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Non-Intrusive Methods for Documentating Upholstery

– five ways to approach an intriguing conundrum

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Fig. 2: Chair in question: Side chair 64.101.955, The Metropolitan Museum of Art.

Abstract

During my internship at the Upholstery conservation department at the Metropolitan Museum of art in New York, I came across a chair that caught my interest and therefore I chose to dedicate the last two months of my internship, investigating this chair. It was said about the chair that it had the original upholstery and cover, but some questions appeared.

These questions I have tried to solve, as I will reveal in the following, by using mostly non-intrusive methods, in attempt to see how much useful information this approach can provide, concerning frame structure, inner-upholstery, showcover and possible campaigns (interventions).

I found out, that it was possible to gather a great amount of useful information. In fact I will go so far as to claim that I found out even more than I would have found out, by disassembling the object manually.

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1 Initiation

1.1 Background

In my four years of apprenticeship to become a Traditional Upholsterer, training at a highly tradition-bound and conceited workshop, I learned that a job would be considered sloppy, if we did not first take everything away including nails and staples and restored the rails. Only then you may start to construct and build up your new traditional upholstery.

Now, as an Upholstery Conservator student, I cringe by the thought of my former deeds. What valuable information and histories have I tossed in the trash? It has therefore become a great concern for me, to learn to recognise and identify historic upholstery, nails and textiles. Subsequently learn what I can and should do in an optimum way, to preserve these treasures for posterity. With this wit and knowledge it will become possible to see if stuffing, upholstery, textile and nails correspond with each other and the frame structure, and if so therefore assume that it is an original piece. This means that You as a Conservator, in the vast majority of cases, can and will not interrupt.

What do you do if you are in doubt..? During my internship at The Metropolitan Museum of Art, I got this chair as a case for examination. This chair roused doubts on virtually all levels! It was therefore necessary to approach this object with hands-off methods, step by step, revealing its history and map its originality.

1.2 Introduction

I chose to dedicate the last two months of my Internship at the Metropolitan Museum of Art in NY, to investigate this chair, because of its odd presence and the rather intriguing questions it rose, from the first shallow examination. This also implied to search for information in relevant litterature. Here, it was said several times about our chair: ”Original Upholstery”, and not one question that suggested otherwise.

Primarily the slip-seat caught my attention at first. Because I could see, that it had the original webbing and basecloth[1], but yet it was build out as an over the rail upholstery.

Understanding the layers of upholstery, and what issues there are between the frame and the upholstery, is an important thing. The two are working back and forth acrossed. How does the upholstery integrate into the chair frame? This point is interesting, because we are in a transitional period. Out of the William and Mary (english term for the style period from ca.1690 through the mid -1720’s) where there was no integration. The frames were then straight, and the cover was just put on to this frame. This is actually what is happening in our case.

And then at some point the Upholsterers would rise the question, how to fit a fabric and get it to work on a compass seat, like this. And so they go and do slip-seats (aprox. 1720) cause that is easier to work on. It is easier with a slip-seat, to measure out the upholstery without the frame, because the framemaker can just do the slip-seat, and it can go back and forth between the Upholsterer and the Chairmaker, independent of the rest of the chairbase.[2] But, when you get an over the rail fixed like this, then your tapestry have to fit precisely, and the Chairmaker really has to make it exactly like that, so it is not so forgiving as a slipseat construction.

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1 See page 31.

2 Notes from discussion with Nancy Britton, MMA.

The Upholsterer's challenge can be put as follows:

- Very dimensional thinking process.
- Dealing with many layers of textiles and materials.
- Under-upholstery histories and showcover histories can differ.
- Upholsteres frequently integrate previous campaigns (number of alterations) into the current presentation. The challenge is then to pick the campaigns apart.
- To get the fabric to lie smoothly around both concave and convex curves, on a compass or baloon seat form.
- Understanding the relationship between the frame and the upholstery.
- Understanding period upholstery forms and the evolving techniques to achieve the period profile.

1.3 Issue

- What is the purpose and function of the slipseat?

- Is the Upholstery original to the frame, as claimed in all previous documentation?

- Has there been work done on inner upholstery and padding?

- How much information is it possible to reveal by using non-intrusive metods?

1.4 Purpose and Goal

The purpose with my exam work is:
Critical questioning and scrutinize what I see and what I read. To gain enough relevant knowledge and information, in order to approach the object and reveal its history in a proper way.

The goal of my exam work is to:

- After having identified what questions I have to ask, in order to get an overall picture of the situation: Knowing how to search for answers.
- To learn what tools I have available.
- Decipher and understand the answers they give me, and finally hope to be able to put the revealed puzzle pieces in the right system to form an image of history.

1.5 Method

At The Metropolitan Museum of Art, I had the best conditions for my research; my mentor Upholstery Conservator Nancy Britton, Furniture Conservator Marijn Manuels, Surface Conservator Pascale Patris, Intern Tess Graafland, as well as other people who came by the workshop and gave their opinion from their side of expertice.

Besides from visual inspection, I used X-ray, UV equipment, magnification apparatus, microscopes, which I will describe further on in my thesis, and a giant reference library both fysically (the Thomas J. Watson library at MMA) and data based, to find possible contextueal suitmates.

1.6 Limitations

The little that is written about this chair, says ”original upholstery”. My task was to reveal the purpose of the internal slipseat, but it became so much more than that. Seeking for an answer, rose so many more questions, for example a doubt of the originality of the showcover and upholstery.

First limitation, lies within the poor and somewhat incorrect previous documentation accessible on the chair.

Second limitation are conversely to restrict the amount of information I gathered in my two months of investigation, into only the key clues in order to form this report.

1.7 Upholstery Conservation issues in general

An Upholstery Conservator may treat a diverse range of furniture in various states of dispair, with all, part or none of the original upholstery structure materials extant.

Once it was common for a piece of upholstered furniture from a museum or private collection to be sent out to an upholsterer. Many places it is still the case, sadly. All too often the frame was stripped bare. It was rare that any records were kept of the original materials and of the construction techniques used in the fabrication. Usually, little attention was paid to achieving an authentic construction or profile in the rebuilding process. The upholstery structure was often rebuilt with unstable materials such as jute and foam rubber. Historic fabrics, rather than new reproduction fabric were commonly used for the top cover. Regardless of the fact that the pieces were never to be sat on again, for example those in museum collections, the frame was rebuilt as if it were to be used on a regular basis.

The metal fasteners employed to attach materials, and the interrelated tensions of these upholstery techniques had irreversible damaging effects on the frames. In many instances, important documentary evidence relating to the original appearance of the object was concealed or destroyed.[3]

Over the last couple of decades, increasing numbers of people interested in upholstery have been actively documenting and conserving original upholstered structures. This has grown out of a greater curatorial awareness and knowledge born of research into the history and technological development of upholstery.

Armed with this information, the Upholstery Conservator, often working closely with a curator/historian, has been developing alternative methods for re-building the bare upholstery frames with passive techniques.

[3] Kathryn Gill Paper 2004

1.8 Object in question

The chair has been in ESDAs (European Sculpture and Decorative Arts) collection since 1964. It is from the 1720's, so it is an early Queen Anne (english term for the style-period beginning in the 1720's and 1730's). It was to be examined before a consideration of exhibition.

Object:

Side chair, reg. Nr.: 64.101.955

Provenance and date:

England 1720's

Dimensions:

Front-to-back: 48,2 cm.

Crest rail to floor: 97,1 cm.

Seat height: 43,5 cm.

Seat width s/s: 61 cm.

Seat depth s/s: 46,3 cm.

Fig.3: Front View.

Fig. 4: Front side View.

Fig. 5: PR side view.

Fig. 6: Right front view.

Fig. 7: Right back view.

Fig. 8: Back view.

2 Technological methods of examination

Choosing to use X-ray, assists to understand the inner upholstery and also the framework of the chair 64.101.955, as this in great extend can back up the history, by being able to date joint methods, nails and screws.

2.1 X-ray

The active surface of the digital imaging plates, is based on alkali halide. Europium-doped barium fluorobromoiodode, to be exact. Like other alkali halides (e.g., NaCl), this material is strongly hygroscopic.[4] There is a very thin polymeric film applied to the surface that provides some minimal protection against ambient humidity, however we where preferably to handle it with gloves. The white side of the plate, which is the imaging side, is placed in a matching exposure envelope with or without lead screens according to the voltage to be used.

The envelope is now to be placed and secured in a 90 degree angel according to the measure rod, which is attached to the X-ray tube (camera). The adjustable rod should always be stretched out in full length from tube to envolope: 90 cm.

Fig. 9: 64.101.955 in X-ray room.

Fig. 10: Measure rod in proper outstretched length.

[4] www.imaginis.com

Turn of the light, leave the x-ray room, secure the door, turn on the scanner and thereafter turn on the computer.

Turn on the X-ray control management console, and set the wanted volumes relative to:
1: Time.
2: Kilo voltage (which is the primary factor for contrast)
3: mA (is a prime factor in controlling density)

Fig. 11: X-ray managdement console.

Kilovoltage is as said related to contrast. As kVp increases contrast decrease. As kVp increases the energy of the electrons in the x-ray tube increasing both the energy of the x-ray beam and the probability that more electrons will produce x-rays. If the x-ray energy increases the x-rays can penetrate more material and more beams hit the film all around, causing everything to get darker. Therefore there is less contrast probably, making it a low contrast film. As kVp decreases contrast increases. On the other hand, if the kVp is low, lower energy x-ray beams will be produced and more will be absorbed on its way to the x-ray film. kVp also affects density but on a much lower scale than mA.

Density - If something on an x-ray is very light, or white, you would say it has low density. Something such as air in the stuffing that would appear black on an x-ray, would have high density.

mA controls how many electrons are produced at the cathode. The more electrons produced at the cathode the more x-rays will be produced at the anode. The more x-ray beams then more x-rays will hit at each part of the x-ray where it was already hitting. Since mAs has nothing to do with the energy of the beam it won't penetrate any different parts of the object, just make the parts that already are, darker.

This is more in a sense that if you don't have enough x-rays at all, despite the kVp, the x-ray will be too light due to not enough x-ray beams hitting the film anywhere.[5]

So, aiming to get the best chance of beeing able to see what was going on in the stuffing and inner-upholstery, I had my kV at 25-40, mA at 5 and time at 25, as shown below:

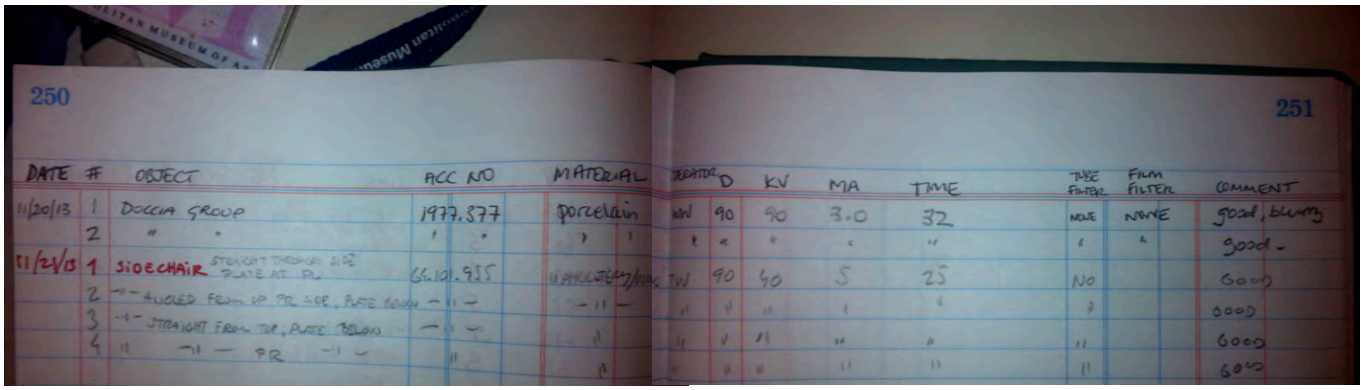


Fig. 12: Part of x-ray log book at MMA, showing info reg. chair 64.101.955.

…And aiming to get the clearest image og the nails, I changed the kV to 40-60:

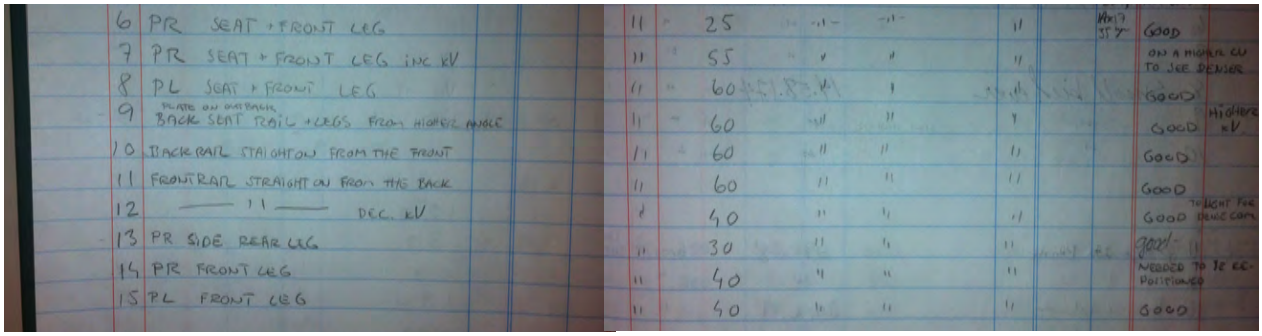


Fig. 13: Part of x-ray log book at MMA, showing info reg. chair 64.101.955.

