The background of the entire page is a photograph of a highly ornate ceiling, likely from a Baroque church. It features intricate gold leaf carvings, stucco work, and large-scale frescoes of angels with wings, set against a deep blue background with small white stars. The perspective is looking up, emphasizing the height and grandeur of the architecture.

Salvador Muñoz-Viñas

The Transactional Nature of Heritage Conservation



Reinwardt Academy
Amsterdam University of the Arts

The Transactional Nature of Heritage Conservation

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Text of the Reinwardt Memorial Lecture

9 March, 2017

About the Memorial Lectures

Since 2008, the Reinwardt Academy, the faculty for Cultural heritage of the Amsterdam University of the Arts, has honoured its namesake by organising a yearly lecture on or around either his birthday, 3 June, or his passing away, 6 March. Caspar Georg Carl Reinwardt (1773-1854) was a respected naturalist, professor at three universities (Harderwijk, Amsterdam, Leiden), director of four botanical gardens (Harderwijk, Amsterdam, Bogor, Leiden) and one natural history museum (Amsterdam). During his stay in the former Dutch East Indies (1816-1822), he assembled large collections that eventually found their way to several major Dutch museums of natural history and anthropology. Reinwardt maintained a large international network, including such famous naturalists as Alexander von Humboldt and Philipp von Siebold. The Reinwardt Academy is proud to bear his name.

As a person, Caspar Reinwardt stands for values that the Academy considers of key importance: international orientation, collaboration through networks, sensitivity to the needs of society and a helpful attitude towards students. Reinwardt was not a prolific writer; he was first and foremost a teacher. Through his lively correspondence, his extensive library and his participation in a wide variety of scientific committees, he was well aware of contemporary developments in the field of science and he considered it to be his primary responsibility to share this knowledge with his students. It is in this spirit, with reference to the values mentioned above, that the Academy invites a distinguished speaker for its Reinwardt Memorial Lecture every year.

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Foreword

Cultural heritage has for a long time been concerned with precious and rare objects that need to be cared for, kept forever and transmitted to future generations. One often hears the word ‘treasures’ being whispered. Nowadays, however, the notion of heritage is being applied to a far wider range of objects, tangible as well as intangible. Yet the urge to maintain and to facilitate their survival beyond their natural life, as it were, is still part and parcel of the heritage profession. Indeed, both tangible and intangible heritage requires the awareness of immediate extinction in order to be taken seriously by the powers that be – the broader public, professionals and authorities alike.

In order to stop or at least slow down the unavoidable decay of material reality, or else to mitigate its effects, the discipline of conservation, restoration and preservation has come into being. And it’s thriving now perhaps more than ever, in our still modernist era obsessed with an everlasting present, perennial adolescence and timelessness.

In circles of critical heritage and museum studies, where dynamic, participatory ways of dealing with heritage are preferred, conservative attitudes towards objects from the past are not always unconditionally encouraged. Indeed, unthinkingly fossilising works of art, landscapes or

traditions would seem to be less suited to eliciting societal relevance, public engagement or communal appropriation. What we favour at the Reinwardt Academy are alternative options, like preventive conservation and, especially, risk management in case of changes to physical objects (and sites) and understanding the relational (often oppositional) aspects that govern valuations of intangible ones. Restoring an artwork to its former, original or presumably intended state may not always be among our first concerns, then.

But then, during a workshop my co-lecturer Marjelle van Hoorn and I were giving in 2016 at the department of Cultural Heritage and Museology of the Zhejiang University’s School of Humanities in Hangzhou, I stumbled upon a copy of a small blue book entitled *Contemporary Theory of Conservation*, not even a decade old, in the classroom’s reference library, amidst hundreds of the best known titles in our field. I was spellbound finding a study on restoration as a philosophical challenge, rather than a cookbook ‘how-to’ guide.

Why was I struck by this? First of all it was immediately clear to me that here someone was tackling the practice of taking care of physical objects in terms of the broader subject of why one would do it in the first place and to what end: recreating, nay improving the maker’s design and intent, or even recalling the image of the object’s *floruit*. Here a new, fundamental critique on an age-long tradition of restoration could be read. Second, *c’est le tone qui fait la musique*. It was equally clear to me that the person whose voice I was hearing used an essayist tone, was

inquisitive, truly interested in learning something – and using a colloquial language register to do so. For as long as I have been active in archaeology, art history, heritage and museum studies, such a voice has been a *rara avis*. Authorities, writers, scientists, advisors, curators, directors, critics and experts in our field alike have not been known for their linguistic accessibility – with museum directors Neil McGregor (British Museum) and Henk van Os (Rijksmuseum) as the proverbial exceptions. But third and most importantly, I suspected that critical heritage theory here was being phrased from the sidelines, as it were. Any answer to the question why and to which state or shape a treasured object should be “brought back” cannot but first go into the relationships between the beholder/owner/public of today and tomorrow and the commissioner/creator/context of the past - and the many phases in between. In that way heritage will be discovered as a pawn in an unending chess game dealing with identity, power and wished-for futures.

It did not take long to check with Reinwardt staff as to the relevance of *Contemporary Theory of Conservation*, which turned out to be a global classic. We quickly set out to invite its author, prof. Salvador Muñoz-Viñas, to deliver the 2017 annual Reinwardt address. Upon whose ready acceptance we asked him to also become our expert-in-residence. Professor Muñoz participated in the last week of a student project our preservation and restoration teachers had been carrying out at Castrum Peregrini, a remarkable three-house six-storied complex of completely preserved historical rooms of recently deceased centenarian artist

Gisele d'Ailly on the Herengracht in Amsterdam. It was a great success, as well as a happy sneak preview, in practice, of the more theoretical lecture prof. Muñoz gave at the close of his Amsterdam stay.

In preparing the manuscript I pondered over the word *transactional* in its title. In addition to its more mundane meaning, referring to one-off business deals in contrast to lasting relationships, it reminded me of Eric Berne's powerful ideas on social interactions between individuals, in which they themselves keep changing (or indeed perpetuate psychopathological ego states!), known as Transactional Analysis (*Games People Play*, New York: Grove Press 1963). Now if heritage objects are décor pieces in an on-going process of changing positions between people, identities, pasts and futures (or in strategies preventing such changes), then the practices of taking care of them physically can be appropriately called transactional in this sense, too.

Amsterdam, December 2017
Riemer Knoop, Professor of Cultural Heritage, Reinwardt Academy

I The Frankenstein Syndrome

One of the beautiful paradoxes in the world of heritage conservation is that it often works by altering the thing that needs conserving. In other words, *conservation alters*. The reluctance to acknowledge this fact has been called “the Frankenstein Syndrome” (since just as Viktor Frankenstein would not want to think of some of the consequences of his experiments, many experts and non-experts do not really seem to take into account the consequences of most conservation treatments).

This idea was presented in a speech at the 2011 American Institute for Conservation annual meeting and published afterwards.¹ For the convenience of the reader, a summary may be in order. The argumentation begins by speaking about Valencia, Spain. Valencia is a mid-sized city (c. 800,000 inhabitants, plus a greater metropolitan area hosting more or less the same amount of people). It is

a lovely city according to many visitors; it is certainly old, having been founded by the Romans. It has lived through a number of events: it was a Muslim city for several centuries and was dominated by the Napoleonic army for several years. It even became the capital city of Republican Spain during the Spanish Civil War. Its golden period, however, took place during the end of the Middle Ages and lasted until the 15th century. In the 13th century, very much in line with the rise of the city, it was decided that a large cathedral was to be built.

The first door of the cathedral was created in the Romanesque style, while most of the rest was Gothic. When the main altar chapel was destroyed by a fire in the 15th century, two Italian painters were commissioned to paint its ceiling. In the 17th century, the whole chapel, including its ceiling, was refurbished in a rich Baroque style and in the following century, a new Baroque door was built and the whole interior of the cathedral was refurbished in the Neoclassical style. This evolution may be considered somewhat typical of buildings of this kind, which were built and rebuilt and modified to suit the tastes and needs of their users.

In the 1980s, the cathedral was the subject of an extensive conservation treatment, which involved the restoration the Gothic interior of the main nave. The side chapels and the main altar kept their Neoclassical and Baroque refurbishments, though. In the early 2000s, during a routine conservation survey, a small water leak was discovered in the ceiling above the main altar. In order to find the origin of the leakage, a camera was inserted into the space between the Baroque ceiling and

the older Gothic half-dome. Much to the astonishment of the conservators, the camera showed that the Renaissance paintings from the 15th century had not been destroyed during the Baroque refurbishment; in fact, they had been preserved in very good condition.

Upon this discovery and after consultation with renowned national and international experts, it was decided that the Baroque ceiling would be removed to show the Renaissance paintings, which happened to be very beautiful. The conservators dismantled the ceiling and cleaned the paintings (Figure 1). The result was a resounding public success. The inauguration became a political event, international congresses and travelling exhibitions were organised, coffee table books were published and thousands of people queued up to see the city's new treasure. And yet, what the conservators had produced was a brand-new composite, something made up of fragments that were never intended to coexist together. As a result of their work, the main altar now shows a dome in which the Gothic vaults and the central ends of the Gothic arches can be seen alongside Renaissance paintings. Profuse golden Baroque decoration covers most of the arches, which end in a naked keystone in the centre of the half dome, which is neither purely Baroque, nor Renaissance nor Gothic (Figure 2). In a sense, the conservators had created a kind of a historical and artistic Frankenstein creature.²

This may seem to be an extreme, non-representative example, but it is not that different in fact from nearly every other conservation treatment. The difference is not qualitative but quantitative: the blend of fragments and materials from different regions and times is just more noticeable.



Figure 1: Main altar, in Baroque style, in the Gothic cathedral of Valencia.



Figure 2. Detail of the dome. At the keystone, only the ends of Gothic arches are visible; the remaining parts are covered with Baroque decoration. Between these Gothic/Baroque arches, the Gothic ceiling is covered by Renaissance paintings. In order to make the Renaissance paintings fully visible, the massive hanging Baroque keystone was removed. What can now be seen is a blank, octagonal one.



