


## Conservation of Furniture and related objects

### Condition and treatment report

WD job no.		Date received 28-01-2019
Client Private		Client accession no. N.A.
Client preferences Conserve and restore this object to a stable and pleasing condition, keeping the original features, patina, and regaining its function keeping the interferences in the true nature of the object to a minimum.		
Object	Child's balloon back	
Object description This object is a small version of a Victorian balloon back chair. It has a kidney shaped crest rail and cane seating. The rounded shaped rear legs sweep outwards and the front legs from which one is present are turned ornate with beads, hollows, ogees, and shoulders. The chair is meant to have four straight rounded stretchers, one on each side. On the bottom of the front seat rail and the p. left upright just under the seat is the number five stamped into the wood. On the bottom of the back seat rail are the letters TP stamped in as well as the numbers 5 on the front rail and the left upright.		
		

<b>Materials</b> Silver Birch <i>Betula Pendula</i> Beech <i>Fagus</i> Cane Shellac, sandarac		<b>Techniques</b> Joinery Caning Polish finish Turning	
<b>Dimensions (mm)</b>	<b>H</b> 607	<b>L</b> 308	<b>D</b> 340
<b>Weight (g)</b> 1167			

<b>Date assessed</b>	<b>Conservator</b> Arian de Goede
<b>Supervisor/s</b> Norbert Gutowski, Tristram Bainbridge, Paul Tear, Piran Harte	
<b>Start date</b> 28-01-2019	<b>Completion date</b>

CONDITION IMAGES (before treatment)



Fig. 1  
Proper front



Fig. 2  
Proper back



Fig. 3 View on the p. right side



Fig. 4 View on the p. left side



Fig. 5  
Detail of broken joint p. right back corner of the frame.



Fig. 6



Fig. 7  
Detail of broken joint p. left front corner of the frame.



Fig. 8



Fig. 9

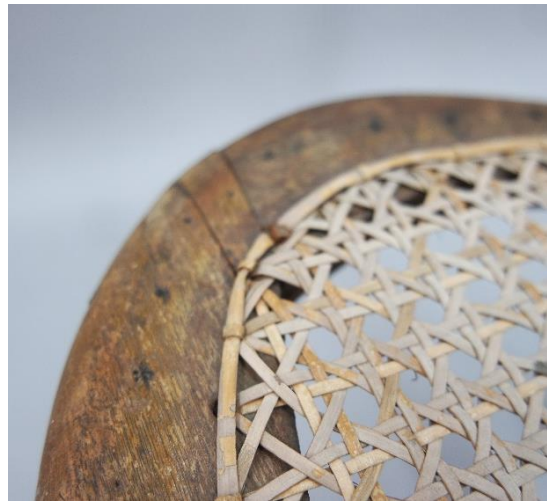


Fig. 10

Detail view on the bottom (left) and top (right) of the front right corner of the seat frame.



Fig. 11

Detail of stamped letter T P (4,5mm) on the back seat rail.



Fig. 12



Fig. 13

Detail of nr.5 (6mm) in on the bottom of front seat rail and on the left upright.



Fig. 14  
Detail broken of stretcher in the p. right upright



Fig. 15  
Detail view on the seat frame from the back depicting, woodworm holes and paint drip.

## CONDITION DESCRIPTION (before treatment)

Present:

Back gate consisting of:

- Crest rail
- Left upright
- Right upright
- Middle rail
- Back stretcher

Seat frame consisting of:

- Front rail
- Right side rail
- Left side rail
- Back rail
- Caning.

Under structure:

- One of two legs
- One of the two side stretchers

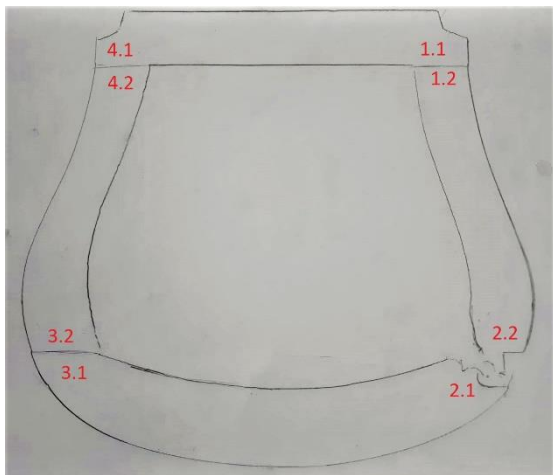


Fig.16 outline drawing of the seat frame

All but the proper left back (nr. 1) mortise and tenon joint of the seat are broken.

Missing

- Proper right front leg
- P. front stretcher
- P. right stretcher
- P. left corner of the front seat rail
- (- Squab cushion or plywood seat)

Broken

- Tenon on p. backside of the right seat rail
- Mortise in p. left and right side of the front seat rail and the right side has a large nail in it
- Tenon p. left front leg
- Tenon front side of the left seat rail
- Mid rail missing corners on both sides
- Caning damaged, torn and broken

Surface

- Woodworm exit holes, located in the upright, leg,
- Nail holes
- Finish missing, worn, faded, and damaged
- Paint splats

Previous repairs

- Modern adhesive visible in joint of both the side stretchers and seat rail joint nr.2.
- Nail present in the joint (nr.3) of the front seat rail.
- Signs that there was a screw present in joint nr. 2.