After the X-ray action lamp turns off, the image plate is taken out of the envelope, avoiding light as much as possible, and is put directely into the scanner, white surface facing upwards. Press ”scan”, and the image will soon after appear on the computer.

[5] Notes from x-ray training at the MET, by Deborah Schorsch.

2.2 Magnification

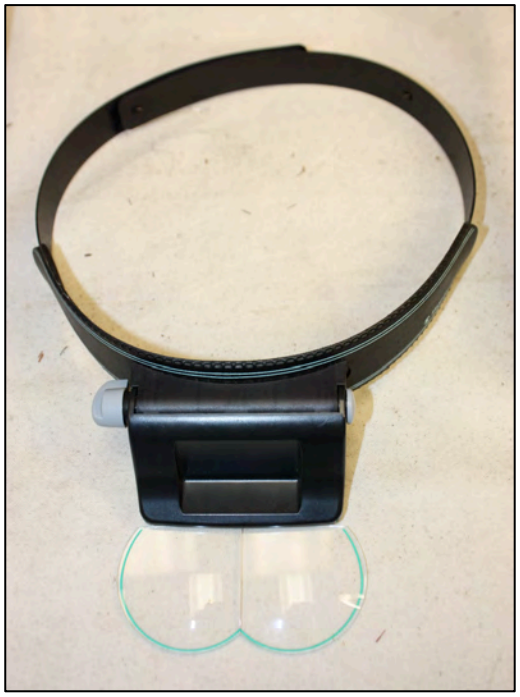


Fig. 14: Magnifying spectacles.

In upholstery purposes, enlarging details by using magnifying spectacles or for even more depth using a magnifying apparatus, is a big help. It helps you to be able to determine structures, materials, weavings and to the bare eye invisible indicia such as particles left and forgotten in a old tack hole.

A magnifyer uses a very short focal length objective lens to form a greatly enlarged image. This image is then viewed with a short focal length eyepiece used as a compound microscope.[6]

Fig. 15: Magnifying apparatus.

6 www.hyperphysics.phy-astr.gsu.edu

2.3 Microscopy

When looking into a microscope, one is not looking at the actual object, but at an image of the object.

The image one sees is not tangible, it is a representation of the object in varying colors and gray tones from white to black[7] see example Fig. 17 which shows a cross section containing mostly wax and dirt.

Magnification can be used to date campaigns done on the framework. If this is worked on, it most likely means that this also was the date of reworking the rest of the chair, and therefore can give us important clues regarding the upholstery campaigns.

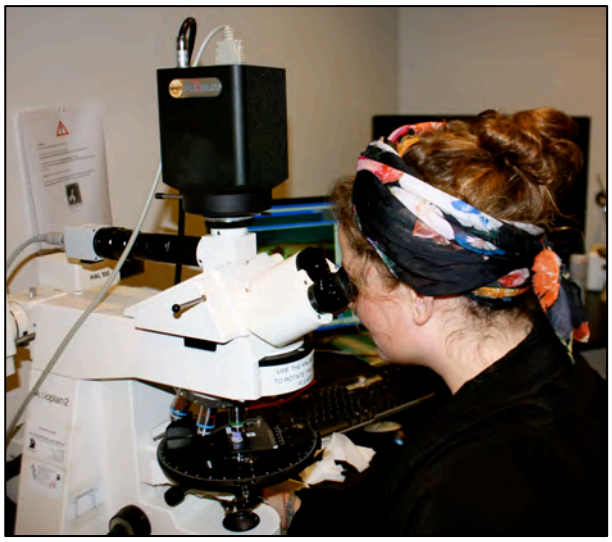


Fig. 16: Studying cross section images.

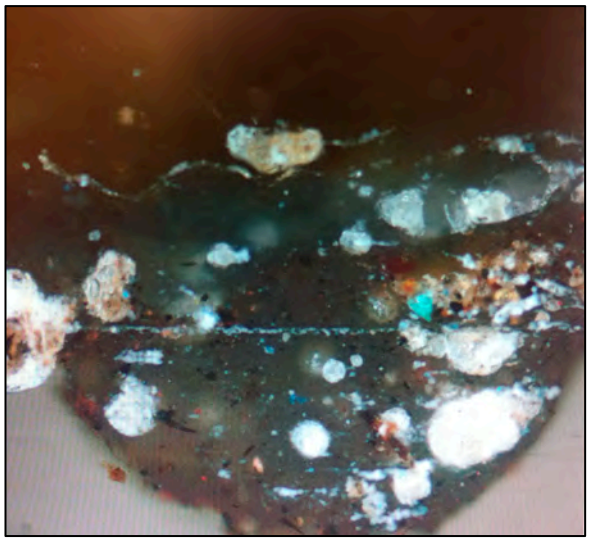


Fig. 17: Cross section of surface.

7 Pascale Patris, Guilding conservator, MMA.

2.4 UV

How UV works technically: UV bulbs are usually fluorescent tubes with the normal white phoshor powders removed. Heaters at each end of the tube excite electrons to 'boil' off the wires. A high voltage is applied via an inductor or choke across the tube ends which sets up a flow of electrons through the tube called a plasma. This is the 'electric blue' of a miniature lightning bolt and emits UV light.[8]

If exposing a textile to UV, the level of flourescense can tell you if the thread in question is naturally or syntheticaly dyed. This information can help you find out, if the textile has been repaired over the years and approximately which period, as the sythetic dyes is first used from in the mid -19th century.[9]

Natural dyes flouress, especially safflower which was often used. Synthetic dyes do not floress. So in terms of mapping the history of the showcovers original thread and later additions, using UV light, was a major indicator.

UV light was also used on the frame construction, in order to be able to see for example glue and wax.

Fig. 18: UV image of PL front leg joint.

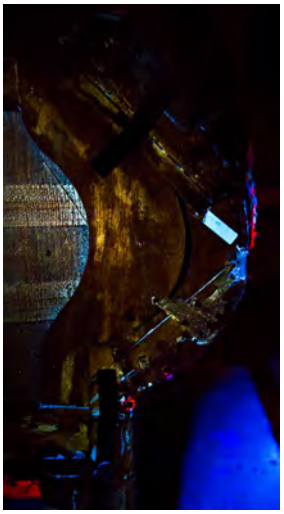


Fig. 19: UV image of PL side from beneath.

[8] www.physics.org

[9] Notes from conversation with Nancy Britton.

2.5 Contextual research

This work was substantial in order to understand the context of the chair. Expanding and building on this information as well as to establish the scolarship and location of other objects from the presumed suite.

As 64.101.955 has never been documented in relationship before, I started from scratch, going to the MMA library, and located all books regarding to: English furniture, slipseat constructions, balloon, compass and clambshell seats, and chair-designs of the relevant time. The same I did on their netbased information bank, and from the internet. Furthermore, I looked into needlework compositions, the history and the context of the depictured image on our chair, ”Ovids metamorphoses”.[10]

After one month of informative investigations, I was finally able to set up a chart of presumably suite mates, as I will reveal more about later.

Fig. 20: The chairs in question, after tracking them and their histories down.

[10] See page 43 for further introduction of Ovids metamorphoses.

3 Examination

To be able to get a better overall view of the history of the chair, I needed to understand the construction of the frame better. Since this is not my field, I was so lucky that Tess Graafland, who is a Furniture Conservation Intern, had the interest and time to assist me on this issue. We examined the construction of the chair physically and on x-rays.

3.1 Frame construction

Choosing to use X-ray, assists to understand the inner upholstery and also the framework of the chair 64.101.955, as this in great extend can back up the history, by being able to date joint methods, nails and screws.

Starting at the top with the joint between the crest rails and the stave, which the x-ray shows is a mortise and tenon joint.

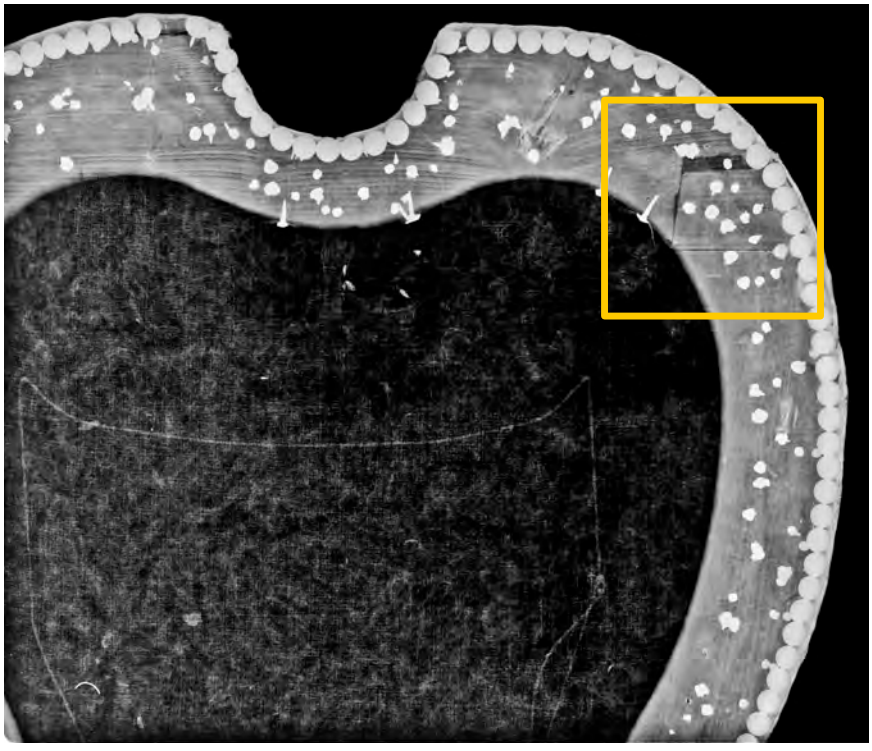


Fig. 21: X-ray of Back, upper left side.

Lower at the back, the x-ray shows a stayrail which is placed between the staves and is joined by a mortise and tenon joint.

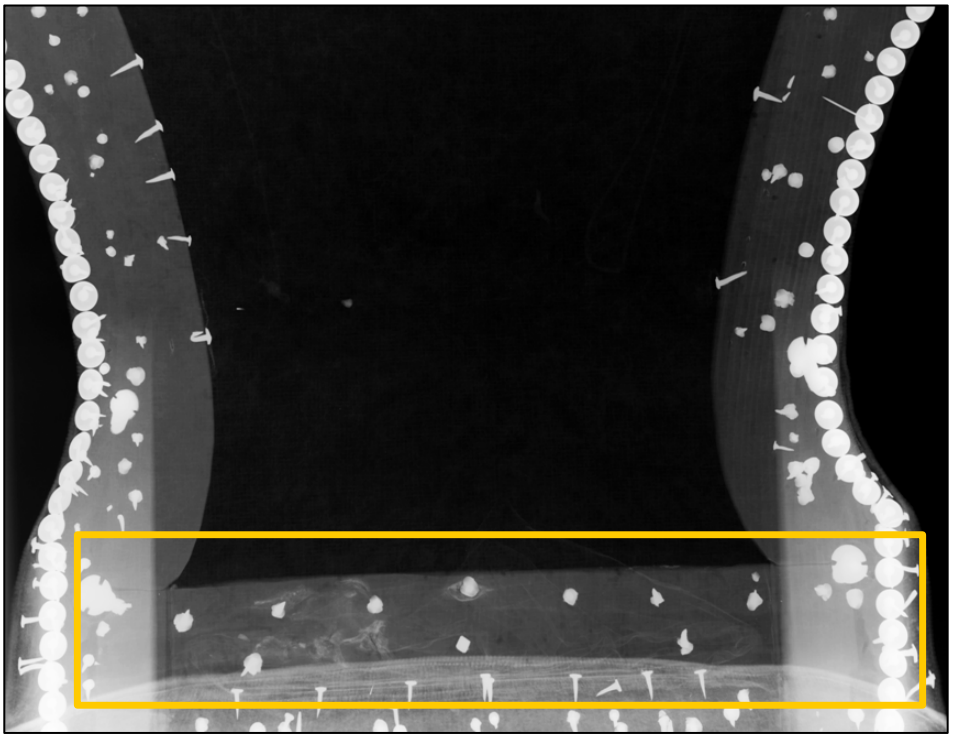


Fig. 22: X-ray of Back, lower part.