Figure 3. After the earthquake that destroyed the basilica of S. Francesco of Assisi on 26 September 1999, the conservators recovered as many fragments of the surface of the original paintings as possible from among the rubble. The pieces that could be identified were then relocated on a full-size reproduction of the original painting.

Consider the case of the early Renaissance paintings in the church of Assisi, Italy, which were destroyed by an earthquake in September 26, 1997. As a result of a strong tremor, 5.7 on the Richter scale, large fragments of the ceiling on which the paintings had been executed five centuries ago fell to the floor, where they were reduced to dust and rubble.

The long and delicate conservation process started by painstakingly gathering as many fragments of the paintings as possible and then guessing their original location. The fragments that could be identified were glued onto real-life sized printed reproductions of the paintings (Figure 3). Finally, the reproductions with the glued-on fragments were in turn adhered to a hex-core panel and put back in place in the new, reconstructed ceiling structure. The treatment was considered a success, but what the visitors can now behold is, again, a blend of different materials and objects from different origins and times: 500-year old paintings can be seen alongside a modern colour print; old plaster is blended with modern synthetic adhesives; and all of these parts are mounted on a lightweight, hi-tech panel, such as those used in the modern aerospace industry.

Indeed, this phenomenon can be recognised in many conservation treatments. Most visitors to the National Gallery in London beholding Velázquez's *Rokeby Venus* believe they are looking at a seventeenth-century painting. What they are in fact seeing is yet another blend of materials from different regions and times, since this painting was slashed in 1914 by a suffragist and then subjected to a skilful treatment that successfully concealed all the damage. As a result, the painting now contains the brushstrokes done by



Figure 4. *The Rokeby Venus (The Toilet of Venus)*, c. 1650 by Diego Velázquez, in the National Gallery, London. It now includes 20th-century paints and brushstrokes from an unknown conservator, particularly abundant on the back of Venus.

Velázquez in seventeenth-century Spain alongside those of an accomplished conservator done in London in the 20th century. Of course, the materials are also diverse: there are seventeenth-century pigments and binding media next to twentieth-century ones. The fact is, this painting is now a composite, an object that is different from the painting Velázquez made around 1650 (Figure 4).

Indeed, new modern materials are often added to the object being conserved, so in fact there could be a better metaphor than that of Viktor Frankenstein's creature. It may lack the pedigree of Mary Shelley's classic character, but is perhaps more accurate: the new objects produced by adding modern conservation materials can often be better compared to the character depicted in Paul Verhoeven's classic movie *RoboCop*.

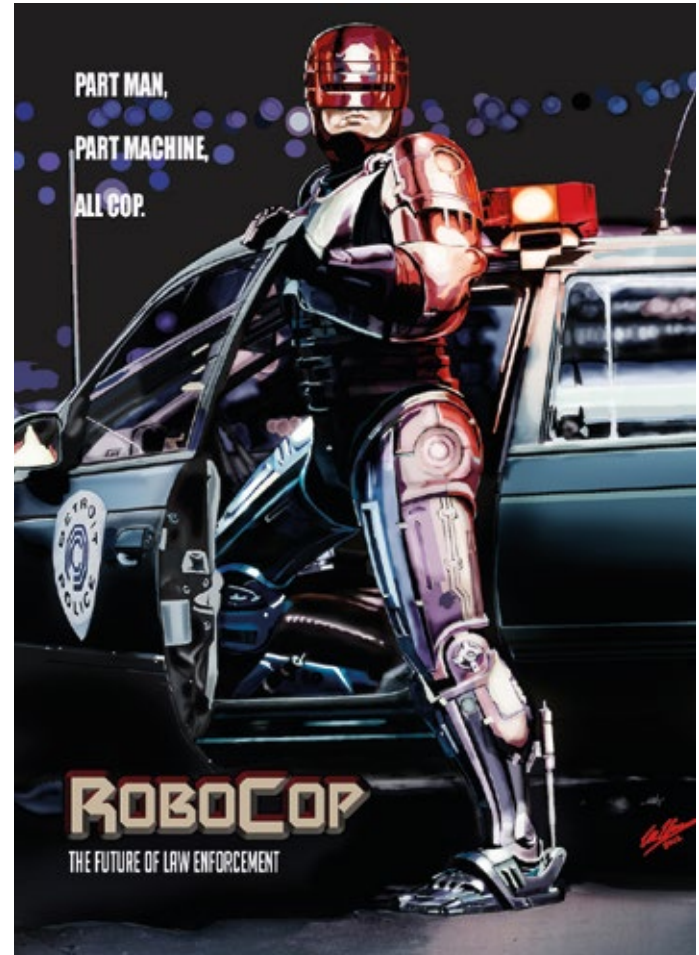


Figure 5. Poster for *RoboCop* (Orion Pictures, 1987). The movie tells the story of an injured policeman whose damaged limbs and organs are replaced with cybernetic devices, effectively becoming "part man, part machine".

RoboCop (Orion Pictures, 1987) tells the story of Alex J. Murphy, a policeman who gets severely injured whilst on duty. To save his life, surgeons replace parts of his body with cybernetic parts. As a result and as the movie poster says, Murphy becomes “part man, part machine, all cop” (Figure 5). In a similar fashion, an old wooden sculpture can be impregnated with a modern acrylic consolidant; a Baroque painting can be found mounted on a metallic constant-tension frame; or a Renaissance embroidery can be sewn to a plastic non-woven tissue.

Both the Frankenstein and the *RoboCop* metaphors might seem far-fetched. However they are, at the very least, not exceptional since other authors have drawn attention to the compound nature of widely different artefacts using these very references. For example, the conservation of an old Arab stronghold in Southern Spain resulted in a blend of modern, white blank walls and old stones that won an international architecture prize³ but it has also been described as a “Frankenstein-like castle”⁴ or even as a “Franken-Castle”,⁵ while the *Gioconda* has been said to have become a “veritable twenty first-century cyborg” ever since a modern set of electronic sensors and circuits that transmit information about its condition was attached to its back (Figure 6).⁶

What is more interesting here, however, is the fact that many conservators, as well as the general public, still want to see conservation as a purely neutral activity, an activity that lies outside the history of the object. So strong is the desire to be a transparent, almost ghostly agent, that on countless occasions both the conservators and all other parties involved in heritage management have

learnt to not just believe that conservation can be performed without interfering with the object, but also to disregard that interference. This selective blindness and not the fact that conservation often creates new composites, is what the “Frankenstein syndrome” is about. Just as doctor Viktor Frankenstein got carried away by the will to acquire greater knowledge and power, without really wanting to be aware of the possible consequences of his acts, conservators may also perform treatments without really being willing to see some of their consequences, namely, all those consequences that entail an alteration of the object to be conserved.



Figure 6. Musée du Louvre, Paris: a large group of people gathered in front of “a veritable 21st century cyborg”.

II C-IA

(Conservation-Induced Alteration)

Regardless of how obvious it may seem after it is highlighted, when “the Frankenstein syndrome” was presented to the public for the first time in 2011, the very idea was seen as a “provocative salvo” to the audience.⁷ Judging from many reports, texts and lectures, conservators tend to ignore (or at least to shy away from) the fact that, with the possible exception of preventive conservation, all conservation treatments work by shaping an object that is more or less different from the object to be conserved.

Admittedly, it is very difficult to know for sure whether or not any given conservator is aware of conservation-induced alterations (or C-IA, for short), or to what extent she or he is aware of it. But C-IA is blatantly absent from conversations, discussions, reports and textbooks. This is hardly a popular topic despite being such a common occurrence.

As the examples discussed above suggest, this holds true in the field of architecture, easel painting and wall painting conservation and really in any other field of specialisation. Consider, for instance, paper conservation. The so-called *lamination* of paper is a fairly well-known

technique in the field; it consists of covering both sides of a weakened sheet with layers of plastic, such as polyethylene or cellulose acetate, which are strongly bonded to the paper. The rationale behind this treatment is that the paper will thus be protected from liquids, stains, pests, pollutants, fluctuations of the relative humidity and every kind of damaging agent. This might be true, but the fact is that it does not always work as expected, as many of the papers thus treated keep deteriorating due to their internal chemical instability and to the fact that, unfortunately, after the lamination, little can be done to slow down the process. More importantly, the change in the appearance and feel of the sheets is dramatic: a laminated paper just does not look or feel like paper, but rather like a piece of plastic. It has in fact become a RoboCop-like piece of heritage. A typical laminated paper may be a mix of aged rag paper scribbled with *gum arabic* and soot pigments blended together to a synthetic polymer dating from the twentieth century: part old, part new, all heritage.

Admittedly, lamination is a technique that was abandoned in the 1980s. Consider, however, paper splitting, another technique that was still considered acceptable at the beginning of the twenty-first century and which consists of splitting paper in half, stuffing it with a more resistant core and then gluing it all together. This is quite a technical feat: typical papers, like those used in the office, are about 0.1 mm thick, which means that after splitting the sheet by pulling apart its two faces, two c. 0.05 mm sheets are obtained. This is difficult to do, but it can be done by gently impregnating both faces of

the paper with glue in order to reinforce them and then pulling the two faces apart. The process requires extreme care and precision, as any mistake can result not in two thinner sheets, but in a torn sheet. This process can be carried out by hand by highly skilled conservators, although some machines have also been devised to carry out this process.⁸ Provided that the procedure is done correctly and that the adhesives used in it are stable, the result is a sheet that is much more durable than it used to be: a sheet that can be handled without tearing it and which will last longer. Still, the sheet will be somewhat thicker than it was and perhaps lightly misaligned, as it is very difficult to precisely align both halves of the sheet. Needless to say, this treatment embeds into the sheet a reinforced core that was not there. Just like in the case of Murphy, the old, weak remnant is combined with newer material, resulting in a stronger, yet different object. This treatment is not very common, though, so it might be argued that it is not very representative either. And yet, most treatments do cause a change in the object. In fact, conservation actions, like medical treatments, car repairs or computer programme maintenance updates, need to change something to be consequential –to make any sense at all.

