THE INCE BLUNDELL COMPOSITE MARBLE STATUE OF A MAN WITH AN IVY WREATH – ‘MARCUS AURELIUS’: REVISITED/ RESTORED

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Abstract
In the eighteenth century Henry Blundell bought an antique over-life-sized statue of ‘Marcus Aurelius’ to add to his collection at Ince Blundell Hall, north of Liverpool. His private collection of antique sculpture became the second largest in the United Kingdom, after the Townley collection (British Museum). As a ‘composite’ sculpture ‘Marcus Aurelius’ represented the fashion of eighteenth century restoration ethics. During the condition report the sculpture was divided into three different zones: the plinth with the feet were separated from the main body and another zone existed of 58 pieces. The treatment proposal focused on a series of complex issues. A range of pins and clamps needed to be removed from lead and eighteenth century resin. After cleaning the surface dirt, the disturbing staining of the white Carrara marble by old resin needed to be tempered or removed. Considering different cleaning methods, a superficial impregnating gel worked by dissolving 4% agar in deionised water. Grey dirt layers and sulphation could be removed with a Nd:YAG laser. To reinstate the structural integrity of the statue a ‘piston fit pin sleeve’ armature was devised, besides the use of common pins. This will create an easier disassembly in the future, as the stainless steel pin slides into stainless steel sleeves that are fixed inside the holes with a bulked epoxy. For choosing the right colour fill seven adhesives with seven fillers were tested. This ‘colourfill chart’ worked as a reference and each recipe could be adjusted by adding more or less fillers when searching for the right properties. Finally a protective coating of microcrystalline wax was applied to protect the surface from surface dirt ingestion in the future.

Keywords: This paper is about a composite statue and represents ideas for the removal of pins, cramps and lead; removal of surface dirt and stains with Laser and agar; the choice of appropriate adhesives according to its function; the development of a ‘piston fit pin sleeve’ armature system, creating a colour fill to imitate white Carrara marble and the application of a protective coating.

1. Introduction
The Former head of the sculpture studio at the Conservation Centre in Liverpool (UK): Samantha Sportun examined the white Carrara marble composite statue with an ivy wreath – ‘Marcus Aurelius’ (210 x 85 x 50 cm) in 1995-1996. She started with the disassembly and removal of corroded armature. Since fifteen years this project was left
unfinished in the studio consisting of two main zones and another one about 58 fragments. Over the years surface dirt accumulated on top of the disturbing resin staining and sulphation. Under supervision of the current head of the sculpture studio: Lottie Barnden, it became the multifaceted restoration project during my conservation trainee internship in 2011-2012, as part of the University of Amsterdam. It was necessary to get familiar with the object’s background and current condition while writing a treatment proposal. Different options were considered and will be explained in the following article. An important idea that was kept in mind during the whole interdisciplinary process was that of a MINIMAL INTERVENTION AND EASE OF DISSASSEMBLY.

2. Historic background

2.1 The Ince Blundell collection

The antique over-life-sized statue was given the label: ‘Marcus Aurelius’ (Ince 569) by the wealthy aristocrat Henry Blundell (1724-1810), who gathered an impressive collection of antiquities in his garden temples at the Ince Blundell hall in Lancashire, situated north of Liverpool (UK). In one of the greenhouses of his estate he displayed the statue in a niche (Figure 1). He probably bought the statue at the end of his life in England after the sculpture supply in Italy dried up, around 1800. Blundell’s catalogue mentions that the sculpture was found in the yard of a sculptor. Thomas Banks (1772-1779) is suggested, however London based sculptor Joseph Nollekens (1760-1770) also sold ‘antiques’. Blundell must have been familiar with the contemporary restoration approaches as he was aware that he had accumulated an eclectic collection of uneven quality. Most of his collection, including ‘Marcus Aurelius’ became partially alienated from its eighteenth century setting, because the contemporary owner could not safeguard his collection. He entrusted the majority of it to the city of Liverpool, where the National Museums Liverpool became responsible for its conservation and partially displays it to the public for free.