Fig. 23: Photo of PL side, from below.

Moving to the Proper Left front leg, which does not immediately show the construction because it is covered by the upholstery.

Looking from below, you can see that the leg is somehow placed into the seat rails, and is supported by wooden brackets which is nailed into the seatrail, as well by metal brackets.

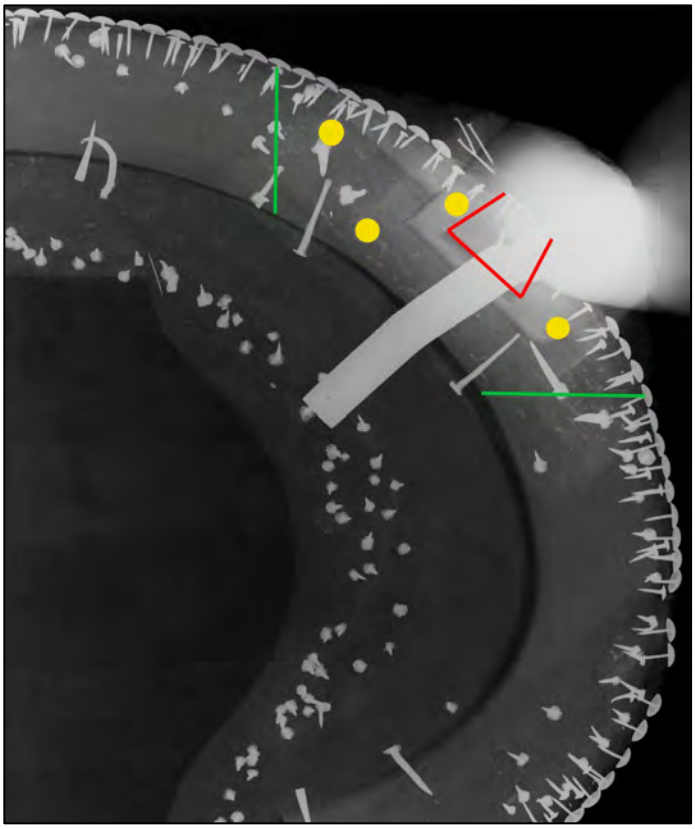


Fig. 24: X-ray revealing joint methods of PL front leg.

X-rays however reveal more details about the construction. You clearly see a dovetail (which is marked with the red lines). It seems like the seatrail is made out of separate parts (which are marked with the green lines) and they are joined together with pegs (yellow dots).

Opening up the upholstery gave a clearer view of the construction; you can see the dovetail, which is straight, that means that the leg has been placed into the seatrails from below. You furthermore see the joint between the separate parts of the seatrail, a lap-joint.

Fig. 25: Open view to the PL leg joint.

This is a technical drawing of the: Side view, Front view and Top view. They are however only simplified drawings, to show the most important elements of the construction. In all three drawings you see in gray the leg and the dovetail, that are placed into the seatrail. The seatrail illustrated in blue and red joined by the lap-joint and hold in place by pegs.

Fig. 26: Photo of PL leg joint, side view.

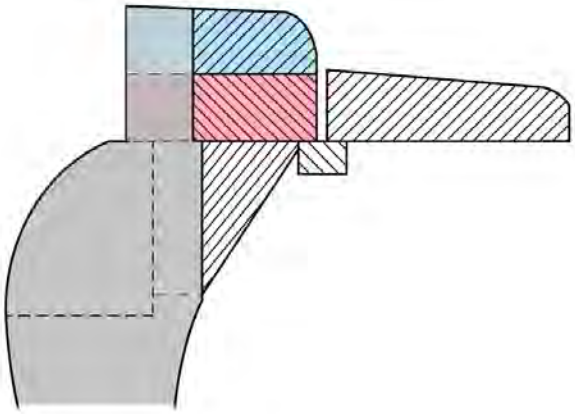


Fig. 27: Drawing of PL leg joint, side view.

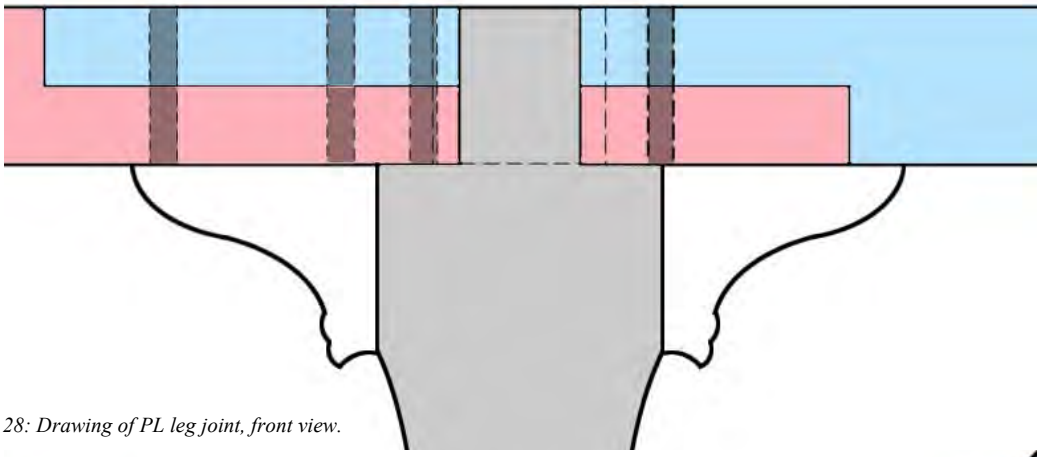


Fig. 28: Drawing of PL leg joint, front view.

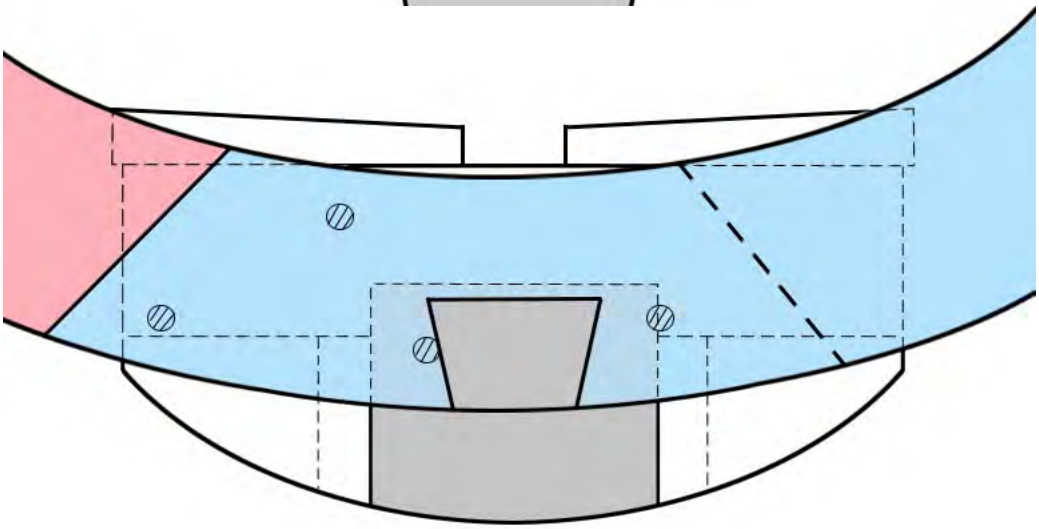


Fig. 29: Drawing of PL leg joint, top view.

Fig. 30: Photo ill. The bottom of 64.101.955

Remarkable is the metal brackets; at the frontlegs they are screwed into the legs and into the slipseat, and in the back they are screwed into the backlegs and into the seatrail. The brackets might serve to hold the slipseat in place, but since the brackets in the back are placed on to the seatrail, that was not very likely.

The screws were removed from the front legs, in order to see if I could get the slipseat out, to have a better look at the upholstery. But this was not possible, because the slipseat turned out to be nailed into the seatrails. By removing the screws, it also turned out that the joint between the leg and the seatrails was quite unstable, you could move the leg back and forth.

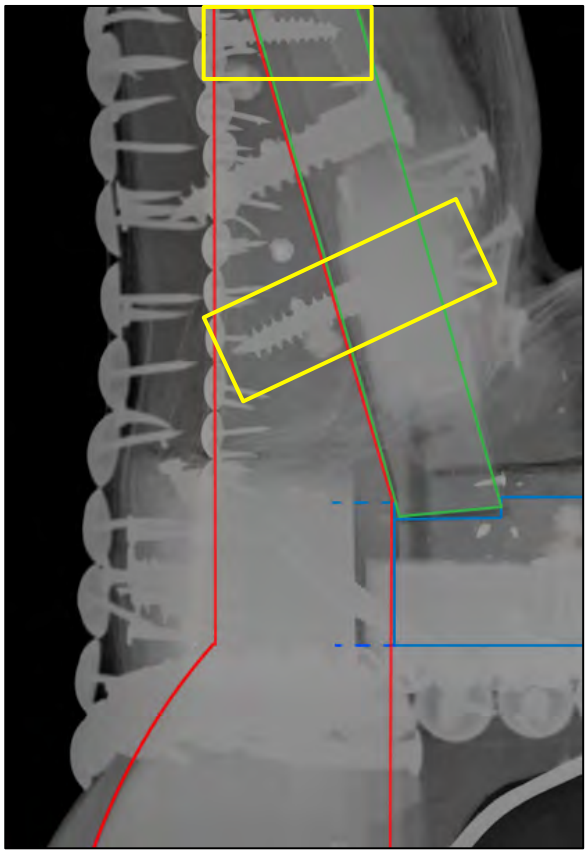
It raised the thought; would the brackets have been a later addition to stabilize the joint between the leg and the seatrail? Looking at the screws that was taken out, it is quite an old addition, as these where handmade.[11] By using this relativily unstable

[11] See 7.2 Appendix

solution, one could think that the legs might have been a later adition to the chair, but the construction shows no evidence that can confirm that theory.

Looking at the backleg, again X-rays revealed more details, eventhough the X-ray picture is a bit cluttered because of the angle in wich the image was taken, you see the construction of both the PR and PL leg.

Fig. 31: PR back leg joint.



We can see that the leg has an extention (marked with red lines) in which the seatrails (marked with blue lines) are placed with mortise and tenon joints.

The seatrails are cut, and in this cut the staves are placed.

The staves are screwed (marked with yellow lines) to the extention of the leg, with a smaller screw coming in from the back and a larger screw coming in from the front.

Fig. 32: X-ray image with construction markings.

An X-ray of the back, shows the stayrail that is placed between the staves.

It also gives a clear image of the placement of the screws.

Fig. 33: X-ray image with screw markings.

This is drawings of the backleg construction, backview and sideview. Again they are drawings to show the most important elements. Green and blue are the seatrails which are joined with a mortise and tenon into the leg, and purple is the the stayrail that is placed between the staves.

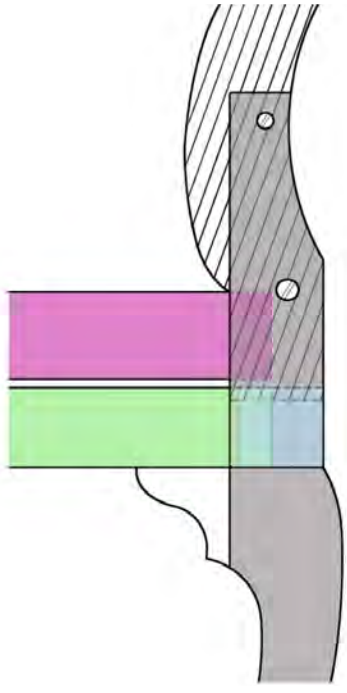


Fig. 34: Back leg construction, back view.

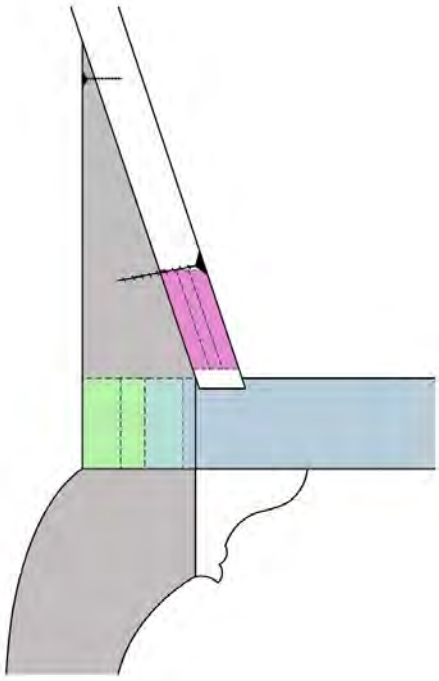


Fig. 35: Back leg construction, side view.