Paper flattening is a good example. Since paper is not a rigid material, it is often bent and folded. This pliability is in fact one of its main advantages. It is also affected by relatively small changes in relative humidity, which may make it cockle or pucker. Therefore, with use and over time, sheets of paper often become distorted and much less flat than they originally were, something usually

considered as a sign of deterioration. In order to deal with this, paper conservators have developed interesting and sophisticated flattening techniques to remove these imprints of its history.

Flattening a sheet of paper can sometimes be a really complex task and present great difficulties. However, its theoretical principles are very simple. In nearly every case, flattening involves three steps. First of all, the sheet is made wet; then it is shaped flat and put under restraint; finally it is allowed to dry. When the paper is fully dry, the restraint is removed and the paper emerges as a flat sheet. The paper thus treated changes its shape because water molecules intertwine between the cellulose molecules, allowing them to sort of slide against each other. When they evaporate, the cellulose fibres and molecules bond to each other in any new position they might be in when the evaporation takes place. If the paper is flat as it dries, it acquires that new, flat shape.

This process is quite straightforward from a theoretical point of view, but it does have its side-effects. Water molecules, however tiny they may be (especially when compared to such behemoth macromolecules like cellulose) still occupy some space, so that, when they intertwine with the cellulose molecules, they move the cellulose apart: this is why paper (or wood, for that matter) becomes larger as it gets wet and, conversely, why it shrinks as it dries. When paper dries under restraint, however, it may not be allowed to recover its original dimensions. As a consequence, flattened paper sheets usually have slightly different dimensions from the ones they had before treatment.

This phenomenon has been studied by several researchers. For instance, research published in 2009 established that sheets flattened under pressure (one of the two main methods for exerting restraint on a sheet of paper) typically become larger along one of their dimensions by between 0.5 and 1 percent.⁹ This means that a poster measuring 100 by 70 cm may become as much as 1 cm longer after the conservation treatment. If these figures seem alarming, consider research carried out by Nielsen and Priest, who found that paper flattened under tension (the other main restraint method) may get between 2 and 3 per cent longer.¹⁰ Many conservators have witnessed this problem when dealing with artefacts that are made of several sheets, be it a book, a large map or an old paper poster. The sheets rarely fit well after the treatment and compromises need to be made in order to mount the pieces as they originally were.¹¹

The expansion of a sheet of paper may have other side effects. For instance, if the paper is printed with an ink that is impervious to water (such as those employed in this book, for example —or in nearly every print, for that matter) the expansion of the paper to which it is bound may put the ink layer under stress and even produce some craquelure (Figure 7). Fortunately, this type of craquelure is seldom perceivable in regular observational circumstances, but this does not mean that it is not yet another example of C-IA.

In fact, wetting paper may alter the object in other ways. As the fibres expand, not just the size but also the texture of the paper is bound to change. And, since water is a powerful solvent, many compounds will be removed

from the paper, provided enough water is present. This is usually the case, since water is often involved in paper conservation treatments, in one form or another. Washing, for instance, is a common procedure (Figure 8). Most of the chemical compounds dissolved away by water derive from the degradation of paper and are acidic, so that their removal results in giving the paper a brighter look and a longer lifespan expectancy, but there are possible side-effects (Figure 9). Washing paper can also partially dissolve some types of sizing,¹² thus changing its mechanical behaviour somewhat. Also, it makes a subsequent flattening process almost compulsory, thus implying changes in the size of the sheet.

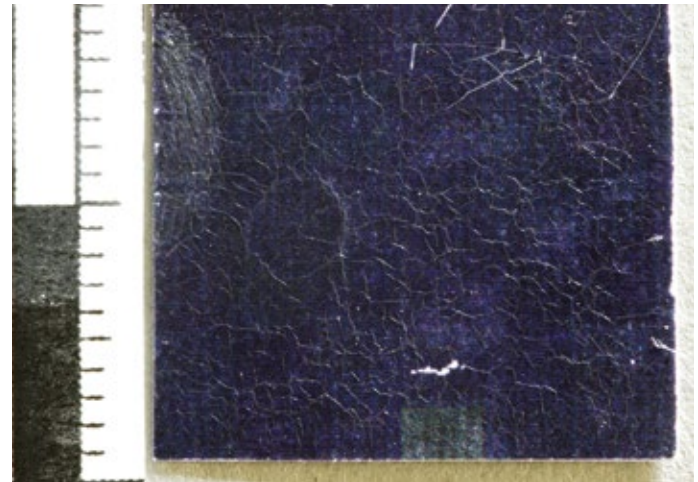


Figure 7. When an inked paper is wet, it expands. If the ink is not elastic, it may break apart, producing a craquelure network.



Figure 8. Washing a paper. The sheet, a fragment from a 19th century academy drawing, is getting progressively wetter.



Figure 9. After the washing, soluble degradation by-products are washed away from the sheet. After the wash, the water becomes yellowed and acidic.

What if the paper artefact is a pastel? Pastels, just like charcoal drawings and similar works, involve peculiar risks because they are made of fine pigments which stick to the paper surface because of weak electromagnetic forces. In fact, if gently shaken, a newly made pastel will drop a thin mist of pigments; and if the surface is touched, chances are that some pigments will stick to the finger. For the same reason, if water is applied to the pastel, the pigments will move too. Figures 10a and 10b show some of the results of research (unpublished) in which newly-made pastels samples were photographed before and after several conservation treatments involving water.¹³ As can be seen, there is a great degree of alteration inherent in nearly every type of treatment. There are two caveats here: firstly, the pastels were newly made for the experiments so they had not yet lost the looser, more superficial pigments, that is, those which would be more prone to getting displaced by water. Secondly, the changes are much less noticeable if observed by the naked eye. Still, this test is relevant as it proves that water-based conservation treatments are likely to alter pastels, as well as similar paper-based artefacts made up of loose pigments.¹⁴

An alternative to liquid-based cleaning of paper is dry, mechanical techniques. Among these techniques, gently abrading the dirty paper surface is very useful when it comes to removing soil and dirt that has accumulated on the paper surface. This can be done by using a variety of materials, ranging from different types of foams, erasers or even make-up sponges (Figure 11). The procedure requires skill and sensitivity on the side of the conservator, but if correctly performed it can produce very good results. And

II C-IA (Conservation-Induced Alteration)



Untreated reference

After immersion treatment

After float wash



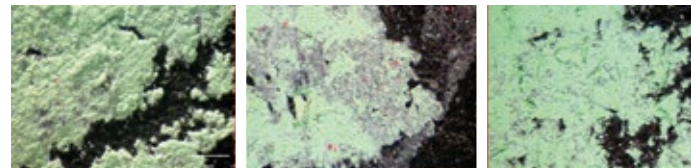
After front and back
side humidification on
a suction table



After back side
humidification on
a suction table



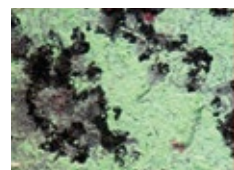
After treatment in a
humidification chamber



Untreated reference

After immersion treatment

After float wash



After front and back
side humidification on
a suction table



After back side
humidification on
a suction table



After treatment in a
humidification chamber

Figures 10a and 10b. Microphotographs showing the effects of different wetting techniques on two different pastel pigments.



Figure 11. A wooden painted surface being treated with soft foam. The surface may have been slightly altered at a microscopic level, but the cleaned area looks much brighter and more beautiful.

yet, as the reader may already suspect, it can also cause the alteration of the paper surface. Sure, the alteration is microscopic, but it is there: yet another example of C-IA.¹⁵

All these examples show how C-IA is somehow inherent in many conservation techniques and processes. It is a given, so to speak. Their impact in real-life practice, however, is more involved than in the examples discussed above. Different C-IAs may accumulate and interact, as the techniques have to be applied in a particular sequence and adapted to particular needs. To focus on a more down-to-earth example, a recent conservation project will be discussed. In this project, twenty-nine large printed movie posters (typically 1.65 by 1.25 m in size) from the 1920s and 1930s were treated by the conservation team (five conservators from Spain and Italy, including the author

of this essay). The posters had already undergone a conservation treatment about fifteen years earlier, involving washing and lining, but had been kept in narrow rolls when the archive deposit suffered a flood. Even though the water did not reach the posters, the high humidity levels did affect them: the linings had become unstuck in some points and they could not be unrolled without difficulty. Without the lining, the paper was weak and many of the posters were torn and had small loose fragments. Furthermore, the immediate reason for their treatment was that they were to be exhibited for the first time. Hence, the treatment was expected to not just make the posters last longer, but also to allow for them to be properly displayed and conveniently stored (Figure 12).

Displaying a large piece of paper is always a challenge. Paper is extremely reactive to variations in environmental humidity, since, as mentioned above, it expands and contracts as the humidity content of the air varies. Unfortunately, even a tiny variation in the dimensions of the sheet can cause it to cockle; and even more unfortunately, the larger the sheet, the larger the variations in size and thus the distortion. In order to display a paper as flat as possible, different techniques may be applied. For instance, the sheet can simply be adhered to a flat base, as is done when modern, newly-printed posters are stuck to cardboard bases. However, this involves the use of hard-to-remove adhesives, while conservation aims at making treatments as reversible as possible (in the case of a poster this means, first and foremost, that it should be easily removable from its support should the need arise). Another technique consists



Figure 12. A raking-light photo of a 1930s movie poster from the collections of the Valencian Film Institute. The deposit where it was kept suffered a flood; after several days, the raised humidity levels thoroughly distorted the poster.