2.2 The label of ‘Marcus Aurelius’ revised

Two key questions appeared to be crucial to understand the iconography of this statue: What type of statue are we dealing with and how is it possible to typecast a composite sculpture of ancient and modern pieces, with a distinction in style between body and head? By scanning through literature one could describe the ‘Ince 569’ as an over-life-size freestanding statue, with a bare torso and ‘hip mantle’ held together by his left advancing arm, which recalls the Claudian timeframe. However his stance is already inspired by the early canon from Polykleitos’ Doryphoros. His physiognomy bears more similarities with the second type of ‘Marcus Aurelius’ than the first type. But it was still uncertain whether that this portrait represents ‘Marcus Aurelius’. The scholar Feijfer considered that the ivy wreath around his head may point into the direction of a Claudian (Antonine) or Hadrianic type, maybe as part of the Liber Pater cult.

Figure 2. Photo of the Ince 569 at the Ince Blundell Hall, in a nice of the greenhouse, illustration by Ashmole, John, *Catalogue of Ancient Marbles at Ince Blundell Hall*, Oxford, 1929: 50.


2.3 A restoration history backed up by its condition research

From Antiquity, over the Renaissance to the end of the nineteenth century the integrity of antique fragments was often compromised drastically as the fashion of the period was not for broken fragments. As a ‘composite’ sculpture ‘Marcus Aurelius’ represents the ‘enlightened fashion’ of eighteenth century restoration ethics. One of the best-known workshops during the time was the studio of Bartolomeo Cavaceppi (1717-1799), who wrote a three-volume work on the principles of restoration. In one of these volumes he gives an illustration of ‘Augusto’, resembling to the Ince ‘Marcus Aurelius’ (Figure 2). Some authors attributed the ‘Ince 569’ to Cavaceppi, while others think that the piece was assembled in England rather than in Rome. Similarities in some of the restored parts of drapery to the joint surfaces that were worked relatively smoothly and then chiselled with quite fine marks to anchor the adhesive may point into the direction of Cavaceppi. The ‘purist’ approach in the 1960’s and 1970’s was to remove all previous restorations, which did not happen in this case.
The early additions to the ‘Ince 569’ represented a valuable insight into the methods and techniques of the restorers of the period and must be valued and examined as such wherever possible. Sportun was the first one to highlight the different interventions in a drawing, while discussing them in detail (Figure 3). The original parts are the face, except for the nose, the drapery and probably the central part of the torso (separated from the drapery), as is a part of the tree trunk and the right leg and ankle. The plinth, with both feet and the left leg, is supposed to be a classical repair. Eighteenth century additions are the right arm, the left arm with overhanging drapery, the left shoulder, part of the breast, the neck with the back of the head, including the right ear and the rim of the left one. Some other undated repairs are the small pieces inserted in the back of the drapery, the back of the left ankle and the front of the left knee, as a larger part of the drapery, in between the original and later addition. The back of the tree trunk and the back corner of the plinth underneath can also be attributed to this phase, according to Sportun.

2.4. Condition

Figure 4. Zone I in the studio after 15 years, by author.  
Figure 5. Zone II in the studio after 15 years, by author.  
Figure 6. Zone III in the studio after 15 years, by author.

2.5 In general

Research about its assembly, ‘patination’ and used resins was executed in the past. For the current condition research the statue was divided into three different zones: the plinth with the feet were separate from the main body and another zone existed of 58 pieces, plus some extra pieces that could not be located as part of the statue (Figures 4-6). They were approached by visual means under daylight, ultra violet light and raking light. What happened to the statue exactly when it came into the museum was unclear, except that most of the statues were sprayed for a couple weeks continuously. This has more than likely accelerated sugaring, forming of corrosion and staining due to the old resins. After fifteen years lying unfinished in the studio dust accumulated on of the
surface of the marble fragments, as they were not covered properly. The different marbles showed different forms of weathering: the plinth and arms had still a smooth finish, while the head, torso and drapery were rough. The nose, left ear and right eye, to the right side of the drapery, a piece in the back of the drapery and some edges of the piece inserted in the back of the left ankle tended to sugar. Some of the disassembled pieces have smooth joint surfaces, like the ones along the legs and the corner of the plinth. But the joint surfaces of the tree trunk and top of the left leg bear marks of fine chisel incisions for better adhesion. The broken edges of the recarved ribbons are smooth. Some of these were removed in the past and some got lost.

2.6 Armature

In total seventeen small corroded pins can be detected visually, some causing iron staining: in the drapery, nose and left ear and hand. To the back of the right foot and in the tree trunk a corroded cramp was still in place, which did not cause any structural damage. The same was true for the slightly corroded square pin, fixed to the back of the right leg and tree trunk. The corresponding hole in the tree trunk was filled with lead, surrounded with resin. It looked like the cramp at the bottom of the plinth was the cause of a hair crack. Next to it was a round pouring hole, filled with lead.