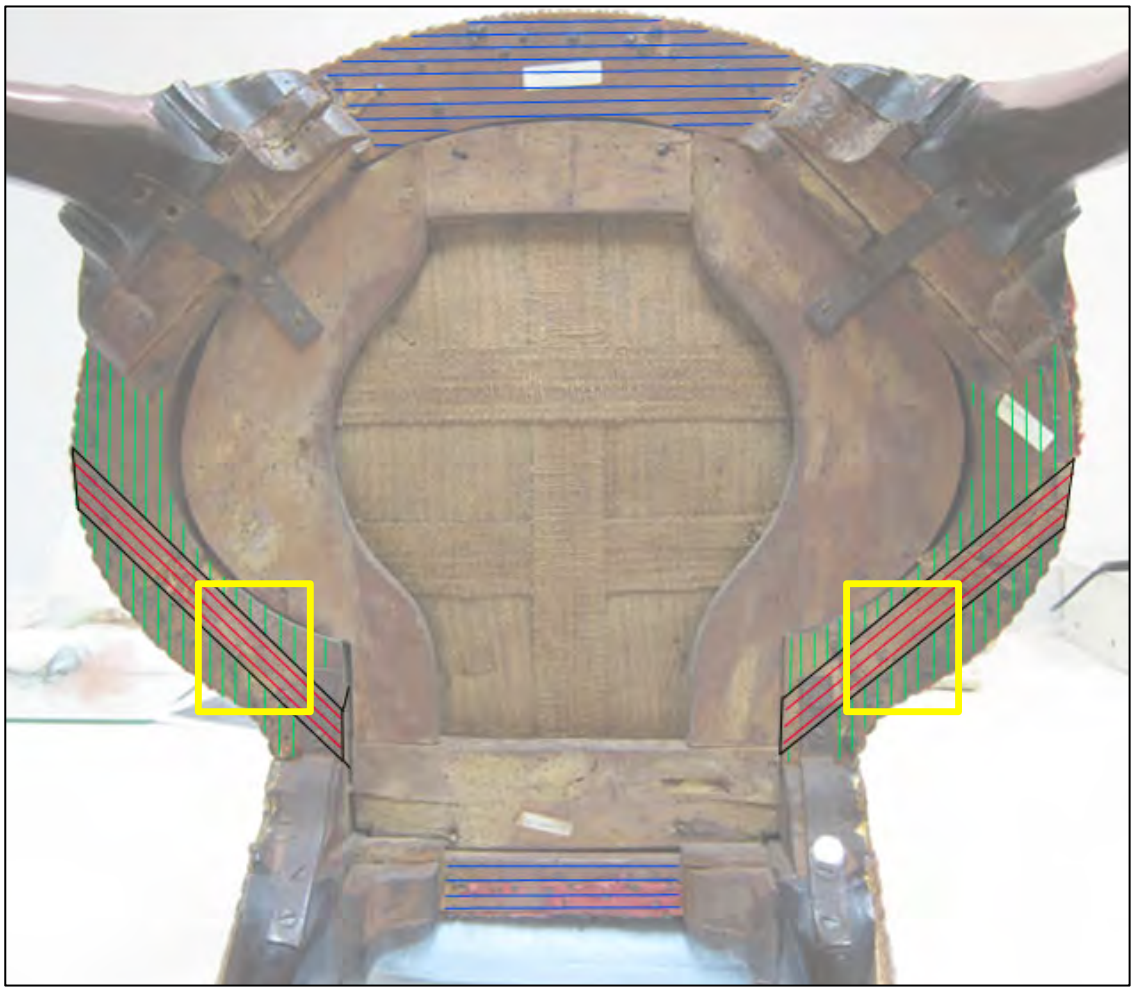


Fig. 36: Weak point illustration.

Into the seatrails there are placed sliding dovetails (marked with black lines). Looking at the grain direction (marked with red) there can be a good explanation of these.

The grain direction of the lower siderail (marked with green lines) gives the seat construction a weak spot (marked with yellow lines).

When tension occures on the frame, the seatrail will be most likely to fracture at these points, and to prevent that, I have reason to suppose that they placed these sliding dovetails.

The slipseat is made out of four separate parts, that are all joined by mortise and tenon joints (marked with yellow), as you can see on the X-ray, and held together by pegs (marked with red).

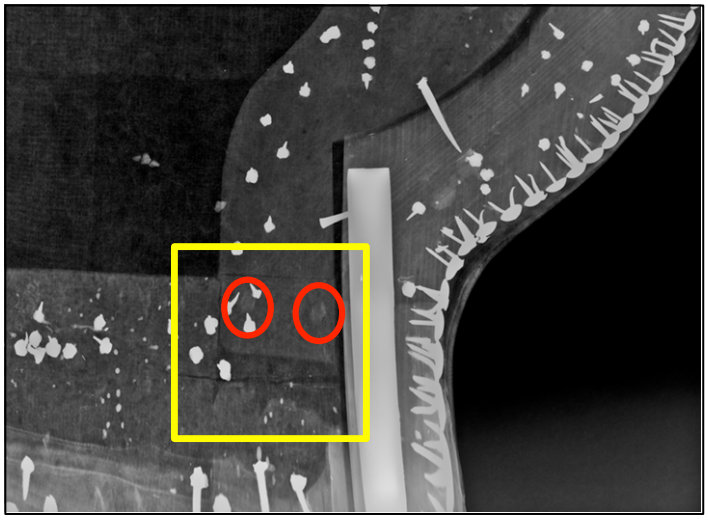


Fig. 37: X-ray illustration of joints

The slipseat is attached to the seatrails by nails (marked with red), that are coming from below the slipseat and angled into the seatrails. Furhermore by nails (marked with blue) are placed into the seatrails from above and into the slipseat. There are six wooden blocks (marked with black). At the front legs they are nailed into the seatrails, and at the backlegs they are nailed into the decorative wooden blocks, to hold the seatjoint in place.

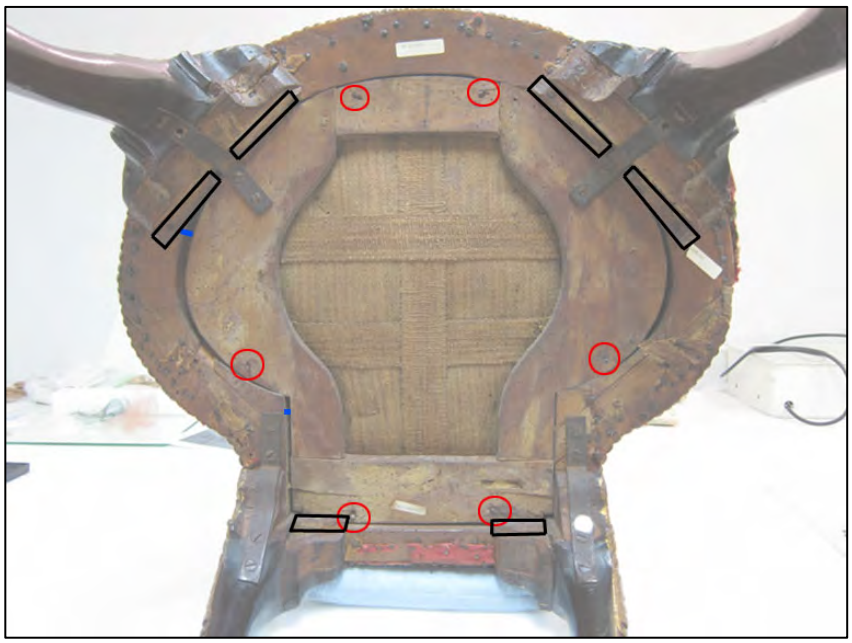


Fig. 38: Ill. of slipseat attachments.

3.2 Examination of upholstery materials present

Fig. 39: Showcover under decoration nails.

After determining that the decoration nails to be from modern times, few were carefully taken out, in order to examine the showcover.

The colours and wear out of the needlepoint, differs not under the decoration nails.

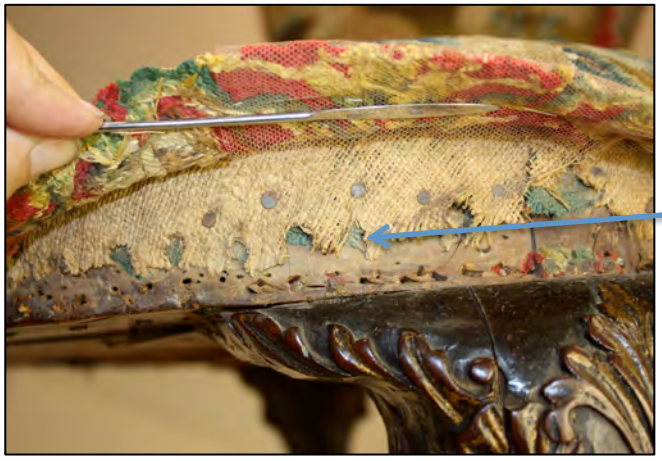


Fig. 40: 2nd mounting of under upholstery.

Under the showcover, the undercloth was seen. This have clearly been re-mounted, as it has a torn edge from former tacks, and the ones holding it now, has a flat head, and is therefore put there after 1860.[12]

Fig. 41: Revealing horsehair padding.

Green wool was revealed, over the stuffing.
Black horsehair was seen above this as padding.

12 See 7.2 Appendix

Fig. 42: Sample of stuffing.

This sample is taken out through a minor hole in the basecloth, so into the center of the inner-upholstery.

It contains horsehair and tow.

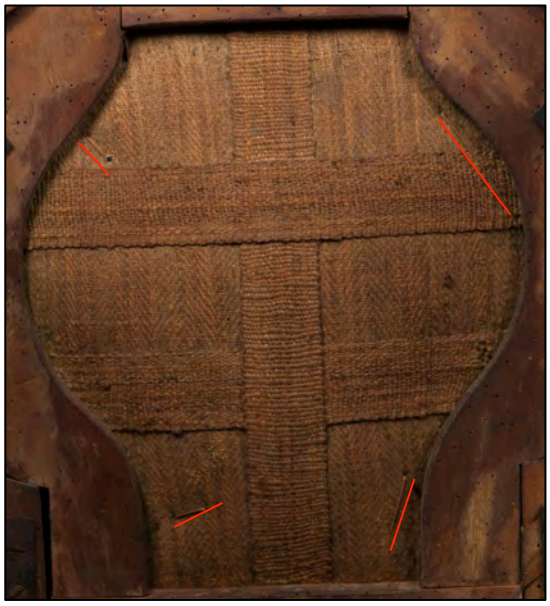


Fig. 43: Webbing, basecloth and stitches.

Fig. 44: Closeup of basecloth.

Fig. 45: Closeup of webbing.

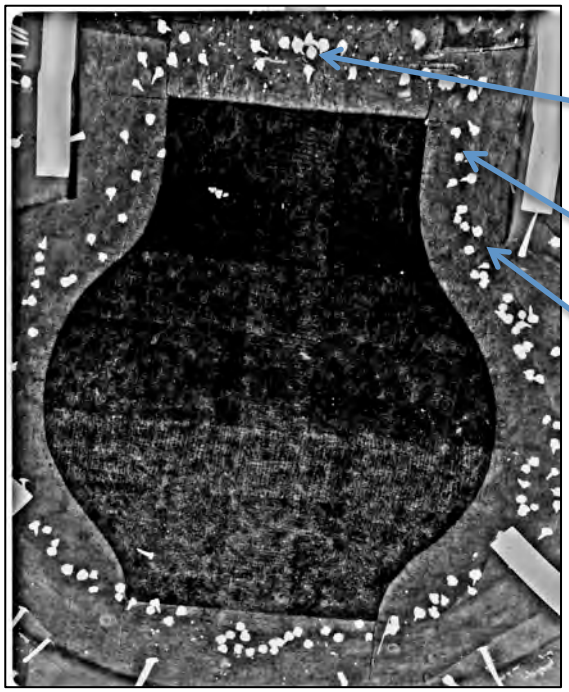
Fig. 46: Stitching thread.

The base of the chair, has webbing as shown on fig. 43, which is common in England in the 18th century.

The four stitches, is randomly fixed in each corner.

The basecloth is twill woven.

The webbing is tabby woven.



Cluster of tacks, for the webbing.

One row of tackings for the basecloth.

One row of tacking, undefineable at first, but from further investigations, these were proven to be tacking from the green wool to form an edgeroll at 2. Campaign.

Fig. 47: X-ray taken from above, revaling clusters of tacking.

There are three layers of cloth. Again, we know that one is the webbing and one is the basecloth. We also see here, that all tacks on the slipseat are roseheaded nails, which means that they all come from early campaigns. Later on, a green wool fabric, was seen through the basecloth.