Figure 13. Lining of the posters with Japanese paper. The sheets of Japanese paper are being prepared on the lining base.

of gluing just the edges of the artwork, be it to the base or to some paper strips, which are in turn glued to the base. This technique is safe, but not very successful at keeping the sheet flat. Another popular technique consists of gluing the upper edge of the sheet only, allowing the sheet to freely hang. This is a widespread procedure though, again, it cannot guarantee that a large sheet will remain fully flat either. In summary, it is not easy to display a paper-based artefact in the flat condition most persons tend to like, while at the same time complying with some of the basic rules of conservation, such as reversibility or minimal intervention. In fact, the larger the sheet, the more difficult this is to achieve.

In the case of the twenty-nine movie posters, the chosen treatment involved wetting the sheets in order to flatten them, which is easier said than done, since handling

a large sheet of paper when it is wet is far from simple, as wet paper becomes very weak. Afterwards, the posters were lined with Japanese paper, using an adhesive made from a blend of wheat starch paste and a synthetic derivative of cellulose (Figure 13). This blend produces a paste that is easily thinned or dissolved with water, even after it has been applied. If it is correctly formulated and applied, it may produce an adhesive bond that is strong enough, but not too strong (contrary to expectations, conservators do not seek to produce adhesive bonds that are as strong as possible –just the opposite, they actually strive to produce ones that are as weak as possible: adhesive bonds that successfully fulfil their role, but which can be separated as conveniently as technically possible, ideally, by gently pulling the pieces apart). In turn, the good qualities of Japanese paper are ideal for reinforcing purposes in conservation, as they are both stable and strong.



Figure 14. The wet poster is carefully placed on the base of Japanese paper. Handling a sheet of this size is complicated and risky.



Figure 15. After being lined, the poster is removed from the base and glued to a canvas, which in turn is stretched on a wooden frame.

Again, lining a poster of this size is not easy (Figures 14 and 15). It was achieved by gluing both the posters and the Japanese lining paper to a stretching base and then allowing them to become taut and flat, as they dried. This is a fast procedure, but it is risky. If the shrinkage is greater than the elasticity of the paper, the paper can tear apart. In order to prevent this, several techniques were applied, such as producing a weak adhesive bond that will give before the paper tears. Then, the posters thus lined were adhered to linen canvases mounted on wooden frames. The adhesives (wheat starch paste and another synthetic adhesive) were applied in such a way that the posters could be easily separated from the canvases by just gently pulling them apart.

The treatment was technically challenging, though the outcome was very successful. Both the visitors and the curators of the collection were very happy with the treatment: the posters looked very beautiful and elegant (Figure 17) and, if kept in reasonably good conditions after the exhibition, they will last for a very long time. This is one of those treatments that are presented at conservation conferences and are even the subject of academic papers and technical publications.

Still, if the posters are more carefully examined, one will realise that they are a small army of Frankenstein- or RoboCop-like creations. Originally, they were made of a single sheet of Western, wooden-pulp, fourdrinier paper made in Europe in the first half of the last century. Now they are made of a blend of Western fourdrinier paper and



Figure 16. Detail of a lined poster mounted on a canvas, showing the dual nature of the new object. Now it is a blend of Western 20th-century paper, 21st-century Japanese paper and linen, plus a stretcher and three different adhesives.



Figure 17. The movie posters on public display. The exhibition is a modern-day rendition of old museum rooms.

twenty-first-century paper made in Asia with fibres from the bark of certain annual plants. Some chemicals have also been added to the posters: wheat starch and two different synthetic adhesives. The posters thus reinforced have been glued to linen canvases, which in turn are stapled to wooden stretchers, such as those used for mounting canvas paintings. Also, as a result of their flattening, they are now slightly longer than they were before, typically around 5 millimetres (Figure 16). In summary, the treatment involved a lot of C-IA, but was successful, even very successful. C-IA does not necessarily mean failure, since, as said above, conservation most often works by altering the object.

III

“A culture of infallibility”

As this essay was being written, a public discussion was taking place concerning an internet video showing the fast, somewhat crude cleaning of a painting. The video shows a small painting covered with dark, aged varnish. Then a hand applies some gel, which immediately dissolves the varnish. The gel is not applied in an elegant, careful way and it drips on the painting: it somehow suggests carelessness and perhaps even haste on the side of the practitioner.¹⁶ The surprising element here is not the content, as there are so many images and videos of this type available (Figure 18), but rather the fact that it “has shocked and horrified art conservators”, for it “gives a false impression of the painstaking and methodical methods normally used to clean old paintings”. Furthermore, “using the technique as depicted in the video could strip away the artwork’s underlying paint, permanently damaging the painting”.¹⁷ This “uproar” (*sic*) from within the conservation profession is interesting indeed, as it is quite unique. The internet is full of videos showing how to fix a dripping tap, how to

repair a broken chair or how to cook a *paella*, but carpenters, plumbers and cooks are not outraged by them —despite the fact that many of those videos are not just poorly made, but even flat out wrong.

Some people might say therefore that conservators are the harshest critics of other conservators' work. For instance, Bernard Berenson, the prominent American art historian, famously said he had never met a conservator that would approve of the work of a colleague.¹⁸ However, the reactions to the video may perhaps be better explained by what Michele Marincola and Sarah Maisey called the "culture of infallibility" that pervades the heritage conservation field:¹⁹ many people, experts and laypersons alike, *believe* that conservation treatments must be not just as good as possible, but plainly infallible; furthermore, many people may actually feel that these treatments *are* infallible.

Indeed, there are conservators who believe that conservation (conservation itself, the discipline, the field of knowledge, the *Wissenschaft*) cannot fail, as it provides every necessary tool for every possible problem. According to Roger Marijnissen,

"À partir du moment où la science met à notre disposition une vaste information, l'erreur est de moins en moins possible ou en tout cas de moins en moins justifiée, me semble-t-il. L'erreur s'explique par l'ignorance."

("Since the moment that science provided us with such a huge amount of information, mistakes are

*less and less possible, or at least less and less justifiable, I think. The mistake is due to ignorance."*²⁰

In other words, if a conservation treatment does not produce the expected satisfactory result, it must be because the conservator is lacking in knowledge and not because conservation practice is subject to many variables that make the expected outcome of any treatment impossible to fully guarantee *a priori* —just as it is impossible to guarantee with hundred per cent certainty that a plane will land safely and on time, or that unexpected problems will not arise during surgery.



Figure 18. Removing the yellowed varnish from a painting may change its value. While some people appreciate bright, vivid colours, others prefer old paintings to look aged. In order to determine whether or not the conservation treatment is opportune, these subjective, immeasurable values need to be taken into account.

As summarised elsewhere more than a decade ago, according to this classical view, "mistakes (...) are hardly tolerable in conservation, especially if they happen to have short-term, perceivable consequences."²¹ Perhaps as a result of this exacting attitude, very few conservators dare to confess mistakes to other conservators. Reputation is a fragile thing and in this *milieu*, in which so few conservators will ever find each others' work acceptable and in which conservators are required to produce perfect results, acknowledging an error may not just be "embarrassing", as Marincola and Maisey rightly suggest, but even dangerous for the conservator's professional future. In fact, only a few brave (and generally very good) conservators have dared to publicly share their mistakes, from which so much could be learnt.²² But these are the exceptions. Unhappy outcomes are not very popular in conservation meetings, scholarly publications, seminars, or lectures, as this presumed infallibility is an integral part of what could be called *Authorised Conservation Discourse*²³—and which conservation professionals honestly try to both disseminate and to abide by.

The Authorised Conservation Discourse has its advantages, though, as it represents conservation as using modern hi-tech materials and devices, from lasers to Raman spectroscopy, from computer rendering to 3D scanning, from volatile binding media to nanoparticles, from enzymes to multi-spectral image analysis, thus blending cutting-edge science and traditional skills in a unique, successful (*infallible*) way. According to this view (and as suggested by Marijnissen) conservation enjoys all the benefits of science, the best source of

knowledge since the Enlightenment, and has built a huge knowledge base which is sufficient to cover and prevent every possible problem. This is what the Authorised Conservation Discourse posits and, certainly, it has endowed conservation with solid prestige.

This prestige is well deserved, but not for the above-mentioned reason: not because conservation is infallible, but because it does produce very good results in nearly every case. At this point in the essay, however, it is probably more interesting to highlight some less obvious side-effects of the Authorised Conservation Discourse, namely the fact that its aspiration, or rather, the *requisite* of being infallible (of not producing any C-IA, of always producing perfect results) is simply too demanding for conservation and for conservators. It is just unfair and does not provide adequate criteria for judging and understanding conservation.

Since C-IA is bound to happen, refusing to accept it means that anyone paying attention to the little details will be able to criticise any conservation treatment on the grounds that it has produced an alteration in the work: in the artefact's dimensions, in its look, in its chemical composition, in its texture and so forth. For example, even the gentlest cleaning process might be (and has been) criticised on the grounds that it has obliterated historical evidence that dirt might contain, such as pollen, fingerprints or even DNA.²⁴

For conservators, it is a risky strategy to pretend that C-IA just does not exist, or to ignore it: if this is the criterion by which a conservation process is to be judged, then the conservator is bound to fail nearly

every time he or she intervenes on an artefact. To make these points clearer: C-IA is bound to happen in any interventive conservation treatment —this is not a criticism. Pretending that C-IA does not happen is a mistake —this is a criticism: it is just not true and even dangerous, because all conservation treatments may be criticised for involving some C-IA. Thus, judging a conservation treatment based only on whether or not it has introduced some C-IA is just unfair —yet another criticism.

IV Making sense of C-IA: the greater benefit

If conservation really aspired to avoid C-IA, only preventive conservation would be carried out. But this is just not the case. When C-IA happens, conservation contradicts its apparent aims, or even its very own name —but it can still produce satisfactory results. The question therefore is not whether or not C-IA is acceptable, but rather *why* it is acceptable.