The pin from the corner of the plinth was sawn in two. It was fixed with lead and resin. The resin around the lead probably sealed the bond in the past, but is crumbling now. The left foot and the hole in the right leg and tree trunk were filled with lead. Both pins were removed and both rough holes clearly widened when going deeper. In front of the left ankle an incision was made in the smooth break surface that looked like a pouring channel for lead. Another half of a big square pin was still imbedded in lead in the tree trunk, behind the right leg of the main body, and appeared to have flared, barbed ends, as the pin became wider towards the back in a hole that also became wider towards the back. The large corroded iron cramp left from the tree trunk at the back was causing brown-orange iron staining and was removed in 1995. The common rule was to hide the armature as much as possible. Several hair cracks were visible, of which the long one that runs over the drapery looked the most unstable. A couple of them were consolidated with darkened facings of Japanese or fibreglass paper in 1995.

2.7 Staining and residues

It is remarkable that in Ashmole’s publication of 1929 the statue still has all its fingers, they have since broken off, were lost and the exposed edges became rough. The repaired middle and index finger of the right hand were broken of together with the scroll. They were patinated with a yellowish substance. The nose is broken in three pieces and was patinated. The old residues caused orange-brown staining of the white marble. They are not supposed to be patination. Sportun explained that two kinds of resin were used: based on two kinds of binding media, maybe to facilitate pouring: a dark one with a softwood tar (a distillation product of pine) became sometimes powdery. The other one was more yellow due to mixing in a wax or oil and was not brittle. Marble powder and gypsum were added to provide bulk and strength. Under ultra-violet light these resins fluoresced. The resin stains were most persistent along the joints of the marble. Why the drapery also showed similar staining became clear while removing the sugaring part from the back and removing the resin underneath. This confirmed that the
torso and part of the drapery were put into the drapery as a separate piece. The marble appeared to be only 2-3 mm thick around the hole. The open space was filled completely with resin to fix the torso. Due to a damp environment or wet cleaning this resin could migrate to the surface. More greyish stains - entrapped dirt, were also visible and were slightly soluble in water. Sportun (Laser) cleaned most of zone II, zone III and the front of zone I.

2.8 Tool marks and mechanical damages

By making use of raking light different patterns, in first instance tool marks, on the surface became more visible. The marks of tooth chisels and flat chisels were visible, some fine scratches point to the use of rasps, files or fine stone powders to polish the surface like pumice powder. A tooth chisel was used on the original flat part of the plinth in between the feet. The rest of the restored plinth has a very smooth, almost polished surface finish, still baring traces of a very fine rasp or stone powders. The part of the tree trunk between the feet has been carved with a flat chisel in contrary to the outer side of the tree trunk where traces of a tooth chisel are visible. Besides the tool marks several scratches and impact damage could be noted, especially on the back of the torso and on the sides of the plinth. A strange marking appeared across the two pieces of marble on the chest.

It is assumed that some kind of clamp aligned the two pieces together during assembly. Raking light also revealed the burial marks on the drapery better, which weren’t removed in the past. The roughened surface of the face for example was also clearly visible in this way. The head isn’t fixed completely anymore as it moves a tiny bit.

2.9 Cleaning

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3. Dry cleaning

Working according to a phased approach the process of cleaning would develop slowly, allowing the conservator to adjust the visual balance of the sculpture as he worked, as John Larson phrased it in the past. The dust that had gathered over the years
on the surface of the statue hid the white Carrara marble underneath. In first instance the removal of this loose surface dirt was achieved mainly with a soft chip brush and a museum vacuum cleaner (Figure 7). However the ‘Wishab’ sponge was a good cleaning method for removal of more ingrained surface dirt, it could also damage sugared marble not visible due to the surface dirt. In the end this technique was used only on the whole surface of zone II, which was in a good and safe condition.