Treatment option 1	Treatment option 2
Missing parts	
<p>Assuring a more stable condition of this object, it needs additional parts, a newly made right front leg and a front and right stretcher.</p> <ul style="list-style-type: none"> <li>- should be made in a contrasting manner to emphasize what are new parts.</li> </ul>	<p>Assuring a more stable condition of this object, it needs additional parts, a new made right front leg and a front and right stretcher.</p> <ul style="list-style-type: none"> <li>- These should be made in to blend in with the original nature of the object by copying the design and colour of the existing parts made from the same timber species as the original parts would have been.</li> </ul>
Seat frame	
<ul style="list-style-type: none"> <li>- The seat frame requires consolidation on the joints in order to come together. Depending on the use of the chair this can be done in different ways. The tension of the cane will have to be reduced in order to get the frame in its right position.</li> </ul>	
<ul style="list-style-type: none"> <li>- The cane could be swollen with warm water and might be loosened.</li> </ul>	<ul style="list-style-type: none"> <li>- The caning could be removed, and replaced.</li> </ul>
<ul style="list-style-type: none"> <li>- The frame could be fixed in position and glued up with an carbon fibre net on the bottom to overcome the tension of the cane on the top.</li> </ul>	<p>The frame could be taken apart to properly treat all the joints.</p>
<ul style="list-style-type: none"> <li>- The caning shows signs of a finish, this might be identified and re-applied.</li> </ul>	
<ul style="list-style-type: none"> <li>- Both sides of on joint 2 material is missing this need some additional material.</li> </ul>	
<ul style="list-style-type: none"> <li>- This could be made of a mouldable putty material like shapeable epoxy, applied on a barrier layer.</li> <li>- This might need additional strengthening, of carbon fibre rods.</li> </ul>	<ul style="list-style-type: none"> <li>- This could be made out of wood, the same Species, coloured and finished to blend in with the object.</li> <li>- In order to gain enough strength this new part will need to be incorporated within the original.</li> </ul>
<ul style="list-style-type: none"> <li>- New leg could be made to fit around the nail in the joint.</li> </ul>	<ul style="list-style-type: none"> <li>- The nail in joint 2.1 from a previous repair has to be removed to be able the use the hole for the spigot of the leg.</li> <li>- loose parts glued back in place.</li> </ul>
<ul style="list-style-type: none"> <li>- Joint 3 could be reconstructed, and glued up</li> </ul>	
Back gate	
<ul style="list-style-type: none"> <li>- The mid rail has two missing parts that on both ends, those should be built back up with, Milliput® or Bancon®, shapeable epoxy, coloured with acrylic paint.</li> </ul>	<ul style="list-style-type: none"> <li>- The mid rail has two missing parts that on both ends, those should be built back up with wood, Birch (<i>Betula Pendula</i>), stained and finished to blend in with the object.</li> </ul>

On the proper right side of the mid rail is a gap.	
This could be filled with stopping wax	The back gate could come apart, to treat other joints of the back gate, then a piece of wood could be glued in place to overcome this gap, stained and finished to blend in with the object.
Surface	
Paint splatters could be removed with the use of a solvent.	Paint splatters could be mechanically removed
The surface could be cleaned, dry, with deionised water, or synperonic A7®.	
Woodworm holes could be left as they are.	Woodworm holes could be plugged using stopping wax.
Finish	
- The parts of existing finish could be consolidated with paraloid® b67 or 72.	The whole object could be cleaned from the old finish and be given a new coat of finish similar to the old one.
	- The whole object could be given a wax finish.



## PROPOSED TREATMENT

### Missing parts:

The missing parts could be made from the same timber as seen in the existing parts, birch for the leg and beech for the stretcher. These can be made on a lathe to match the and given a stain to blend them in. Then they should be glued in position using reversible, animal based adhesive.

### Seat:

The seat might have to be detached and to treat the damaged joint of the seat frame the caning has to be loosened and partially removed if necessary. This would mean the disturbance of a surface on the back of the upright when removing the plugs that cover the screws and possibly applying heat to loosen the screws. Mortise, 2.1 would be built up in birch and made to house the tenon, 2.2. The mortise 3.1 would be reconstructed using Bancon®. The tenon, 4.2 would be recovered and reattached with some additional reinforcement from a carbon fibre rod. The nail present in joint 2.1 would be removed allowing the spigot of the leg to house in that joint. The joints of the frame would be glued using animal glue. The caning would be refitted or replaced if needed.

### Back gate:

The two missing corners of the mid rail would be replaced with a wooden infill and the gap on the p. right side will be filled with a veneer.

The back gate might have to come apart, if there is too much movement, in order to make for a better fit.

### Finish:

Test with UV-light what finish is used then if necessary, follow it up with FTIR testing. Paint splatters should be solvent tested and appropriately removed.

The surface should be cleaned dry, followed up with deionised water and synperonic A7®.