The answer is quite straightforward, bordering on the obvious. C-IA can be considered acceptable because it is accompanied by important positive side-effects. The only requisite is to produce an overall benefit. The comparison with medicine, so often used in the conservation field, maybe very useful here.

Consider someone undergoing heart surgery. The patient has to be injected with some drugs that will induce a coma and that could have dangerous side effects. Most

likely, blood from an unknown person will have to be mixed with the patient's blood. The surgeon will cut through the patient's skin, then some bones will be sawed and pulled apart. Then, after the operation (that could involve inserting an electronic device, or substituting a defective heart valve with another one, perhaps from a cow or other mammal) the chest will be closed back into place, with staples or a synthetic thread, which will have to be removed at some time in the future when the patient has recovered from such an aggressive intervention. The whole process involves risks (an infection could happen, the body might reject the substituted part, the new parts could malfunction, etc.) and a long period of recovery. Why, then, is all this grave damage and all the attached risks considered acceptable?

All of these tasks and risks are accepted because they will ultimately produce a greater benefit for the patient (and for their friends and relatives, and for many more people in certain cases): a longer life and usually a happier one, at least if and when the patient fully recovers. The patient will probably enjoy many happy moments that would not have been possible had the surgery not taken place. It is this prospect that makes undergoing all those steps and undertaking such grave risks worthwhile. This is what makes the surgical intervention the sensible, right thing to do.

Conservation is no different: C-IA is a toll that must be paid in order to obtain a much greater benefit. Consider the cases described above. Rubbing a paper surface with a plastic material (such as a regular eraser) is bound to alter the surface at a microscopic level, regardless of how

gently it is done.²⁵ However, the naked eye may not detect any alteration: what can be perceived is a cleaner surface, a surface that is well cared for and nicer looking. Now, are the gains important enough to justify the process when compared to the losses? Yes, they usually are. The surface looks better and a message of proper care is sent out to the public. The microscopic alteration of the surface seems negligible, as it does not compromise the stability of the artefact nor does it have any relevance.

The same rationale may be applied to any other conservation technique. Coming back to paper flattening: when a paper is flattened, the undulations and wrinkles are permanently eradicated, which is to say that some authentic imprints of its history are lost forever. Also, the dimensions are bound to vary a little. On the other hand, the sheet is made to look better and more cared for; also, it can be handled more conveniently and stored even more so. Again, the gains are usually considered to be greater than the losses, so that this process is quite widespread.

V

Epistemic uncertainties: not all that counts can be counted

Precisely quantifying the values that have been gained and lost, however, is not simple. In fact, some may consider it simply impossible. This is so because many of the values that conservation increases or reduces are immeasurable. How can the increased aesthetic pleasure that the conservation treatment of an artwork produces in its beholders be measured? How can the pride that the contemplation of a well-restored national symbol produces on its spectators be translated into numbers? How can the social bonding its effects be evaluated? How can the value

of any emotion be assessed? Also, how can the value of historical evidence, such as the dirt in a historical textile or the oxide crust in a medieval sword, be quantified? How can the scientific value that a stain on an enamel painting might cause be determined?

Indeed, many of the gains and losses fall in the aesthetic and symbolic fields. Caring for an object means that it is important, that the concepts the object embody are worth being remembered and that the persons responsible for it are doing a good job. Looking clean and bright makes the object more beautiful and more enjoyable. The value of this enjoyment and these meanings is real, but they do not lend themselves to be easily translated into numbers. Estimating the net gain of a conservation process may thus be much more complex than, for example, estimating the correct thickness of a beam, or the wavelength of a radio signal. There are no formulas for subjective values like those involved in heritage conservation. A calculator or computer can be used to estimate simple things which, like monetary profit or the elasticity of a sample from a textile at standard conditions, can be precisely expressed in figures. But it cannot cope with the kinds of values heritage conservation also deals with. That is to say, the calculations required to assess a conservation treatment are too complex for a machine and can only be successfully performed by human beings. Indeed, this type of estimation may be so complex and nuanced that, unlike a mathematical problem, different people may give different answers with all of them being partially right. In fact, it is doubtful that a problem of this type may be answered with a single, mathematical grade, hundred per cent right answer.

For some people this may be an issue, to the point that judgements of this kind can be thought to be absurd, or worthless –or *fruitless*, as Werner and MacLaren urged.²⁶ And yet, when it comes to assessing the success of a conservation treatment, the opposite would be truer: no fruitful discussion can be based on facts alone.

To make things more difficult, the real-life decision-making process is even more complex, as it needs to take into account many factors of a diverse nature and which are usually unique to each case. For instance, an obvious loss that all these treatments incur is their cost. All of them require money, work time from professional conservators, conservation tools that wear out, consumables that need to be replaced and a work space that needs to be paid for. And always compromises need to be made. Since the budget is usually limited, the conservation of some artefacts, as well as some treatments, have to be prioritised.

Indeed, conservation does not take place in a vacuum, economic or otherwise. Museums, auction houses and collectors may have needs and goals that will influence the conservation process. For instance, the available time for the completion of a treatment may be limited; the conservation lab of an institution may have some tools, consumables and devices and lack others; the local laws may forbid or otherwise limit the use of certain chemicals; the look of the works in a museum room can influence the treatment of a painting that will be on display in that same room; the function an object is expected to fulfil (being on display, being in a church, being in an archive, being handled, etc.) may make it advisable to prefer one approach over another; and so forth. These factors can

also have a great impact on the outcome of a conservation treatment and make it even more difficult to make proper assessments, decisions and judgements.

The conservation of the movie posters mentioned earlier is a case in point. They were to be exhibited, making it advisable to prepare them to be safely displayed in a satisfactory manner. At the same time, storing sheets of paper this size is space consuming. They are often kept in wide cardboard rolls, which take up valuable storagespace that in this case was not available. A poster mounted on a canvas, however, is a sound storage option and is in fact used as a display system in many museums. Furthermore, it does not take up nearly as much space as rolled posters. Also, it keeps the poster visible: if it is to be examined, photographed or exhibited again, there is no need for it to be taken in and out of the tube, temporarily mounted, then dismounted and returned to the tube again. On the other hand, the process is technically challenging and costlier than just flattening the papers.

The decision-making process that led to choosing this treatment took into account these and other factors, which can be interpreted in terms of gains and losses. Among the most relevant losses were the alteration of the dimensions of the posters, which are now approximately 5 mm larger in one dimension, the loss of the original wrinkles and undulations and the alteration of the original, paper-only nature of the posters. The process also involved economic costs, as well as risks for the posters, as they were subject to transportation, handling and several delicate procedures.

The gains were also varied. For example, the posters are now mounted in a way that will make them remain stable and long-lasting; at the same time, the posters can be easily removed from the canvas should the need arise (which is not expected right now). They can also be easily stored in the precious storage space available and conveniently transported and exhibited if and when needed, so that more people can enjoy them. More importantly, they look nice and will keep doing so. They also look well cared for, which sends a message about their importance and about the job that the film archive, which is a public institution, is doing to preserve public heritage.

Of course, anyone could criticise the treatment by arguing, for example, that the paper posters were stuck to Japanese paper and a stretched canvas, so that its original paper-only nature was distorted (at least temporarily, as the posters can be easily detached from the canvases should the need arise). Indeed, after the treatment the posters have become akin to a canvas painting, or the like. They can no longer be rolled or folded as the original paper posters could and they can no longer be cut to size, as done when a poster needed to fit in a smaller window. Furthermore, they cannot be taped to a wall or sent via a regular courier service. In fact, they are no longer true paper posters and therefore the conservation decisions made in this case could be criticised for that reason. Ultimately, and as mentioned above, it is true that the treatment created a Frankenstein/RoboCop composite that never existed before: several aspects of the original posters have been lost (some of them irreversibly so).

At the same time, however, the treatment was successful, both from a technical point of view and because it satisfied most expectations, thus proving that if a conservation treatment can be considered successful, it is not because it has produced no loss, but rather because the gains are much greater than the losses.

VI

Technical uncertainties

The many complex and subtle, immeasurable factors that are involved in a conservation process make it difficult to precisely assess the overall benefits of a transaction. This difficulty, or rather this impossibility, is aggravated by the fact that the degree of success of a conservation treatment can only be checked as time passes. For instance, the long-term stability of a chemical that has been added to the object, or the solidity of a reinforcing material, are crucial when it comes to judging conservation work. But they can only really be assessed after time has passed.

This is an important issue. As time machines do not exist yet, the criterion used by conservators is to stick to the information provided by scientists, which is most often based on accelerated aging tests. Even though this is the best-known technique for forecasting the behaviour of materials, the fact remains that it is not an entirely reliable procedure. As the prominent conservation scientist and former ICCROM Director Giorgio Torraca wrote, “when a scientist proposes a conservation treatment and guarantees

its reliability and durability, he is either consciously bluffing (in the best cases) or suffering from delusions because of lack of experience.”²⁷ And even if artificial aging tests were completely reliable, the scientists would be able to guarantee the long-term stability of a particular material in laboratory conditions only. Unfortunately, there are far too many variables that make these predictions unreliable in real-life circumstances, since even the best available material will likely be exposed to conditions which are not the same as the samples in the laboratory. A glue, for instance, may behave well when it is in contact with a glass slide like those used in accelerated aging tests, but it may behave differently when in contact with a five-hundred-year old medieval textile that is acidic, irregularly dirty and contaminated with pollution gases—that is, when exposed to circumstances that can hardly be replicated in a laboratory. Furthermore, even if the glue behaved well regardless of the conditions, it still could be possible that the conservators applied it in a careless, defective manner. This can only be known after time has passed, so that, as in many facets of life (from selecting a movie to watch to buying a house or to choosing a partner) only educated guesses can be made. Even though the experts make the right guesses most of the times, there is always a risk of failure and this is something that both heritage professionals and the heritage public at large need to come to terms with. The work of the conservators, no less than that of many other professionals, suffers from a high degree of uncertainty inherent to the activity.²⁸

On the other hand, when judging conservation work, laypeople need to be aware that there are technicalities

that can only be judged by experts. For instance, only experts know which alternative technical options could have been applied and what benefits could have been obtained from each of them and at what cost. That is, it is the experts who best know the details of the transaction: they know the techniques and materials well and know what can be expected from them. Back again to the medicine metaphor: physicians are better prepared than anyone in the technicalities of medical decisions.