3.1 Mechanical removal of cement, lead and armature

Some cement residues on the back of the plinth were removed with a flat chisel, leaving a thin layer that was removed with a scalpel. The use of ultrasound abrading tools would be nice to test for this last step. But the more invasive question was developing a technique for the removal of the small pins, cramps and lead. Both the chisels and drill bits tended to get stuck in the lead and snapped. All in all the high steel drill bits seemed to work best for drilling out the lead around the pins (Figure 8). While removing the bottom clamp it could be seen that the perpendicular hair crack was not caused by the corrosion of the clamp, as the crack did not run through the marble underneath the clamp. But the clamp was probably put in the marble to preventing it from cracking further.

If the corrosion had not expanded the pin in the hole so much, the removal of the small-corroded pins could be achieved in first instance with a needle, loosening the resin around it. At this stage they could be removed with pliers, however some pins snapped. Then a three-millimetre diamond core drill was applied to drill out the pins with as little removal of the marble as possible (Figure 9). A couple of pins were left in place at the drapery as it might have caused more damage putting pressure on them during the removal of the ribbon. Where a pin or clamp was left in the tree trunk, the corrosion was first removed mechanically with a scalpel and sanding tool on a ‘Dremel’. Afterwards a rust inhibitor was applied. During this tannin process the metal turned black. It is important not to spill any of the inhibitor on the marble as it may cause staining but also attacks the marble, as its pH is around 3.5. An interesting technique for future reference would be to test dry ice blasting for the removal of corrosion.

3.2 Mechanical and chemical removal of resins

For the removal of paint and thick resin residues a viscous paint stripper: ‘X-TEX’, was used after the marble was pre-wetted with deionised water. After a minute the blue paste was removed with a wooden spatula and a swab. Any residues were removed with acetone. Next step was to remove all the resin residues on the restored edges of the marble. All the removed residues were labelled and kept separately in the object’s conservation file, for any further research. For the removal different steps were necessary. After the broken edges were cleaned with a chip brush, the residues were removed mechanically with wooden pickers, glass fibre brush and scalpels. Brushing this clean was followed with an acetone swab. Then cotton wool was applied over the surface and dampened with acetone to soften the residues for about an hour, covered with cling film (Figure 10). With cotton wool swabs of acetone most of the traces could be removed afterwards. Finally the surface was cleaned with bristle brushes and low-pressure steam. The darkened Japanese tissue facings consolidating the hair cracks or fractures could not be removed with deionised water, but with acetone. This indicated
that the facing was not adhered with a water based adhesive such as the ‘Primal WS-24’ emulsion, but with a solvent based ‘Paraloid’ co-acrylic polymer.

3.3 LASER cleaning

Due to the risks of material loss and creating white hazes when using steam to remove the grey dirt layer on marble that is not always in a good condition Sportun also preferred to use the Q-switched Nd:YAG (infrared: 1064 nm through a fibre-optic cable) Laser to clean (Figure 11). With a fluence of around 50 a smooth cleaning was established, similar to the one of Sportun. Laser cleaning systems can be used on dry marble or one can pre-wet the marble to achieve a certain kind of micro superficial steam effect. Cleaning the back with or without a pre-wetted surface did not seem to produce a different result, however the dirty parts on the fronts that were pre-wetted did not yellow. Strangely enough the Laser cleaning of the back with the same energy seemed to look a bit more yellow than the front. The application of agar afterwards did not seem to reduce this. When Laser cleaning the broken off scroll a part of the surface turned black. This appeared to be a small fill from a former restoration containing lead white.

![Figure 11](image1.png) ![Figure 12](image2.png) ![Figure 13](image3.png)

**Figure 11.** Laser cleaning the back with a fluence around 50, by author.  
**Figure 12.** Residues of agar fluorescence under UV-light after complete covering, by author.  
**Figure 13.** Local application of agar - 30 minutes, by author.

3.4 Agar application

Cleaning with water did work for certain kinds of surface dirt. But the risk in applying deionised water, through swabs or moreover steam, is the migration of the orange-brown resin stains along the broken edges and on the drapery, which are difficult to control. By applying a superficial impregnating agar(ose) gel, a technique was established however with a minimum of water contact to the marble surface, but still enough to dissolve the stain and pull it back into the gel. The results of a 4% Agar solution in deionised water (w/v) were very satisfying. The pH of the solution was around 7, like the marble surface. For the removal of iron stains in plaster agar works very well, but the influence it had on the removal of iron stains from white Carrara marble was, even after 5 applications, minimal. Its application directly onto the corroded
metal proved however that it was capable of taking up the corrosion product. The literature states that agar doesn’t leave any residues. This might be true for a smooth surface, but on a rough marble surface this appeared not easy to achieve when the gel was completely dried out (Figure 12). Its application on sugared marble needed to be avoided as the dried up gel took up loose crystals of marble.