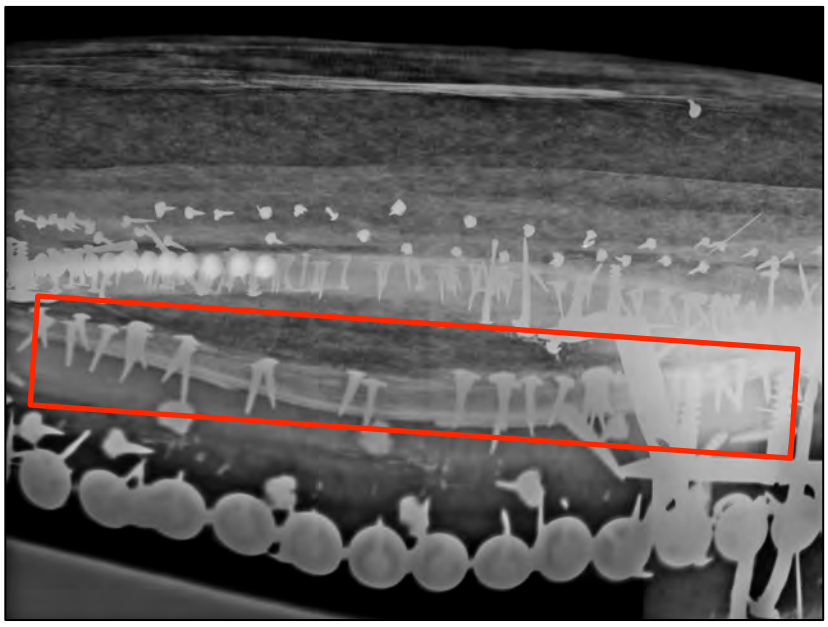


Fig. 48: X-ray taken from PR side.

This X-ray taken obliquely on PL side, clearly reveals the evidence of three layers of fabric. It also shows an edge of what could be an edgeroll.

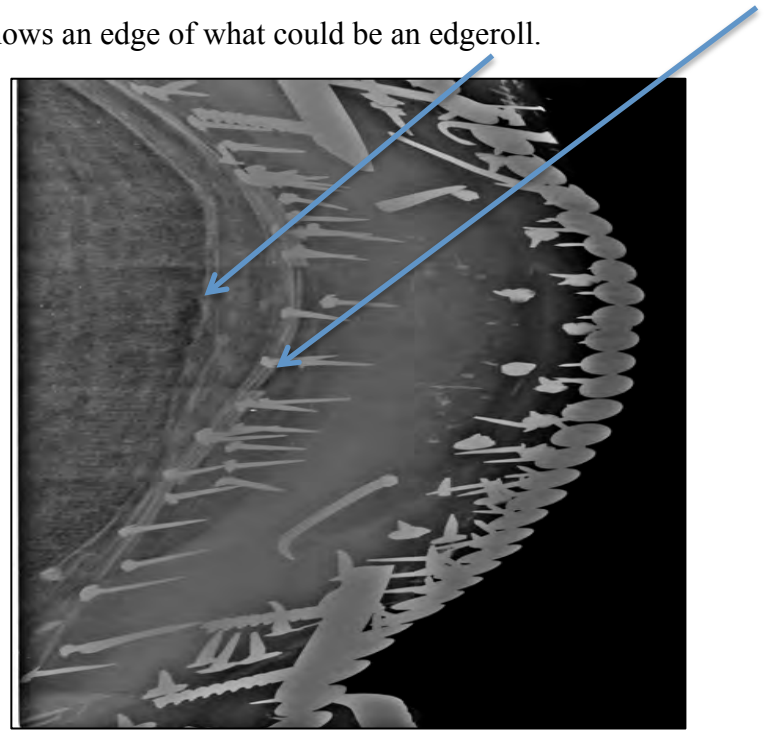


Fig.49: X-ray obliquely PL side.

This x-ray that gives a good overall overview of the different tackings used on the frame and on the upholstery.[13] A closer look at PR front corner, confirms the presumption of an edgeroll.

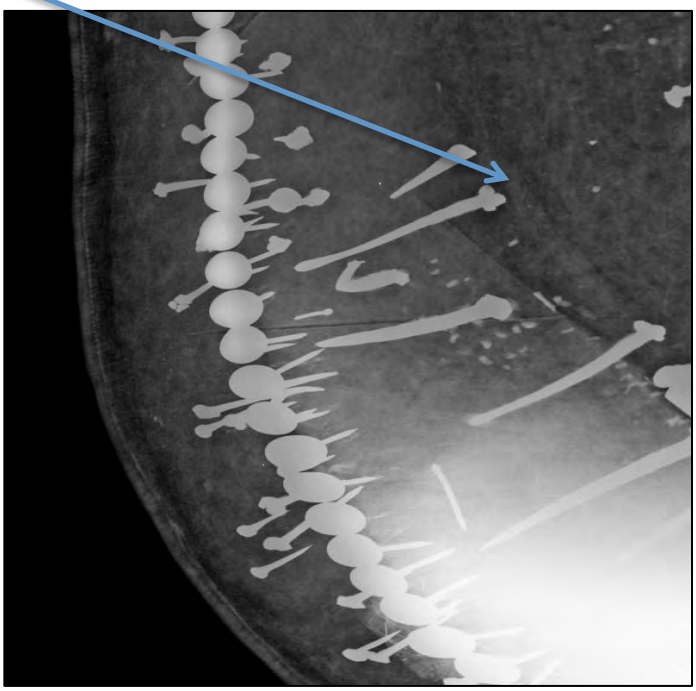


Fig. 50: X-ray of Upholstery and tacking, PR front corner.

[13] See 7.2 Appendix

3.3 Examination of possible showcover campaigns

To get a better in depth understanding of the slip-seat and the inner upholstery, I started with the outside, and worked my way through.

I used the UV to locate both dyes that might be natural dyes that floress, as well as looking for restorations on the needlework.

Fig. 51: UV image of flourescent materials.

Fig. 52: Picture of same place in daylight.

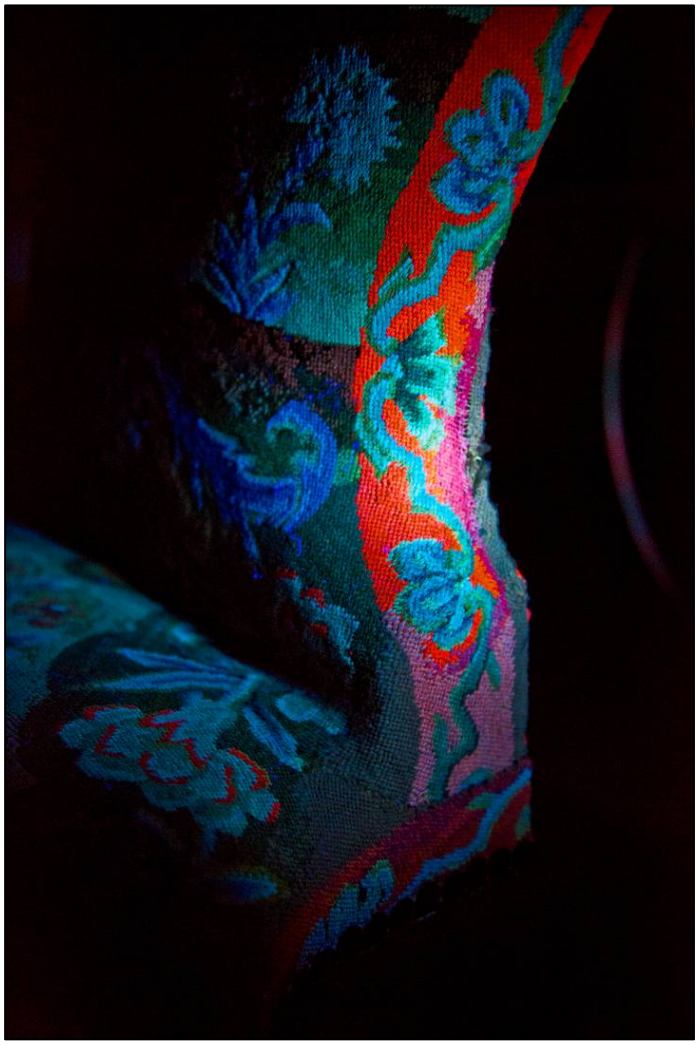


Fig. 53: UV image of PL crestrail

The restorations where located primarely at the border around the edge, it looked like an added extension.

The form have clearly been changed, this was not the original shape.

Fig. 54: PL crestrail in daylight.

Fig. 55: UV image of engravings.

The UV also showed interesting flourescing from adhesive underneath, but especially on the legs by the engravings.

This was investigated further, by taking samples and do microscopy from the presumed most informative locations, to understand this might help dating the campaigns of the showcover.

Fig. 56: Gilt surface on PR back leg ornament.

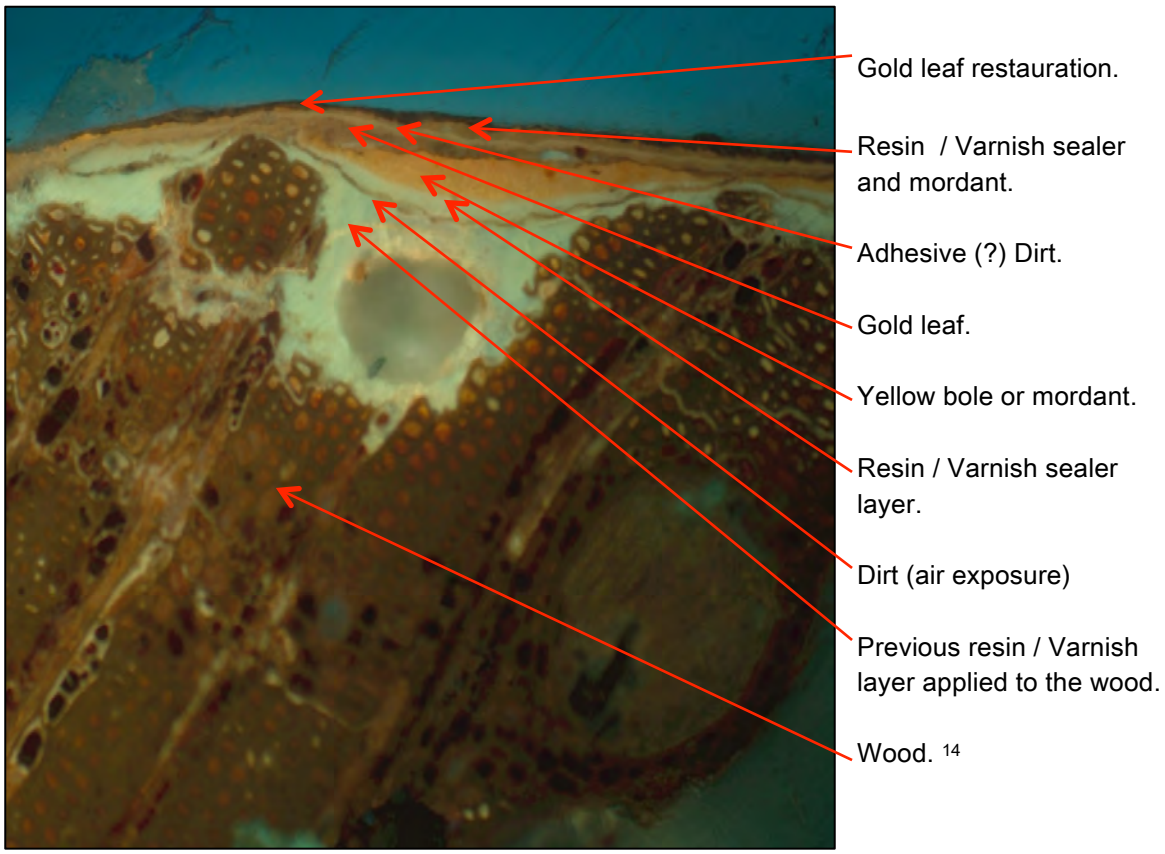


Fig. 57: Microscopy cross section of PR back leg ornament.

14 Examinations done in collaboration with Pascale Patris, Surface conservator, MMA.

Magnification was used, to locate tacks and state summary regarding presumable campaigns, and to identify what fibres the tacks and tackholes contained:

1 campaign:

1720's. Plain weave green wool.

Fig. 58: Example of textile from 1. Camp.

2 campaign:
1780-90. Red, black, green, yellow and orange needlepoint.

Fig. 59: Stitching cloth from 2. Camp.

Fig. 60: Material from 2. Camp.

Fig. 61: Mat. from 2. Camp.

3 campaign:
Red, orange, black and yellow woven wool.

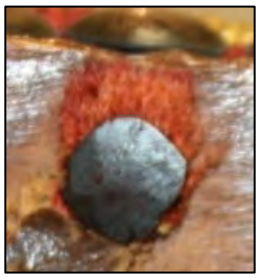


Fig. 62: Big flat head.

Fig. 63: 3. Camp. Mat.

Fig. 64: Cluster of 3. Camp. Mat.

4 campaign:
Leather.

Fig. 65: 4. Camp. Thick flat head.