Woodworm holes could be filled using stopping wax. The whole object will be given a coat of paraloid67® finish. The new parts could be given a finish that resembles the makers intend by using shellac with a sandarac resin.

## MATERIAL ANALYSES RESULTS

- The wood used for the frond legs, seat frame and back gate looks like silver birch and the stretchers are made from beech.
- The woven seat is made from rattan cane.
- The use of the FTIR showed that the adhesive in the back joint of the proper left stretcher was an epoxy.
- The finish looks like the is some sort of harder present, this could ne sandarac.

## CONSERVATION TREATMENT (carried out)

The first step of this treatment was cleaning of some of the paint splatters mechanically. Followed by removing the seat frame. In order to do so the plugs on the back of the uprights were removed and the screws are undone. This allowed for the seat to be lifted out. The cane of the seat was documented and removed, without the cane all but one joint came undone. This last one just needed a light pull. The nail that was put in the joint proper left front joint of the frame was pulled out with little effort. The left mortis of the front seat rail was severely damaged and new material was added using a floating tenon construction. This is glued in place using animal glue and some epoxy putty to overcome a small gap. This infill is coloured using water-soluble pigments. The front tenon of the left seat rail was built up using silver birch, adhered using animal glue and coloured using water-soluble pigments.



*Figure 1 left side front seat rail mortis and tenon*



*Figure 2 glue setup seat frame*

The right side of the front rail was glued back together using animal glue and an epoxy putty was used to overcome some gaps. The tenon on the back of the right seat rail was glued back in place using epoxy and was strengthened using a carbon fibre rod. This rail, the proper right seat rail, had a slight twist what put the joint of the seat frame out of line. By steaming and bending this has been corrected. The joints of the seat frame are glued together using animal glue.

The spigot on the back of the left stretcher broke during an dismantle attempt. This part was recovered mechanically removing the adhesive with the use of a drill. This part is glued back on the stretcher using epoxy and strengthened it with a screw. The front side spigot joint of the stretcher was taken apart from the leg without any problems using force, moisture and warmth. On the proper right stretcher there was just a broken spigot left in the hole. This hole is drilled out and cleaned up.

To gain access to the mid rail of the back gate the whole of the back gate needed to be undone. This would mean that all other joints could get attention as well because these were slightly loose. When taking apart the crest rail the left dowel broke. This was drilled out and replaced by a new turned piece of beechwood. The broken corners of the mid rail were filled using silver birch on the left side and epoxy putty was used on top of a barrier layer of tissue paper and hide glue. These corners were roughly shaped, the final shaping and colour matching was done in position when the gate was put back together. On the right upright a piece of wood was placed to overcome the gap between the mid rail and the upright. This was roughly shaped, the final shaping and colour matching was done in position when the gate was put back together. The back gate was put back together using animal glue.



*Figure 3 addition on right upright*



*Figure 4 new turned leg*

The new front leg was copied in silver birch from the existing one on the left side which was still present. The front and right stretcher were made from beech and those measurements were taken from the existing space and shape of the present stretchers.

Water-soluble pigments are used to colour the new parts in combination with spirit dyes that were added to the shellac which it is finished with.

The spigot of the left front leg has been given some additional material, because a large amount were missing. To get a strong enough joint this additional part was put in a newly drilled hole on the top of the leg. The chair is put back together using animal glue with some additional micro fibres in the joint of the left upright and stretcher because of a loose fit.

The screw left screw of the seat frame was put back in the upright and the right one was replaced with a shortened one so it would interfere with the carbon fibre rod. Then the plugs were placed back, glued with animal glue. Where the wood was completely bare a layer of shellac was applied and in the places where there was some of the finish left the gaps were filled in with shellac.

Finally the caning should be replaced.



*Figure 5 parts ready for reassembly*

## CRITICAL EVALUATION

The right seat rail broke in the first setup of the steam bending. This was not necessary and should have been prevented. However I have now learned that an epoxy glue joint will not come undone by steam.

The dowel that broke of the joint from the upright and the crest rail was unfortunate. I was more focused on the fact that I did not want a break out on that joint line.

The removal of original material is present all among the treatment of this object, from the craning and the front seat rail. This is justifiable with the intend use of the object taking into account that the chair needs to be save to use.

The turning of the new part went really well. Silver birch is nice to turn. As well as my attempt to cane myself, which is a very satisfying process. It is straight for worth, meditative but requires your full attention.

## RECOMMENDED CONTINUING CARE

Keep dry and preferred to be used on an flat even surface, too much rocking put to much tension on the joints.

## MATERIALS USED AND SUPPLIERS

Silver birth	West Dean College
Beech	West Dean College
Rattan cane	West Dean College
Stainless screw	Holt
Slotted iron alloy screw	West Dean College
Animal glue	Titebond
Microfibers	SP systems
Stopping wax	West Dean College
Carbon fibber rod	Synthetic Resin Products
Milliput	Milliput
Bancon	Synthetic Resin Products
Orasol spirit dye	Kremer Pigmente
Water-soluble pigments	Kremer Pigmente
Shellac	Fiddles and sons.
Sandarac	Cornelison