This is not to say that the patients have nothing to say: they do, indeed, as they know better than anyone what they are living through. They know better than anyone whether the treatment has brought much or little relief — and yet, they do not know how much relief they could have got had the decisions been better or worse. This also applies to conservation. A spectator may know how he or she feels when contemplating a treated object. However, the average audience member may not know what technical options existed and what results could have been expected from each of them. The spectator also ignores many of the losses that the treatment has brought as well as most of the long-term benefits. For instance, a regular observer may like or dislike the new appearance of an artwork, while ignoring the full impact the treatment has had on some unnoticeable features of the object, such as its microscopic texture, its chemical composition or its mechanical resistances. Also, this person cannot know whether or not its expected long-term stability has been enhanced —and how much it has been enhanced and how much it could have been enhanced and at what cost. Unfortunately, only a few aspects of the treatment can be

judged by simply looking at the treated object, such as the homogeneity of a protective layer of varnish, or the quality of a retouch, or the intensity of a colour. These are the features that most non-experts take into account when judging a conservation treatment.

This is somewhat unfair, but perhaps not completely so since most persons identify and interpret an object through its more obvious features. At the same time, experts may be interested in characteristics that can be appreciated only with the aid of sophisticated research tools: optical microscopy, electronic microscopy, Fourier-Transform IR spectroscopy, X-ray diffractometry, pollen analysis, etc. These people may have a very different set of priorities than laypeople (or, indeed, fellow experts). For instance, an archaeologist whose work consists of looking for material evidence can claim that the restoration of the Turin Shroud is a failure or even a “disaster” for, among other things, the treatment has removed the dirt in the Shroud (from which some historical information could perhaps have been obtained).²⁹ There may be conflicting sets of priorities, so that the conservator may sometimes feel as if in a crossfire, as it is rare that all of the priorities of all the interested parties can be fully satisfied.

VII

Axiological uncertainties: values do change

The value of things can be very variable. For instance, an object may be very valuable for some people and almost valueless for others. This is often the case with religious objects or contemporary artworks. Also, conservators often work with family and personal memorabilia which have little or no value for the conservator herself, but which are loaded with an intense emotional value for the client (which is why these things are conserved). This emotional value is not exclusive to personal memorabilia, as this is what makes other objects like national symbols so valuable. These types of values may play a major role in conservation and the fact that they are both very powerful and diffuse is perhaps the main reason why the kind of trade-offs that

conservation entails can be an object of disagreement. As in every transaction, the value of the things exchanged is assigned by the people involved in the transaction and it can vary greatly depending on the person and the circumstances. For instance, and as the legend posits, a large island on the East coast of North America may be exchanged for some trinkets. It is not a deal anyone would probably make nowadays, but when the island that we now know as Manhattan was sold by the natives, all the involved parties were happy because the value assigned to the things gained was, at the very least, as high as the value of the things lost.

Many people may tend to believe that value is objectively assigned (or even inherent) to things. For people living in developed societies, things do *have* an exact price, usually expressed in currency units on a label attached to the thing.³⁰ The price is something that the thing *has*, regardless of how much any given individual could be willing to pay for it: it does seem independent of anyone's will or needs, so it is tempting to assume that it is not something that has been established by someone, but rather a feature of the thing itself. However, the price has been determined by someone, or by a group of people, who have decided what profit margin is adequate, while in turn trying to guess the value others would assign to that thing. And of course, the price may vary. Sometimes salespeople may be willing to reduce their profit margins if, for instance, they value selling up-to-date items more, or the increased space, or the need to change the shop's decoration, or if they simply want to sell more to become a better-known shop. In fact, this kind of variation in value

happens periodically in many shops for no apparent reason and no-one wonders why the presumably objective value of the same T-shirt can fluctuate wildly depending on the date on which the transaction takes place. The reader may be rightly thinking of seasonal or Black Friday sales, but basically the same idea applies to other types of things, such as a Van Gogh painting or some examples of *street art*, whose prices have experienced enormous variations over time.

The fact that value may change over time adds yet another layer of uncertainty, since conservation is not done for its contemporaries only, but also for those who have not been born yet, those whose interests can only be vaguely guessed. Therefore, the long-term success or failure of a conservation treatment cannot be judged in binary terms, or estimated through any objective tools or with complete certainty. There are simply too many blurred factors that may influence it. Such a judgement should also depend on the available resources, on the schedule of the works, on the needs it seeks to fulfil, on the expectations and tastes of the people for whom it is has been done, on the existing technical possibilities and on the skill and care with which the treatment has been performed —on many factors that cannot be precisely assessed, not even by experts.

Consider the case of the many *cleaning controversies* that have shaken and continue to shake the conservation world. Ever since the advent of modern conservation in the eighteenth century, some conservators have managed to outrage the public by removing aged varnishes (and, the critics suggest, some glazes too) from old master paintings.³¹

These controversies can be regarded as examples of the varying values assigned to a feature of the artefact, namely its varnishes. For some, the aged varnishes on the paintings are not a matter of real concern – they tend to accept and appreciate the works as they have become now. And since their existence is not seen as a loss, their removal implies no gain either —rather the opposite, as the suspected collateral damage of the removal of the varnish (the removal of some glazes and the weakening of some layers of the painting) is considered an important loss. Others consider aged varnish to be highly detrimental to the paintings. Any vestige of aged varnish on a painting must therefore be removed, as this will imply a great benefit for the painting and its spectators.

This latter approach had a profound impact in the Anglo-Saxon world in the middle of the last century and from there it has permeated to other areas of the Western world. However, even such a strongly entrenched idea is subject to change: value, which is what determines whether or not a transaction has been beneficial, is subjectively assigned by people and their views may change over time. So after decades of eradicating as much varnish as possible, aged varnish has now become so rare that it can be considered a *valuable* testimony to the age of a painting, or to the tastes that prevailed in past times. In 2002, for instance, the Editorial of *The Burlington Magazine* discussed the conservation treatments undergone by the early Italian paintings in the collections of Yale University. These treatments took place between 1952 and 1971 and are now widely considered an example of what has been called “radical cleaning”. So a *Saint Jerome* that had been



left untouched “as an object lesson in dirtiness” may be found valuable for it keeps “a very early and extremely well-preserved varnish”.³² Values may and do change, so even if the value of an object increased today, its value may decrease tomorrow and vice versa.

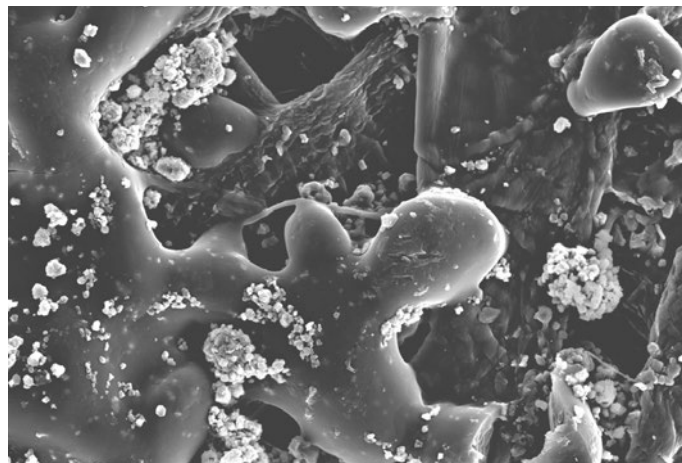
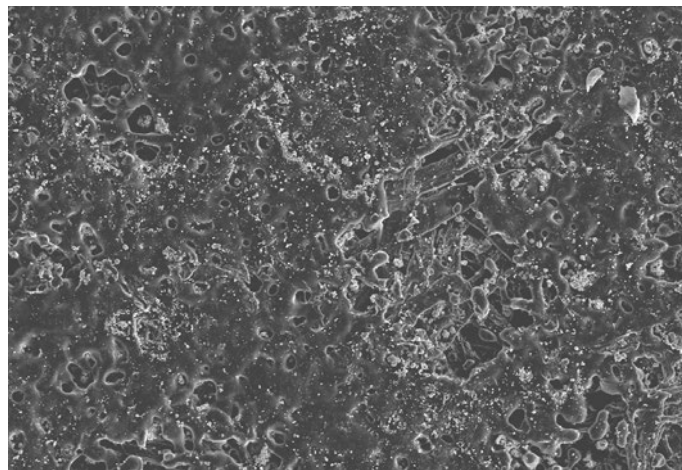
In a similar fashion, fifty years from now, collectors, historians or laypeople might start appreciating the folding marks in old movie posters as valuable historical imprints (Figures 19a and 19b); and aged varnishes might perhaps one day be found to contain chemicals which will allow for precise dating of the painting; or perhaps a hi-tech device no one can envision now will allow future researchers to get historical information from trace compounds present in the surface of a metallic sculpture. Therefore, conservators like the author of this essay might have already removed (and keep removing) potential historical evidence forever.

This *might* be, but nowadays, in the second decade of the twenty-first century, there is no evidence that this will become a reality. What does exist indeed is a large number of people who are, and likely will be, enjoying unvarnished paintings and nice flat movie posters and clean metal sculptures. The fact is, it is not possible to know for sure whether or not some features of the object will be valuable in the future, for the public or for the researchers, just as

Figures 19a and 19b. Drawing before and after treatment. The many folding marks, that made it difficult to appreciate the drawing, attested that it was kept under bad circumstances (was it not thought to be valuable, did the owners not care?). Once the marks have disappeared, the drawing can be more fully appreciated but the information they contained has been lost forever. If the conservation treatment is considered successful, it is not because the object has been preserved as it was before the treatment, but because the gains are greater than the losses, so its value is now greater than it was.

it cannot be known for sure how annoying those tiny particles embedded in the paper fibre web in **Figures 20a and 20b** will be for future researchers—or if they will ever care for them at all. We are therefore left with subjective assessments that need to be based on guesses.