The difficulty in applying agar is to get an even layer of about 1 centimetre (also along the edges) on a vertical surface without creating drips, so it is easier to remove afterwards. Pouring or brushing did not always work out when the liquid was too warm and it took too long to form a fixed gel. A thin gel layer tended to form quickly whilst the bulk of the liquid ran off the vertical surface. A reapplication to create one gel layer created two or more layers with peeling. When dried out completely the residues can be clearly seen under UV-light. A full application to the torso did not reduce the possibility of creating stain tide lines, as could be seen also under UV-light. On smooth surfaces like the plinth the dried out gel was very easy to remove, as it was lying loose on the surface. But on the coarser surface it got stuck and light pressure steam seemed to be the best method to dissolve and remove it with a bristle brush, with migration of the stains as a consequence. In that sense the decision was made to apply the agar only locally and tests pointed out that the agar was able to remove the stains after only 10 to 30 minutes. After searching for the right application methodology quite a quick technique was developed in the end. By working in dammed sections a still flexible gel of about one centimetre could be removed with wooden spatulas, while trying not to leave any residues (Figure 13 and Figure 19). Before the back of zone one could be cleaned in the similar way, and after the Laser cleaning had taken place, the assembly of the statue needed to be completed.

3.5 Re-assembly of an over-life-size marble statue

3.6 Introduction

With the pins removed and the old cavities cleaned the next phase of the project could start reinstating the structural integrity of the statue. Different stainless steel pins were used depending on their location and specific purpose, different types of adhesives and armature needed to be selected according to their function (consolidation, structural or not and time available during application), all the time bearing in mind the leitmotiv of minimal intervention and ease of disassembly in the future. In that sense the meaning of reversibility: the complete undoing of an adhesive bond with no or minimal effect on the substrate is not always easy to achieve; because the resistance of epoxies and polyesters towards a more common solvent is considered to be one of their best characteristics. The choice of adhesives was discussed with Norman Tennent and the internal forces that this kind of armature need to withstand was with Bill Wei (RCE) and Jerry Podany (Getty); but could not be calculated within the timeframe. Their knowledge was very helpful during the design of piston fit pin sleeve system.

3.7 Selecting appropriate adhesives

It was necessary to apply barrier coatings on areas where epoxy otherwise would come into contact with the marble. First, a 4% Paraloid B-72 in acetone was brushed on the surface, followed by a coating of 10% the next day. Both coatings were left to dry
for a couple of days. The 4% solution was also used to consolidate the thin shattered left knee piece. Caution was taken that the solution did not reach and possibly darken the surface that would be visible. Pieces (for example the nose - including small stainless steel pin, left ear, drapery pieces, small pieces near the tree trunk, the odd rectangular piece at the back of the plinth), which did not have any structural function, were glued with a 50% solution of Paraloid B-72 in acetone, bulked-out with marble powder (grade 100) (Figure 14). This was done to reduce shrinkage caused by the evaporation of the solvent and to increase the compressive strength (if necessary). The fingers were fixed with ‘General - Vertical Transparent - Polyester’ after the marble received a barrier coating.

For the structural adhesions the first choice was the use of a viscous high-grade epoxy, like ‘Araldite 2011’. However, although this adhesive is already viscous, extra AEROSIL®Fumed Silica was added to tweak its viscosity (to reduce dripping) before application, but also to create a more flexible cured adhesive that can withstand greater tensions during future movements.

3.8 Selecting appropriate armatures
The broken pieces of the corner of the plinth were glued together with ‘General - Vertical Transparent - Polyester’. As a whole it was glued with dots of ‘Araldite 2011’ epoxy and a keyed in stainless steel pin, bulked-out with Fumed Silica. Besides the classical solid pin a ‘piston fit pin sleeve system’ was developed. Inspiration was drawn from other semi-bonded systems, similar to the ones developed by the J. Paul Getty Museum. In this system the pin slides into two separate loose sleeves, each closed from one side, which are fixed with the thixotropic epoxy.

