovima anterije, osim oko vratnog izreza. Zbog velike oštećenosti, odnosno u prijašnjim zahvatima pogrešno spojenih segmenata

remove dirt, taking care to ensure that the method used is not too harsh for the textile in question. Before washing, the dye should be checked for fastness to avoid non-fast dyes bleeding onto other areas. Washing should be done in a metal tub (which was not in working order when the work was done in 1998/99).

Preparation (dyeing) the material for conservation

The silk filament threads used to conserve the outer fabric were dyed with Iberia fabric dyes, using the colours that most closely matched the fabric being conserved. Since the threads are heat-sensitive, they were left in the dyeing tub for five minutes and then placed in a vinegar solution (as indicated in the directions for use) before being rinsed in distilled water.

The silk used to reconstruct the silk linings of the front skirts and sleeves was dyed in the laboratory of the Textile Technology Faculty of the University of Zagreb, with the assistance of Prof. Dr. Đ. Parac-Osterman.

Conservation of the anterija

Before embarking on the actual conservation, the silk lining of the front skirts (fig. 12) was removed and disposed of, being extremely fragile and at risk of complete disintegration.

The conservation of the outer fabric was by needle and thread. This reduces damage to the fibres to a minimum, especially if one uses a magnifying glass with a light source. No backing material was used when conserving the outer fabric, as it was already lined with cotton, which served as backing. Couching stitch was used. The outer fabric was so badly damaged that the entire surface of the anterija was conserved, using a round needle and silk thread that had been dyed yellow. A long blunt needle was used to straighten the metal and silk threads and set them in the proper position. Fine needles were used to attach the threads to hold them in the correct position (fig. 18). This was followed by conservation with couching stitch (fig. 19).

The conservation of the outer fabric was followed by the reconstruction of the braid lace all around the edges of the anterija except the neck slit. Because of the extensive damage and incorrect joining of the sections on previous occasions

(slika 16), bilo je potrebno skidati čipku, izvršiti učvršćivanje i ponovno je vratiti u položaj kakav je prvobitno zamišljen (slika 17). Rekonstrukcija ove čipke vršena je pamučnim koncem koji odgovara po boji i kvalitetu, dugom ravnom tankom iglom.

Nakon konzerviranja gornje tkanine i rekonstrukcije čipke rađene gajtanom izvršeno je čišćenje anterije (gornje tkanine i unutrašnjih dijelova) pamučnom gazom, nakvašenom u destiliranoj vodi i dobro iscijeđenoj. Nakon toga pristupljeno je peglanju, preko guste pamučne tkanine, u svrhu ispravljanja nabora. Tom postupku se moralo pristupiti radi stavljanja nove svilene podstave, kako bi podloga bila ravna i da ne bi došlo do zatezanja prilikom postavljanja nove podstave. (U vrijeme rada na eksponatu, stakleni sto nije bio u funkciji, inače bi se pristupilo ravnanju anterije korištenjem staklenih ploča.)

Nakon toga izvršeno je krojenje svilene podstave, po ranije napravljenom kroju. Nakon izrezivanja, podstava je pričvršćena finim iglicama da bi se pravilno rasporedila tkanina, te da ne bi došlo do zatezanja. Nakon toga je podstava ušivena za gornju tkaninu na način kako je to ranije bilo pamučnim koncem i okruglom iglom (slike 13 i 15).

Nakon učvršćivanja svilene podstave na pešević, pristupilo se konzerviranju podstave na rukavima (slike 10 i 11). Konzerviranje je izvršeno iglom i koncem. Između gornje tkanine (brokat) i svilene podstave nalazi se pamučna međupodstava. Na mjestu oštećenja svilene podstave podložena je svila koja je bojadisana u istu boju u kojoj je i svilena podstava na rukavima, nakon čega je izvršeno konzerviranje položenim ubodom. Podstava na oba rukava konzervirana je na isti način.

Nakon završenog rada anterija je adekvatno upakovana i deponovana na unaprijed predviđeno mjesto.

(fig. 16), it was necessary to remove the lace, reinforce it and replace it in its original position (fig. 17). The reconstruction of this lace was carried out using cotton thread of appropriate colour and quality and a long, thin, flat needle.

After conserving the outer fabric and reconstruction the braid lace, the outer fabric and inner parts of the anterija were cleaned using cotton gauze soaked in distilled water and well wrung out. This was followed by ironing through thick cotton fabric to remove wrinkles. This was necessary in order to fit the new silk lining, to ensure that the lining was flat and to avoid stretching when fitting the new lining. (At the time the exhibit was being worked on, the glass table was not in working order, otherwise it would have been used to smooth out the anterija.)