Fortunately, these guesses can be educated enough. In the current state of knowledge, most conservation processes make sense in most cases, as the expected gains are reasonably considered greater, or even much greater, than the losses now and in the foreseeable future. Admittedly, it could be that a historian in the twenty-second century will be regretting a particular conservation treatment that actually rendered his or her PhD research more difficult by having removed some type of evidence that is not presently considered valuable. Also, in that same century, an art lover could miss the aged, spoilt look that dirt and wrinkles conferred to the many canvas paintings that have been cleaned, lined or stretched by the most skilled, renowned conservators of our times. If that is the case, it can be expected that the researcher or the art lover will regard the conservation treatments as another historical event in the lives of the objects and thus that they will be able to understand the goals and circumstances that made the decisions taken seem the best possible ones. Our contemporaries certainly do and undoubtedly their needs and interests deserve to be equally catered for.



Figures 20a and 20b. SEM photomicrographs (c.125X and c.1,000X as printed in this book) of a xerographic print that has been deacidified in order to increase its lifespan. The print is now smeared with unnoticeable particles of an alkaline compound, showing as white specks under the SEM.

VIII

Western *kintsugi*: coming to terms with C-IA

In summary, it is difficult to precisely ascertain the gains derived from a conservation treatment since it involves both technical and axiological, value-related uncertainties. Still, this is not to say that a sound judgement on the merits of a conservation intervention is not possible – far from it. These judgements may be difficult, but are crucial and have to be made as carefully as possible. As has been discussed elsewhere, sound judgements can be made if the intersubjective (rather than the merely subjective) nature of the process is reckoned with. A kind of *felicific calculus*,

a happiness index so to speak, such as that proposed by Jeremy Bentham, needs to be carried out in order to assess the gains and losses.³³

However, this topic goes far beyond the scope of this essay. What this paper argues is that a conservation treatment is akin to a transaction: there are costs and there are benefits. These cannot be objectively or precisely assessed, since very diverse types of factors (aesthetic, symbolic, emotional, political, economic, technical) need to be compared and evaluated. The correct estimation of their relative value cannot be made through arithmetic means alone but have also to rely on common sense and sensitivity. Furthermore, it cannot happen otherwise, since it is the relationship between those costs (risks taken; symbolic, aesthetic and information losses; economic costs, etc.) and the gains (the aesthetic improvement, the intentional messages transmitted, the increased lifespan, the increased monetary value, etc.) that needs to be taken into account in order to judge any conservation treatment fairly and sensibly (Figures 21 and 22). The fact that the values of the gains and costs are not objectively measurable makes a correct assessment of the balance more complex than simply feeding data into a spreadsheet. As said above, there may be more than one right answer and they may be right or wrong to different degrees. Compromises need to be made and no conservation treatment will work unless it betrays, to some extent, its very own name –this is, unless the thing conserved is altered in one way or another.

Today, we see a growing awareness of conservation-induced alteration permeating the *culture of infallibility* typical of the conservation profession. This may be the reason why many conservators now opt for a purely preventive (defensive?) attitude regarding conservation, which is akin to what Jonathan Ashley-Smith has nicknamed “the ethics of doing nothing”.³⁴ As a result,

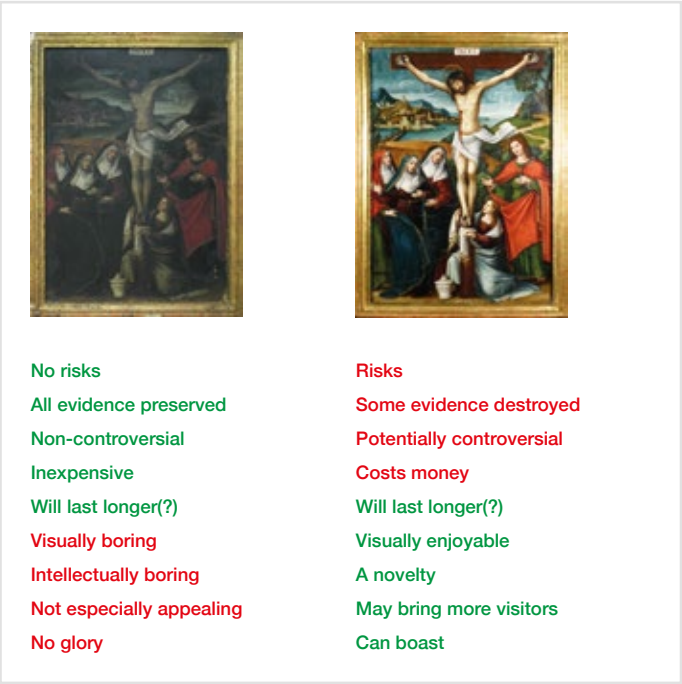


Figure 21. A highly simplified list of gains (green) and losses (red) involved in the preventive conservation of a painting (left), versus the gains and losses derived from an interventive conservation treatment (right).

preventive, or *non-interventive*, conservation is presently being preferred over properly *interventive*, alteration-inducing conservation treatments.

This is a prudent attitude. It is perhaps the safest approach to conservation, as it is technically and professionally risk-free. However, even though in many cases it may be the most profitable (i.e., the best) conservation option, it is not inherently better or worse than other conservation options involving C-IA. It certainly does contribute neither to increasing the enjoyment of the object nor to enhancing its usability or its value. Both preventive conservation and *interventive* conservation can make the object last longer, but preventive conservation does not contribute nearly as much to making a heritage object more functional, i.e. to make it better fulfil the functions of heritage.

In order to overcome this self-imposed restraint, the heritage world needs to come to terms with C-IA. In other words, the non-neutral nature of heritage conservation needs to be acknowledged. And it should be acknowledged that conservation is not neutral for a good reason: it changes heritage for the better. It makes heritage objects more valuable, more engaging, longer-lasting, more efficient. Conservation alters because conservation improves.

The Japanese art of *kintsugi* is interesting in this regard. It consists of repairing broken objects in such a way that the repair is made clearly visible (Figure 23). The work of the repairperson is not concealed, as it is not shameful: it is openly acknowledged and contributes to the value of the object. This attitude could be a model for Westerners trying

VIII. Western kintsugi: coming to terms with C-IA

to better understand, judge and make decisions regarding heritage conservation and perhaps even heritage at large. Pretending that conservation does not affect the object, that it does not alter the object—that it has not happened, that there is no C-IA—is not wise, as it is just not in agreement with reality. At the end of the day, openly acknowledging the transactional nature of conservation is a smarter, fairer strategy for heritage since, at the very least, it may provide better ethical and theoretical grounds for those willing to understand the way heritage is, or should be, cared for.



Figure 23. *Kintsugi*, or *kintsukuroi*, is a Japanese tradition that consists of repairing an object, typically a piece of pottery, by using a conspicuous, gold-coloured glue. Unlike Western approaches to conservation, in *kintsugi* the alteration induced in the process is openly acknowledged.



Figures 22a and 22b. A tentative summary of the types of gains and losses involved in a conservation treatment.

Acknowledgements

Professor Riemer Knoop kindly revised this text. His valuable suggestions have improved the text in various ways and deserve the author's gratitude.

Photos 7, 19a and 19b were taken as part of Research Project HAR2013-48604-C2-2-P, funded by the Ministerio de Economía, Industria y Competitividad (Spain).

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About the Author

Dr. Salvador Muñoz-Viñas was born in 1963 in Valencia, Spain, where he continues to live and work. He has two master degrees, in Fine Arts from the Universitat Politècnica de València (UPV) and in Art History from the Universitat de València. In 1991, he received a PhD from there in Fine Arts with research in Southern Italian Renaissance illumination techniques. He is professor in the UPV and Head of the Paper Conservation Laboratory at the university's Instituto de Restauración del Patrimonio. During his career Muñoz-Viñas has worked as a paper conservator in the Historical Library of the University of Valencia, as a Visiting Scholar in Harvard University's Straus Center for Conservation and as a Distinguished Visiting Professor at the Institute of Fine Arts of New York University. In addition, he has been the Secretary of the Conservation Department of the UPV (1991-1996) as well as its Director (2010-2012). Among his various publications on practical and theoretical aspects of conservation are *The Technical Analysis of Renaissance Illuminated Manuscripts* (Cambridge, MA, 1995; co-authored with Eugene F. Farrell), *Contemporary Theory of Conservation* (Oxford, 2005 – now translated into Chinese, Persian, Czech and Italian) and *La restauración del papel* (Madrid, 2010), as well as a number of articles published in journals and collective works.