The torso was strapped around the drapery, avoiding any movement of the two separate pieces. After the first sling was applied and the statue was lifted up diagonally a second sling was applied. Bearing in mind its centre of gravity the correct position was reached to lift the statue according the corresponding alignment of zone two. During
lifting all the hair cracks were monitored. A dry test run was completed to check the procedure. First the left leg was fixed with a solid pin (keyed in along the surface and rounded at the edges) with quick curing polyester: ‘General – Vertical Transparent – Polyester’ (Figure 15). This choice was made, because the leg could be held in place while zone one was hanging into the correct position over zone 2. After the polyester cured the statue could be lifted with the left leg. The big sleeves were then placed into the right leg and the small sleeves were placed into the left ankle. Both of them were placed into a bed of the bulked-out ‘Araldite 2011’ epoxy with Fumed Silica. Using this slow curing epoxy allowed the time to place everything into its exact position (Figure 16). The pins were first sprayed with a release agent to reduce friction before they were slid into the sleeves. Now zone one could be lowered in the correct position onto zone two. The slings were loosened but left in position, because the epoxy needed to cure over night. As the statue was leaning a bit forward on the plinth (which narrows down to the front) it was decided to raise the front of the plinth by 12 mm, to correct the centre of gravity, creating a more stable object. On the back of the statue a new cramp, following the contours of the surfaces was fixed with the bulked-out epoxy, where the old one next to the tree trunk had held zone one and two together as an extra support. The two pieces of the tree trunk were fixed with dots of the bulked-out epoxy to give extra support over epoxy around the tarnished cramp. The hole in the top fragment of the tree trunk was filled with this epoxy as it slid over the old tarnished square. The statue was leaning a bit more forward. The chin of the right leg was glued with the bulked-out Paraloid B-72 with marble powder as it almost stayed in position by itself and had very little structural support.

3.9 Loss compensation for indoor white marble sculpture

3.9.1 Introduction

Several criteria were involved in considering materials to be used for loss compensation on white marble sculpture. Choices were based largely on former research when selecting materials for making a ‘colour fill chart’ as a reference (Figure 17). Through that selection procedure (of seven bonding media and seven aggregates) the main criteria during application needed to be its visual appearance and its workability, which were described.

Figure 17. Representative ‘Colour fill chart’, by author.
Figure 18. Colourmatching the colourfill: ‘Epotek 301-2’ with Fumed Silica, Alabester powder
The environment in which the sculpture will be stored or displayed plays a significant role in the range of materials to be used. Objects on display outdoor have a more limited range of materials, which are preferably sacrificial lime based mortars. Interior objects, like this case, have a wider range of possibilities - also making use of synthetic materials. Each sample recipe in the chart could be adjusted by adding more or less fillers to a certain binding media when searching for the right properties. It became clear that not all combinations were a success. Some of them work very pleasantly while others were more difficult to work with, or don’t give you much working time. Remarkable was that a couple of the test samples failed completely as they crumbled while shrinking, produced bubbles or had the wrong colour.

3.9.2 Application procedure

On the bottom of the plinth a test was conducted in the gap left by the removed clamp. After applying barrier coatings (4% and 10% Paraloid B-72 in acetone) and filling the gap with ‘Polyfilla’ almost completely, the last final layer was applied with the colour fill. Into a high-grade epoxy of ‘Epotek 301-2’, Fumed Silica was mixed to create a paste. A combination of alabaster- and marble powder was mixed into this to obtain a similar colour and translucency as the marble, while no pigments were added (ill. 18). Pigments can be added according to the surrounding stone. Because the gap was quite big the fill tended to slump after a while. To avoid this more Fumed Silica should be added in advance. In this case the filling was kept in place by covering it with a ‘Melinex’ sheet. If the filling is too high it can be cut back with rifflers, files or scalpels, without creating any sort of mechanical damage to the marble. For the other fills another high-grade epoxy, ‘Hxtal-NYL 1’, was chosen as it has better light ageing properties.

4. Protective coating

After treatment the procedure at the Conservation Centre is to apply a protective coating to prevent any dust, dirt or grease (and any unwanted additions by the public) getting trapped into the surface or cracks. It both seals the open porous structure and must be reversible. The natural result of such treatments is to enhance the translucency of the marble. Some argue that this would soften the effect of the tooling (‘sfumato’) giving the sculpture a more ‘finished’ appearance than in reality. The ‘Renaissance micro-crystalline wax polish’ was applied with a soft brush or a cloth onto the surface of the marble and left to dry for at least 30 minutes. When the wax had partly dried, the excess wax was buffed away with a clean cloth or brush. After this a second layer was applied to impart sheen to the surface. By this method a uniform finish was achieved over the whole object that enhances the ‘patina’ without the appearance of an applied coating.