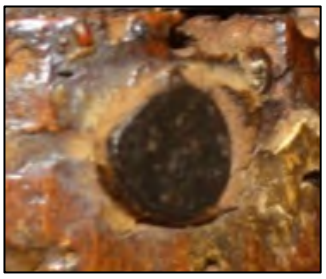


Fig. 66: 4. Camp. Leather.

Fig. 67: 4. Camp. Material.

5 campaign:
Early 20th Century. Colored wool and silk needlepoint.

Fig. 68: 5. And current campaign needlepoint and brass dec. nails.

This picture shows the fixing locations on the **front rail** of the frame. As shown with the colored arrows, it forms a continuous pattern:

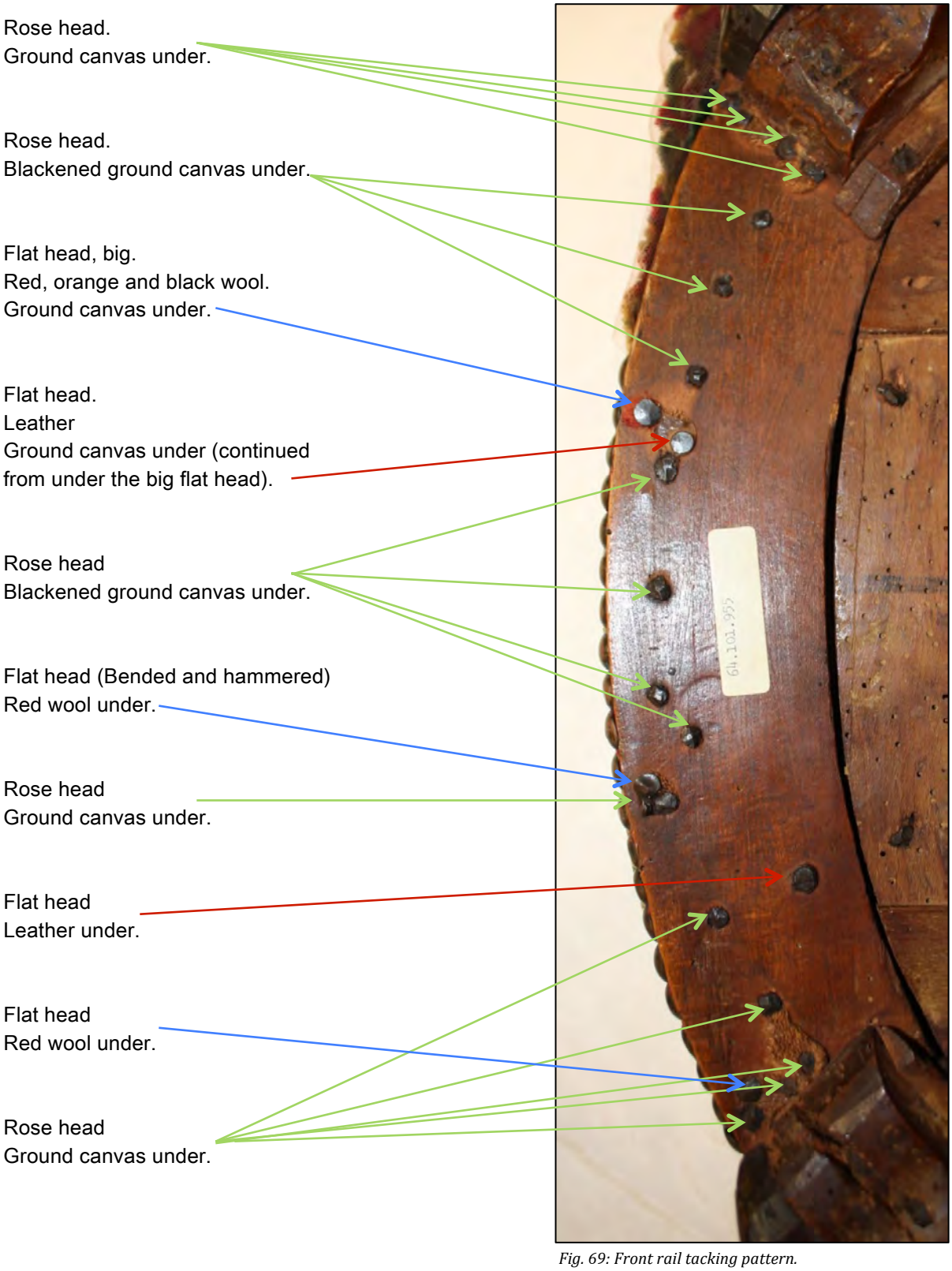


Fig. 69: Front rail tacking pattern.

Nail locations on the **Proper Right** side of the frame.

Also a pattern, though not as clear as on front rail:

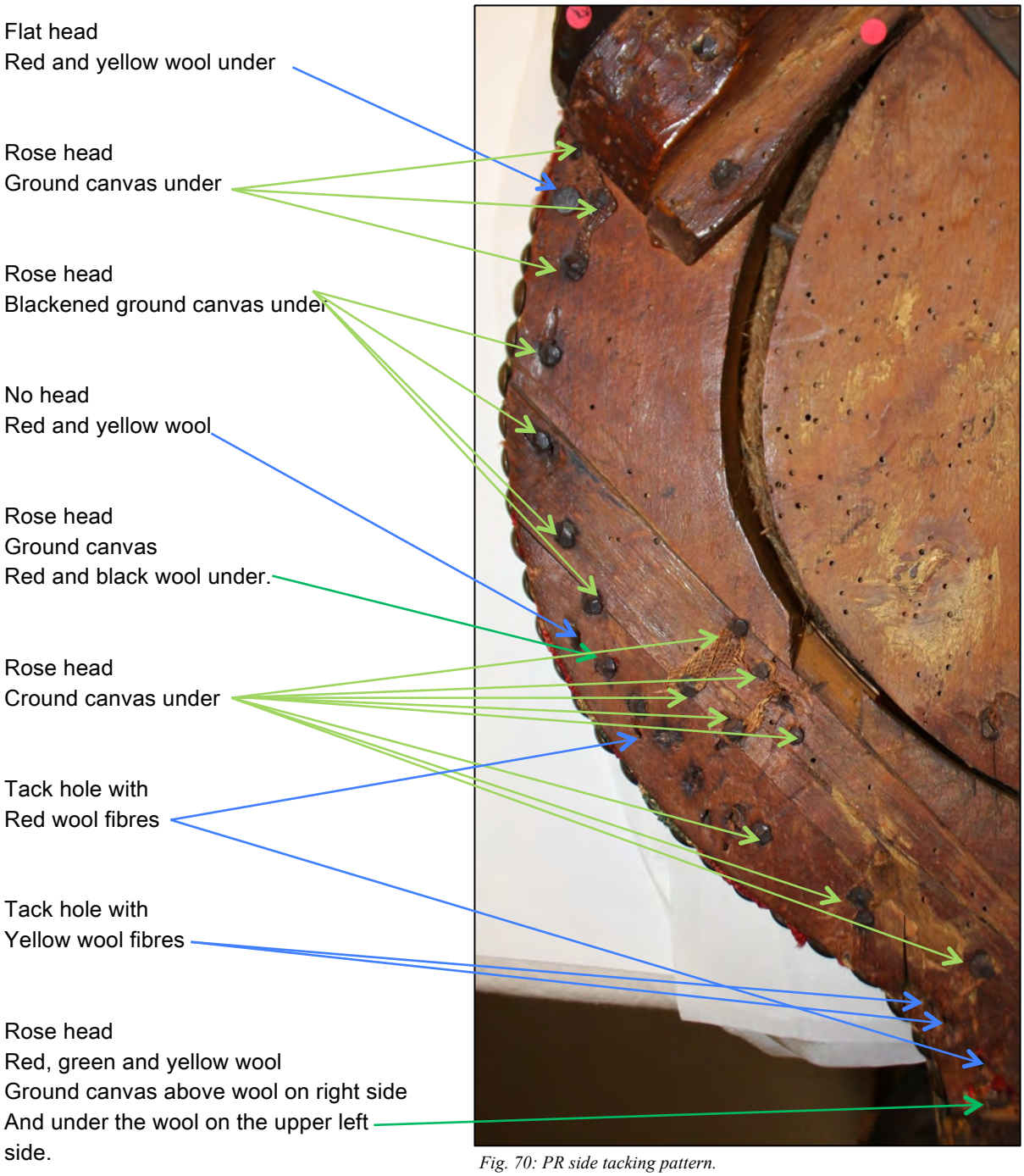


Fig. 70: PR side tacking pattern.

Proper Left side of the frame.

To be noticed, the roseheaded nails that represents the 2nd campaign: The former needlepoint, heavily outnumber the rest, on all three sides.

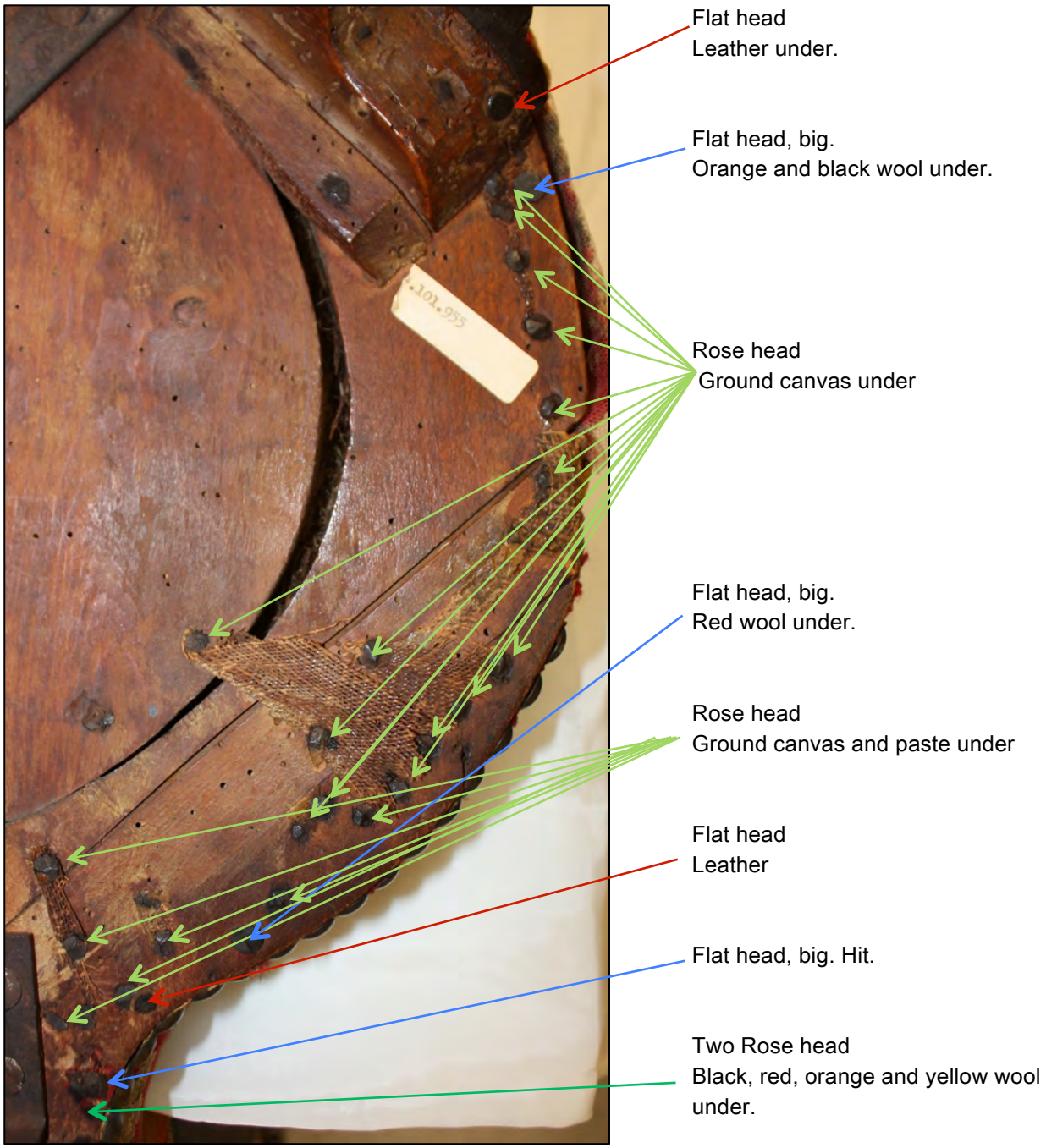


Fig. 71: PL side tacking pattern.

At the **rear-rail**, there is a slightly other pattern going on, (shown on the next page). The tacking information and remains of fabric, tells an other story. A story which at some points goes together with the upholstery campaigns.

Possibly, the rose-heads came with the Needlepoint of the 2. campaign.

And the brown textile with the leather showcover in the 4th campaign, because of the nails and the colour.

The red heratine back-cover however, has gone back on, along with the 5th campaign, as it has been replaced with similar modern tacks.