Endnotes

- ¹ "Muñoz-Viñas, S., "The Frankenstein Syndrome", in Hatchfield, P. (ed.), *Ethics and Critical Thinking in Conservation*, Washington DC: American Institute for Conservation of Historic & Artistic Works, 2013, pp. 111-126.
- ² In the sense that is most widespread nowadays, not as described by Mary Shelley in 1818 but as presented in *Frankenstein*, the classic American movie directed by James Whale in 1931 and starring Boris Karloff, and in most of its many sequels: a monster "made from a dozen corpses", as depicted in one of the posters for *The Evil of Frankenstein* (directed by Freddie Francis in 1964).
- ³ The Architizer A+Award, in the category of Restoration (<https://architazer.com/projects/restoration-of-matrera-castle/>). All the Internet sources referenced in this essay were on line as of December 12, 2017.
- ⁴ Wainwright, O., "Spain's Concrete Castle: a Case of Accidental Genius?", *The Guardian*, March 10, 2016 (<https://www.theguardian.com/artanddesign/architecture-design-blog/2016/mar/10/spain-concrete-castle-restoration-matrera-cadiz-accidental-genius>).
- ⁵ <https://www.artsjournal.com/2016/03/franken-castle-what-a-spanish-architect-did-to-a-historic-ruin.html>.
- ⁶ Domínguez Rubio, F., "On the discrepancy between objects and things: An ecological approach", in *Journal of Material Culture*, vol. 21, 1, 2016, pp. 59-86.
- ⁷ Matero, F., "Letter to the Editor", in *AIC News*, July 2011, p. 2.
- ⁸ See, e.g., Smith, M.J., "Paper Splitting as a Preservation Option", in *Archival Products News*, vol. 8, 1 (2000), pp. 1-3. The curious reader may watch the process in a YouTube video published in 2013 (<https://www.youtube.com/watch?v=gGRSGVXTfVE>).
- ⁹ Muñoz-Viñas, S., "The Impact of Conservation Pressure-Flattening on the Dimensions of the Machine-Made Paper", in *Restaurator. International Journal for the Preservation of Library and Archival Material*, vol. 30, 3 (2009), pp. 181-198.
- ¹⁰ Nielsen, I., and D. Priest, "Dimensional Stability of Paper in Relation to Lining and Drying Procedures", in *The Paper Conservator*, vol. 21, 1 (1997), pp. 26-36.

- ¹¹ This happens because the variations in the dimensions of the flattened sheets are never exactly the same, due to the many variables involved. As a result, some of the pages in a treated book may protrude slightly from the book block when they are bound again. The curious reader may find a beautiful example of these problems in Murphy, C., "The Treatment of an Odilon Redon chine collection lithograph, *L'art celeste*", in *Journal of the American Institute for Conservation*, vol. 37, 3 (1998), pp. 272-281.
- ¹² Most paper has some kind of adhesive added during its production, in order to make it less absorbent and more convenient to use. This adhesive (the paper's size) also confers the papers with a particular mechanical feeling.
- ¹³ Kaumanns, K., and S. Muñoz-Viñas, "The influence of conservation treatments on drawing with vulnerable surface", unpublished.
- ¹⁴ This finding is by no means revolutionary, as most conservators are well aware of it and in fact the topic had already been researched by other authors. See, e.g., Lory, V., F. Figueira and A.J. Cruz, "Comparative Study of Washing Treatments for Pastel Drawings", in *Restaurator. International Journal for the Preservation of Library and Archival Material*, vol. 33, 2 (2012), pp. 199-219.
- ¹⁵ See, e.g., Iglesias-Campos, M.A., and C. Ruiz-Recasens, "Surface cleaning of intaglio prints with microblasting powdered cellulose and erasing: Treatment effects on inks and support texture", in *Journal of Cultural Heritage*, vol. 16, 3 (2015), pp. 329-337.
- ¹⁶ <https://www.youtube.com/watch?v=H2HR6DTJWcREF>.
- ¹⁷ Ghose, T., "Why This Viral Painting-Restoration Video Gives Experts the Chills", (<https://www.livescience.com/60957-dramatic-video-restoration-all-wrong.html>).
- ¹⁸ "Few problems are more controversial than the problem of how to restore a painting. I have never encountered a practitioner of the craft who approved of the work of another". Cit. in Beck, J., and M. Daley, *Art Restoration. The Culture, the Business and the Scandal*, New York: W.W. Norton & Company, 1993, p. 152.
- ¹⁹ Marincola, M., and S. Maisey, "To err is human: understanding and sharing mistakes in conservation practice", in Bridgland, J. (ed.), *Preprints ICOM-CC 16th Triennial Conference*, Lisbon, 19-23 September 2011.
- ²⁰ Marijnissen, R.H., "L'erreur, la faute, le faux: vers une éthique du respect et de la responsabilité", in CeROArt [Online] *Conservation, Exposition, Restauration d'Objets d'Art*, n°3 (2009) (<http://journals.openedition.org/ceroart/1176>).
- ²¹ Muñoz-Viñas, S., *Contemporary Theory of Conservation*, Oxford: Elsevier/Butterworth-Heinemann, 2005, p. 124.
- ²² See, e.g., Brajer, I., "Taking the wrong path: learning from oversights, misconceptions, failures and mistakes in conservation. Examples from wall painting conservation in Denmark", in CeROArt. *L'erreur, la faute, le faux*, n°3 (2009) (<http://journals.openedition.org/ceroart/1127>); or Murphy 1998, cit. (above, note 11). The 2014 meeting of the International Association of Book and Paper Conservators, titled "If Only I Had Known", also focused on this topic and included several extremely interesting and useful presentations in this line.
- ²³ This notion is loosely based on (and can be considered as a subset of) Laurajane Smith's notion of *Authorised Heritage Discourse*, as presented in her *Uses of Heritage* (London, Routledge, 2006) and as expounded on in her Reinwardt Memorial Lecture: *All Heritage is Intangible: Critical Heritage and Museum Studies*, Amsterdam 2012. The term *Authorised Conservation Discourse* attempts to convey the commonplace ideas and stereotypes that define conservation as a heritage profession.
- ²⁴ If this criticism was considered relevant, "even the mildest forms of cleaning would be ruled out, as they could actually alter the historical evidence contained in the object. An example of this position is the argument that Michelangelo's David should not be cleaned at all because even the gentlest cleaning could remove historic evidence, such as 'a follicle or a bit of skin' from Michelangelo himself that could remain on the sculpture, which 'with the study of DNA (...) could in the future give unexpected information'". (From Muñoz-Viñas 2005, cit. (above, note 21), p. 205. The quotes inside the paragraph are from Beck, J.H., "What does 'Clean' mean?", in *Newsday*, October 6, 2002, A26).
- ²⁵ Iglesias and Ruiz 2011, cit. (above, note 15).
- ²⁶ "Subjective considerations tended to obscure facts, upon which alone fruitful discussion can be based." (MacLaren, N., and A. Werner, "Some Factual Observations about Varnishes and Glazes", in *The Burlington Magazine*, vol. 92, n. 568 (1950), pp. 189-192 (p.189)). This article was published amidst the so-called cleaning controversy that revolved around the removal of aged varnishes from paintings in London's National Gallery during the Second World War. A few lines down the quote, the authors expressed their disregard for aesthetic considerations: "There can be no end to discussion of the purely aesthetic aspects of the subject, and it is proposed here to confine discussion to the technical side of the question".

- ²⁷ Torraca, G., "The Scientist in Conservation", in *Getty Conservation Institute Bulletin*, vol. 14, 3 (1999), pp. 8-11. ICCROM is an inter-governmental organisation working in service to its Member States to promote the conservation of all forms of cultural heritage, in every region of the world (www.iccrom.org).
- ²⁸ The curious reader may be interested in reading "Imperfect Conservation", an invited Editorial to the Spring 2014 issue of the web-based *e-Conservation Journal*, in which the author argues that risks and compromises are a given in conservation (doi: 10.18236/econs2.201401).
- ²⁹ There are other reasons for this claim. Interestingly, most of them are based on the removal of historical proofs (Meacham, W., "The 'restoration' of the Turin Shroud: a conservation and scientific disaster", in *E-Conservation Magazine*, vol. 13 (2010), pp. 28-42 (<http://hdl.handle.net/10722/208511>)).
- ³⁰ From a technical standpoint, price and value are not the same. For the sake of readability, however, in this essay price is understood as the monetary expression of value.
- ³¹ Keck, S., "Some picture cleaning controversies: past and present", in *Journal of the American Institute for Conservation*, vol. 23, 2 (1984), pp. 73-87.
- ³² "Editorial", in *The Burlington Magazine*, vol. 144, n.1191 (2002), p. 331. Please note that this is not to say that the cleaning of the painting was wrong or right. Most likely, the varnish on the Saint Jerome would have never been found valuable (nor would have it merited a mention in an Editorial of *The Burlington Magazine*) were it not for the fact that so many other paintings had been unvarnished.
- ³³ See, for instance, Muñoz-Viñas 2005 cit. (above, note 21), p.150 and *passim*.
- ³⁴ Ashley-Smith, J., "The Ethics of Doing Nothing", in *Journal of the Institute for Conservation* vol. 41, n. 1, pp. 6-15 (2018).

Colophon

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Editor

Riemer Knoop

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Wilma Wesselink, Claire Bown

Design

Bart de Geus

Author photographs

Erwin van Amstel

Front cover image

Salvador Muñoz-Viñas

Print

Pantheon Drukkers



Reinwardt Academy
Amsterdam University of the Arts

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ISBN 978-90-71681-37-0

Reinwardt Academy

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Reinwardt and the Memorial Lectures

Caspar Georg Carl Reinwardt (3 June, 1773 – 6 March, 1854) was a Prussian-born Dutch botanist, founder and first director of agriculture of the royal botanical gardens at Bogor (Buitenzorg) on Java, Indonesia. An early receiver of honorary doctorates in philosophy and medicine, he later became professor of natural philosophy at the University of Leiden (1823 to 1845).

The Reinwardt Academy annually commemorates the birthday of its namesake with a public lecture, held by distinguished scholars in the field of the academy's disciplines: *Ad de Jong* (2008), *Lynne Teather* (2009), *Rob van der Laarse* (2010), *Laurajane Smith* (2011), *Michael Shanks* (2012), *Birgit Donker* (2013), *Kavita Singh* (2014), *Marcos Buser* (2015) and *Margriet Schavemaker* (2016).

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The Amsterdam University of the Arts (AHK) offers training in nearly every branch of the arts, including courses of study which are unique in the Netherlands. The AHK is continually developing and is now proud to occupy a prominent place in education, the arts and cultural life, both nationally and internationally. The school benefits from exchanges with and close proximity to the artistic life of the country's capital – including theatres, museums, galleries and studios. The departments include the Breitner Academy (fine art in education); the Academy of Architecture; Netherlands Film Academy; the Academy of Theatre and Dance; and the Conservatorium van Amsterdam.

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