This was followed by making the silk lining to a pre-made pattern. After cutting out, the lining was attached using fine needles to ensure that the fabric was properly arranged and to avoid stretching. It was then stitched to the outer fabric as it was originally, using cotton thread and a round needle (figs. 13 and 15).

After sewing the silk lining to the skirts, the sleeve lining was conserved (figs. 10 and 11), using a needle and thread. There is a cotton interlining between the outer fabric (the brocade) and the silk lining. Areas where the silk lining was damaged were replaced with silk dyed the same colour as the silk sleeve lining, followed by conservation with couching stitch. The lining of both sleeves was conserved in the same way.

On completion of the work the anterija was suitably packed and placed in storage in the place prepared for it.

Sl. 4. *Detalj leđa – ranije "štopanje"*
Fig. 4. *Detail of reverse – earlier "mending"*

Sl. 5. *Detalj leđa – poslije uklanjanja "štopanja"*
Fig. 5. *Detail of reverse, after removal of "mending"*

Sl. 6. *Detalj leđa – poslije konzerviranja*

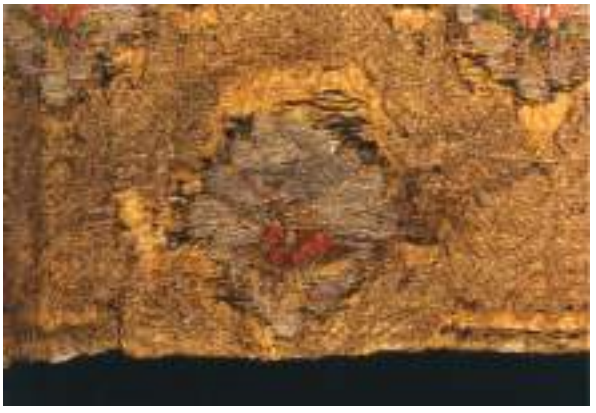
Fig. 6. *Detail of reverse, after conservation*

Sl. 7. *Detalj leđa, uvećano – poslije konzerviranja*

Fig. 7. *detail of reverse, magnified, after conservation*

Sl. 8. *Lijevi rukav, gornja tkanina – prije*

Fig. 8. *Left sleeve, outer fabric, before*



Sl. 9. *Lijevi rukav, gornja tkanina – poslije*

Fig. 9. *Left sleeve, outer fabric, after*

Sl. 10. *Detalj, lijevi rukav – prije*

Fig. 10. *Detail of left sleeve, before*

Sl. 11. *Detalj, lijevi rukav – poslije*

Fig. 11. *Detail of left sleeve, after*

Sl. 12. *Lijevi prednji peš – prije*

Fig. 12. *Left skirt front, before*

Sl. 13. *Lijevi prednji peš – poslije*

Fig. 13. *Left skirt front, after*

Sl. 14. *Detalj oko vratnog izreza – prije*

Fig. 14. *Detail around neck slit, before*

Sl. 15. *Detalj oko vratnog izreza – poslije*

Fig. 15. *Detail around neck slit, after*

Sl. 16. *Čipka izrađena gajtanom – prije*

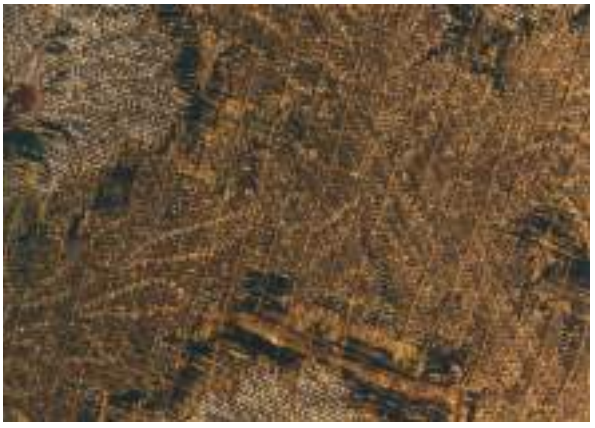
Fig. 16. *Lace with braid, before*

Sl. 17. *Čipka izrađena gajtanom – poslije*

Fig. 17. *Lace with braid, after*

Sl. 18. *Detalj u toku rada – pridržavanje iglicama*

Fig. 18. *Detail during the work – holding in place with pins*



Sl. 19. *Detalj poslije konzerviranja*

Fig. 19. *Detail after conservation*

Sl. 20. *Anterija, inv.br. 9099/I*

Fig. 20. *Anterija, inv.no.. 9099/I*

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