5. Conclusions

One could describe the composite statue, formerly labelled: ‘Marcus Aurelius’ (Ince
569), as an over-life size free-standing statue, with a bare torso and a ‘hip mantle’ held together by his left advancing arm, which recalls the Claudian timeframe. However his stance was already inspired by the early canon from Polykleitos’ Doryphoros. His physiognomy beared more similarities with the second type of ‘Marcus Aurelius’ than the first type. But it was not certain that this portrait really represented ‘Marcus Aurelius.’ Especially considering the ivy wreath around his head, which may have pointed into the direction of a Claudian (Antonine) or Hadrianic type, maybe as part of the Liber Pater cult.

Henry Blundell’s private collection of antique sculpture became the second largest in the United Kingdom, after the Townley collection (British Museum). As a ‘composite’ sculpture ‘Marcus Aurelius’ represented the fashion of the eighteenth century restoration ethics. However the origin of this statue remained vague, Blundell acquired it at the end of his life. He displayed it within a niche in the greenhouse of his Ince Blundell Hall just north of Liverpool. Until 1959 the statue stayed on his estate. Afterwards the collection was trusted to what became National Museums Liverpool, who still conserve of a large part of the collection. What happened to the statues, besides a thorough wet cleaning, remains unknown. It was only until 1995 when Samantha Sportun undertook research into this statue, started disassembly and laser cleaned different parts that more information about this sculpture became available.

Sportun did not complete the treatment of the sculpture and it was left to rest within the sculpture studio for at least fifteen years. In the fall of 2011 the author started writing a treatment proposal during his internship for the University of Amsterdam. The sculpture was divided into three different zones: the plinth - with the feet (2) was separated from the main body (1) and another zone consisted of 58 loose fragments, which could be located back on the object (3). A range of pins and clamps needed to be removed from lead and/or eighteenth century adhesive. After cleaning the surface dirt with a soft brush, the disturbing brown orange resin stains could be removed or tempered from the white Carrara marble. A superficial impregnating gel worked by dissolving 4% agar in deionised water. As the resin stain was soluble in water this gel was applied in separate zones and could be removed after already fifteen minutes with a wooden spatula. The rough surface made it not always easy to remove all residues of this gel. Grey dirt layers and sulphation could be removed with a Nd:YAG Laser. The only downside was a yellow ‘discoloration’ of the back, which was not pre-wetted in advance, for avoiding migration of resin stains. Small pieces on the front of the drapery and the leg were pre-wetted and had the same colour as it surrounding marble which was laser cleaned by Sportun years earlier.

This project also allowed for the development of a technical approach to re-assembly, addressing issues like stability and reversibility of its adhesives and armature. Adhesives were being used according to their function: 4% Paraloid B-72 in acetone for consolidation and as a barrier layer (4% followed by a 10%) before applying a quick setting polyester of ‘General – Vertical Transparent – Polyester’ or a slow curing epoxy, ‘Araldite 2011’, bulked-out with Fumed Silica to increase viscosity and strength. A 50% mixture of Paraloid B-72 in acetone bulked-out with marble flour to reduce shrinkage was chosen for non-structural adhesion. Stainless steel pins were used and a ‘piston fit pin sleeve’-system for the right leg and the left ankle was designed to enable an easier disassembly, if necessary in the future.
After testing several materials for loss compensation of white marble, gathered in a reference ‘colour fill chart’, the choice was made to use the high grade epoxy: ‘Hxtal Nyl 1’; together with Fumed Silica, marble powder, cooked alabaster powder and if necessary pigments to imitate the surrounding marble. This ‘colourfill chart’ worked as a reference and each recipe could be adjusted by adding more or less fillers when searching for the right properties. After the application of a barrier coating of Paraloid B-72 in acetone (4% followed by a 10%) and a bulk fill of ‘Polyfilla’ if the gap was considerable, the epoxy mixture was applied. By closing cracks or missing parts (without remodelling parts) the chances of the accumulation of dust and other surface dirt was reduced. Applying a protective coating of microcrystalline wax further enhanced this and its look.

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