Rose head

Fig. 72

Flat head, big. Corroded

Fig. 73

Light-- brown textile

Fig. 74

Flat head, modern

Fig. 75

Flat head, corroded

Fig. 76

Small tackholes in a row on textile. Does not continue on wood underneath.

Fig. 77

Rear back

The continous tacking pattern is very clear:

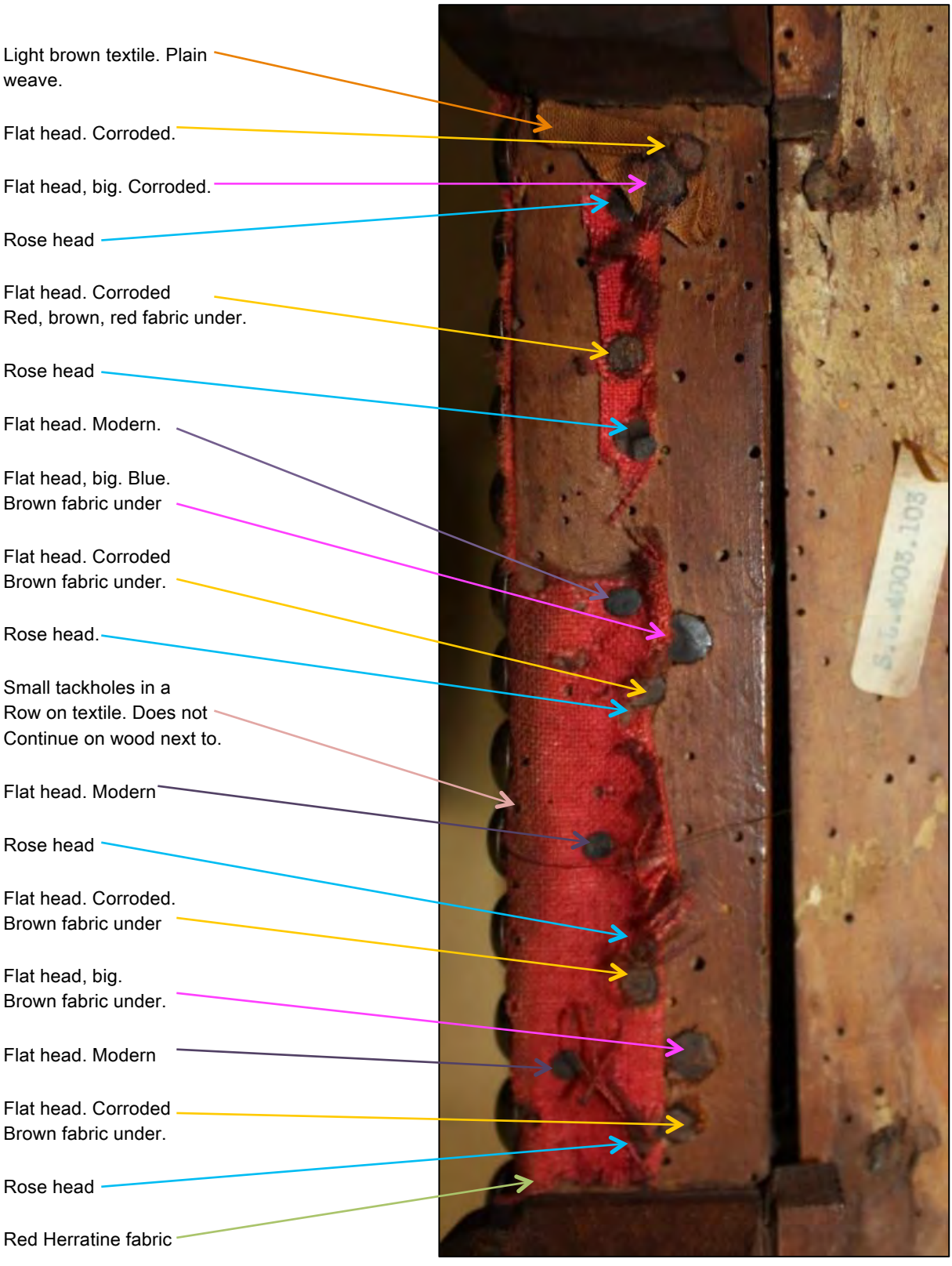


Fig. 78: Rear back tacking pattern.

4 Context

4.1 Comparable objects

In order to understand an object, and especially if it stands alone like 64.101.955, it is important to try to gather as much information about its context, by finding comparable objects.

Shown here, are examples of chairs, some known by location, some known only by a picture. But no matter how much or little information they brought with them, it turned out to be a big help that made the puzzle-pieces fall into their right place.

Comparable objects, **related in form or needlework cover**:[15]

Fig. 79

Fig. 80

Fig. 81

Fig. 82

Fig. 83

Fig. 84

Fig. 85

Fig. 86

15 See: 7.1 Appendix

These five chairs, have the **same shape, legs and gilding**.
There is therefore reason to believe, that they might have been a suite from the origin. However, they have all, at some point later, been traveling in different directions, changing their showcovers on the way.[16]

Fig. 87 Location: Unknown. Catherine Gordon of Gight suite.

Fig. 88: Location: Frederick Parker Collection.

Fig. 89: Location: Last appeared on London market in 1972.

Fig. 90: Location:
Metropolitan Museum of Art, NY.
(Our chair in question).

16 See 7.1 Appendix

The only one of the chairs we know this about for a fact, is the Frederick Parker chair[17], which is said to have had a not edged seatedge and had in fact a showcover in leather, when they got it to their collection sometime before 1911. There are traces of later tacks on 64.101.055, with remains of leather. -So these two might have traveled together up till then.

The two London market chairs[18], may seem to carry the same upholstery as ours, by the first glance. But if you look closer into the details, such as the border for examle, you see that it is not the same.

The two Gight chairs[19], which there have been no accurate location of since 1911, have what seems to be the same kind of showcover as our carry now. However, this picture is the only one existing and as you can see, its difficult to get a closer look at its details.

Our chair's needlepoint image is depicted from *Ovids metamophorse* after Froncois Chauveau.[20] -Like the Lady Lever chair and the majority of its suite-mates[21]. (See next page) These four chairs, or their frames at least, origin from the same suite.
But if you look closer at the chair that was last seen at Christies in 1982, its border, first of all, differ from the rest, and does not fill out the rail in the lower back.
Investigated further, I realized that the needlepoint on this chair depictures *Vulcan and Venus*, and not *Ovids metamophorse*, as the rest.

These are build as slip-seats, in fact they are clamp-shells, which means that the seat and back is taken out in one piece.

All this awakened interest, so I began to investigate further and compared our needlepoint vs. the Lady Lever chair more in detail.

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17 www.frederick-parker-foundation.org

18 See 7.1 Appendix

19 See 7.1 Appendix

20 www.aigis.igl.ku.dk

21 See 7.1 Appendix

Fig. 91:
Location:Last appeared at Christies, NY, 1982.

Fig. 92:
Location: Last appeared at Hotspur, 1998.

Fig. 93:
Location: The Lady Lever collection.

Fig. 94:
Location: Last appeared at Blairman's, 1966.

They have a lot in common. In fact I am almost confident, that our chair's needlepoint have belonged originally to this suite. And my presumtion is, that it might have been on the previous chair frame mentioned.

The border is the same. Ours have been "freshened up" with a red wool, which also is the case in the shadows of the flowers etc. as these places might have been stitched with a black or brown dyed wool. These colors are often missing now if it was naturally dyed, because iron mordant was used.

Little details, like the curves and the leaves are the same form of expression.
And what especially caught my eye, was that the lines of the extention of the needlepoint on our chair, actually follows the line of the border in the corners.

4.2 Evidence of similarities

Fig. 95: PR upper back.

Fig. 96: Lower back.

Fig. 97: UV PR crest.

Fig. 98: Lady Lever showcover.

Fig. 99: 64.101.955 seat.

Fig. 100: UV of 64.101.955 seat.

5 Results

5.1 Result of investigation

Using these five hands of approaches, one is able to succeed revealing a great amount of information. If this is interpreted from the right angle, an object can be mapped and analyzed, just as well as if the object was dismantled for the same reason.

X-rays revealed all tacking and tackholes, joints and screws, and to some extent even the material structure of the inner-upholstery.

UV exposure revealed locations of later additions on the showcover, wax and adhesive on the frame.

Magnification revealed unseen material of evidence in tackholes, and allowed one to examine structures at close range, in order to collate, compare and date these.

Microscopy revealed the history of campaigns done on the surface of the frame, in order to support the suggestions of the upholstery campaigns.

Context research gave significant clues, regarding the history of the frame and the showcover, as well as finding possible suitemates.

To step back. To see. To think.

5.2. Cross-section illustration of current upholstery

Fig. 101: Revealing horsehair from 2. campaign.

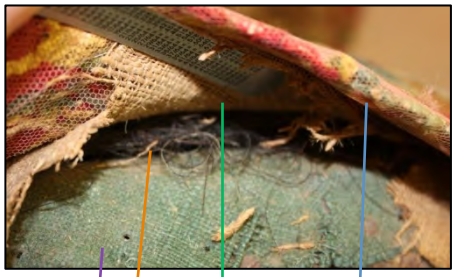

Fig. 102: Revealing green wool and horsehair straight above basecloth.

Fig. 103: Revealing tow from 1. campaign.

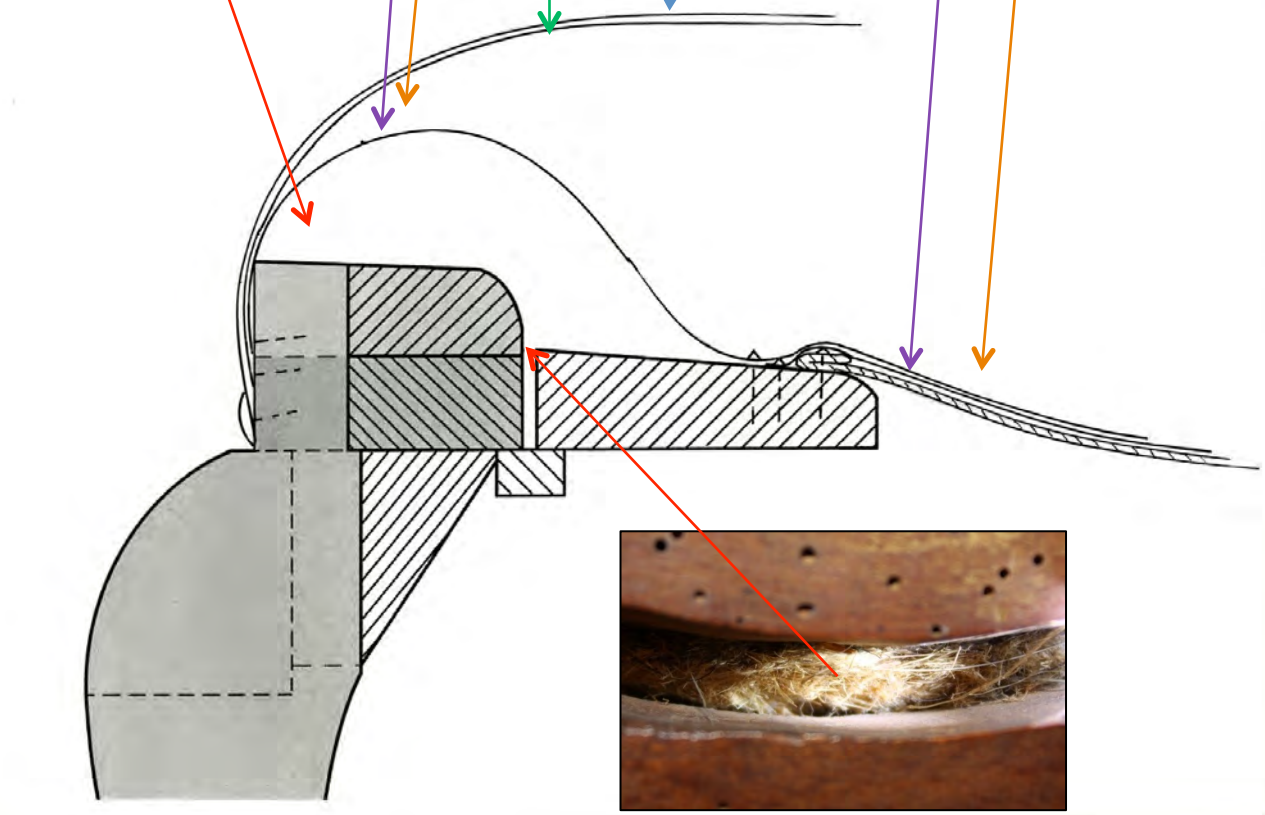

Fig. 104: Drawing of current upholstery.

Fig. 105: Revealing tow between rails.

5.3 Conclusion

- What is the purpose and function of the slipseat?
  -The slipseat construction is original.
  -It serves to support the outer frame's challenging form. To take the stress from the webbing and the upholstery related tacks that would otherwise be attached on this.
  -It is one of the first seen conscious solutions to this issue. From a time where the whole idea of upholstery to be a conscious separate standing craft, began.

- Is the showcover upholstery original to the frame, as claimed in all previous documentation?
  -The green wool is the original upholstery from the 1st campaign.
  -Another needlepoint showcover was put on at the 2nd campaign.
  -At least two other showcovers after that, before the current.

- Has there been work done on inner upholstery and padding?
  -The slipseat retains the original webbing and basecloth.
  -The tow in the edgeroll is original, and the green wool was later used to encase it.
  -There has been filled in the center and as padding, with horsehair at a later campaign.

6 Sources

6.1 Acknowledgments

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Pascale Patris, Conservator of Wooden Surfaces, Metropolitan Museum of Art.

Sara Lindqvist, Head of Upholstery Program, Carl Malmsten Furniture Studies.
Ulf Brunne, Furniture Conservator, Director of Studies Carl Malmsten Furniture Studies.
Ann-Sofie Stjernlöf, Upholstery Conservator Student, Kunstakademiets Konservatorskole.

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7 Appendix

7.1 Reference Index of images to be found

Our chair 64.101.955

Wood, 2008.

Symonds, 1929.

Swain, 1970.

Beard, 1997.

www.frederick-parker-foundation.org

Wood, 2008.

Cescinsky, 1909

Swain, 1980.

Lenygon, 1877.

Wood, 2008.

Beard, 1997.

Thorpe, 2012. (Digital)

Wood, 2008.

Wood, 2008.

Wood, 2008.

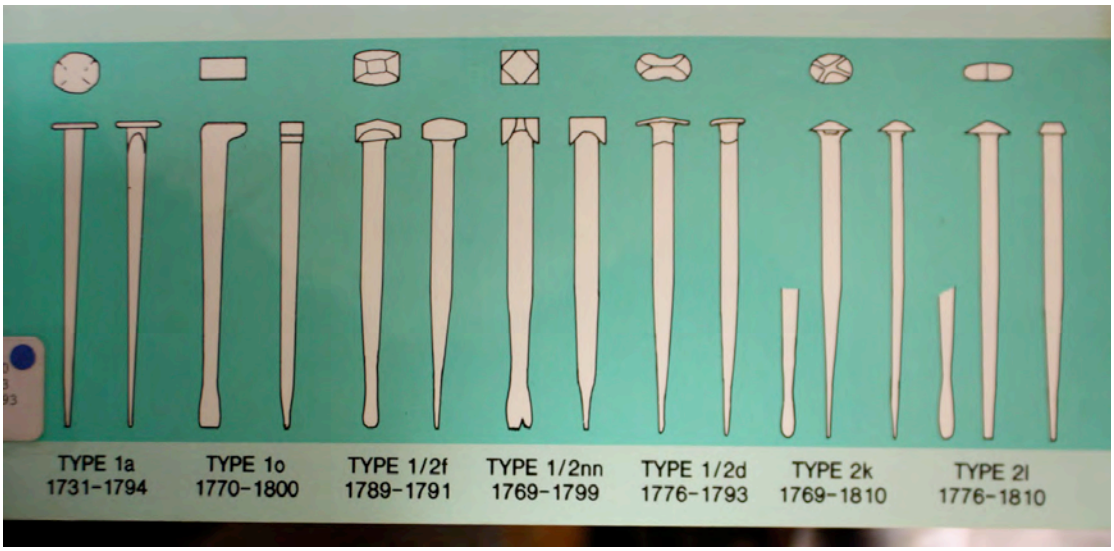
Cescinsky, 1937.

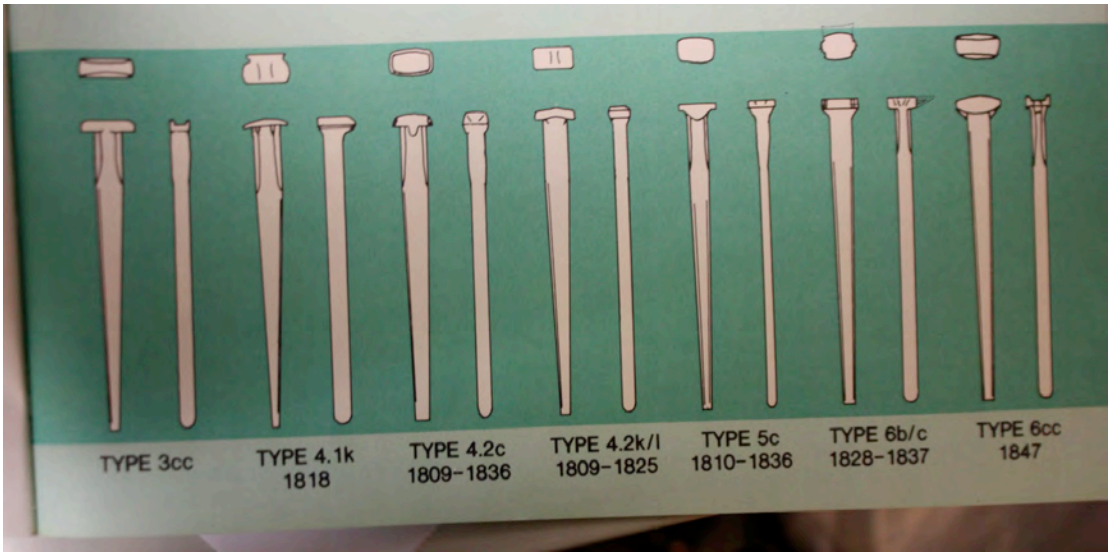
Wood, 2008.

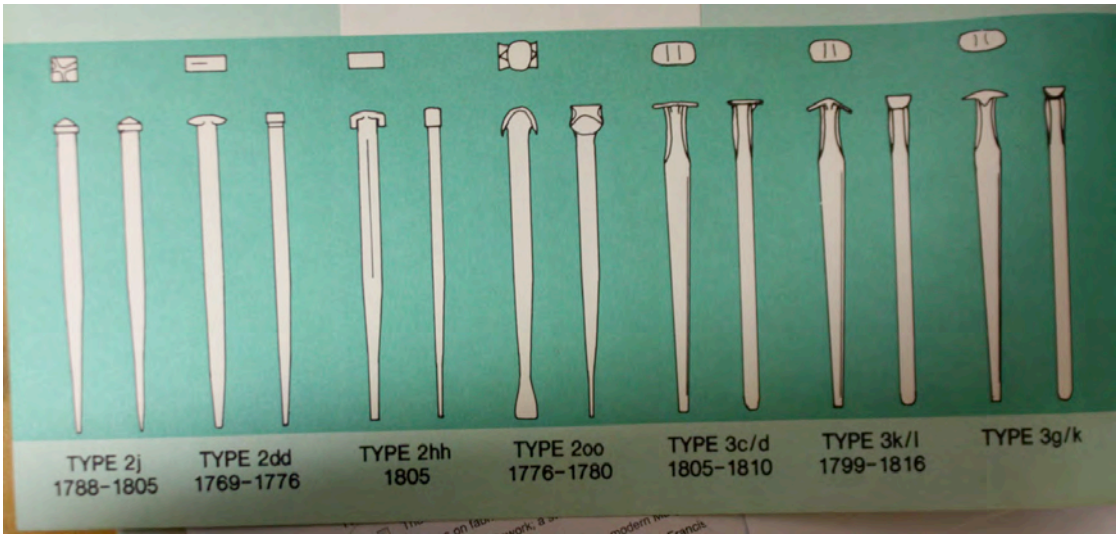
Wood, 2008.

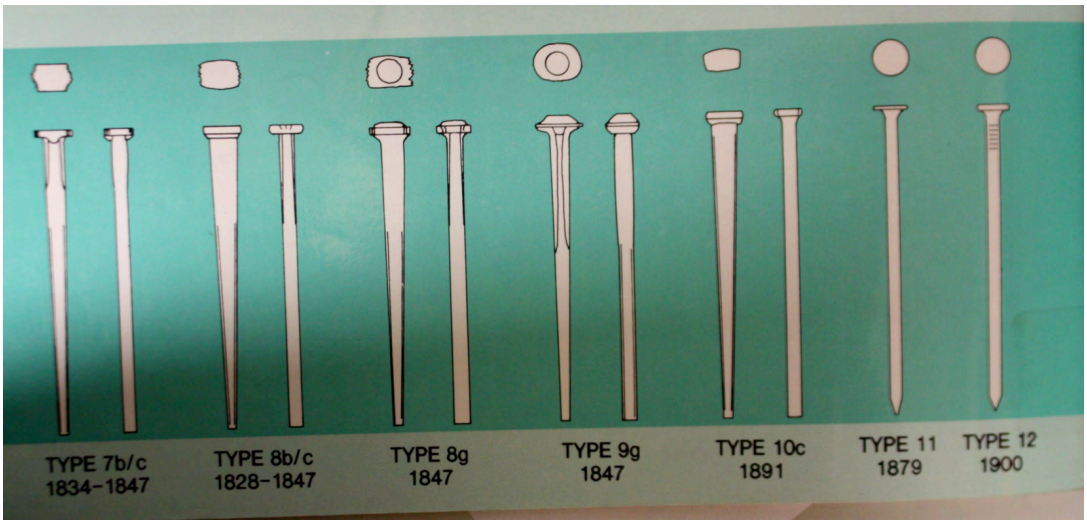
Wood, 2008.

7.2 Tack, nail and screw dating charts









Edwards, 1993.

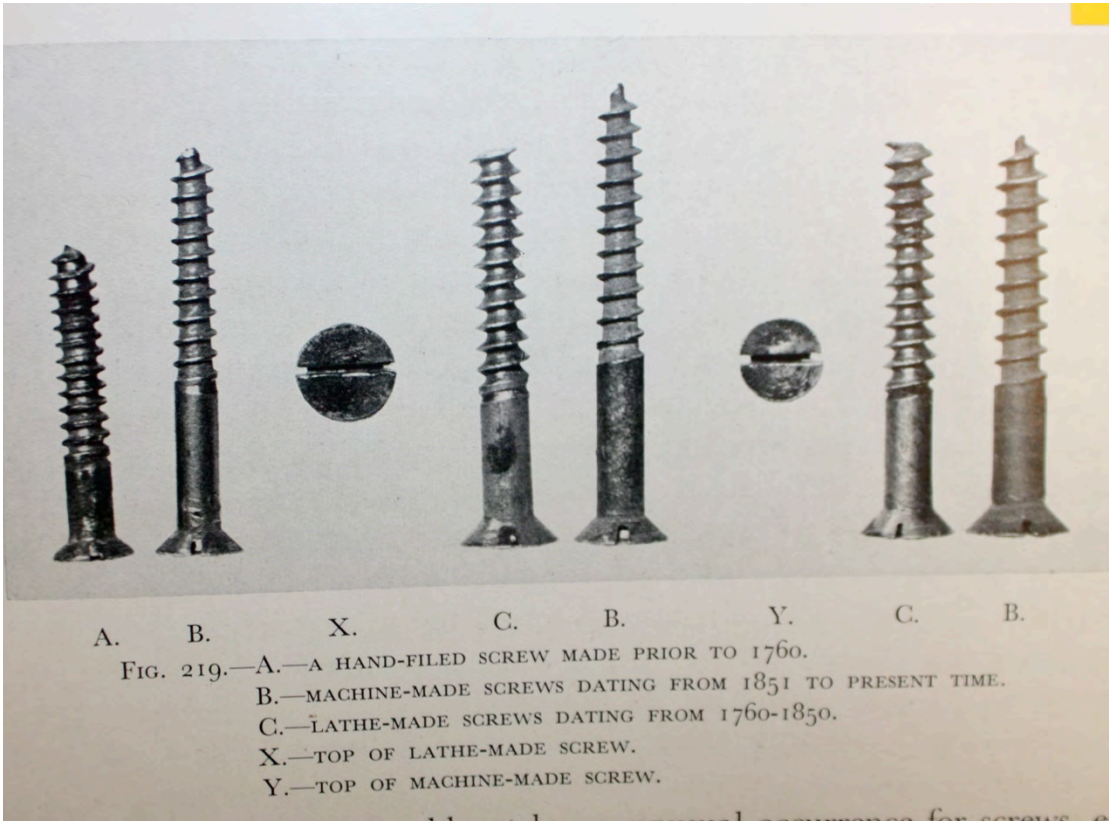


FIG. 219.—A.—A HAND-FILED SCREW MADE PRIOR TO 1760.
B.—MACHINE-MADE SCREWS DATING FROM 1851 TO PRESENT TIME.
C.—LATHE-MADE SCREWS DATING FROM 1760-1850.
X.—TOP OF LATHE-MADE SCREW.
Y.—TOP OF MACHINE-MADE SCREW.

Edwards, 1993.