

How Dutch is 'the Dutch method'?

A History of Wax-resin Lining in its International Context

Abstract

Throughout the 20th century, whenever the matter of wax-resin lining was raised for discussion in the international literature, the 'Dutch Method' was always mentioned. Without ever tracing the origin of the idea that this method had been invented in The Netherlands, it was always assumed, often with the complimentary comments, that Nicolaas Hopman or his son Willem Antonij Hopman invented the method in the 19th century. In 1992, however, the Dutch derivation of this method was labelled a myth.

This paper investigates the origin and early international history of this conservation technique and demonstrates that its origin is indeed to be found in The Netherlands.

Key words

conservation-restoration history, copaiba balsam, De Wild, Dutch method, encaustic painting, glue-paste lining, history of wax-resin lining, Hauser, Hopman, treatment of canvas painting, wax-resin

Introduction

In an interview published in the Dutch journal *De Hollandsche Revue* in 1904, Carel Frederik Louis de Wild (1870-1922), a well-known art restorer in The Hague, was asked why he called his method of lining paintings 'The Dutch Method'. De Wild replied that this was because the method 'in fact comes from a Dutchman, the famous Hopman, the elder Hopman, father of the present-day restorer of paintings'.¹ Further on in the interview, De Wild gives a quite detailed account of this method which was, in many respects, comparable with the technique he had learned in the Royal and Imperial Paintings Collection in Vienna. However, whereas in Vienna they used *pappe* (paste) as adhesive, he himself now used something else. At this point in the interview De Wild's sentence frustratingly tails off in dots. The author of the article explains that De Wild had told him what adhesive he used but that he did not wish it to be published. He continues: 'suffice it to say that this adhesive corresponds with the preservative used by the ancient Egyptians in mummification and in which all kinds of objects of that time were embalmed, objects which to this day are found in good preservation in ancient Egyptian tombs'.² De Wild's secret material, which for several reasons he preferred to the Viennese *pappe* ('a sticky mixture of rye flour and boiled glue-water plus a small quantity of alum')³ must have been wax. We know today that by then wax-resin had become the alternative for glue-paste in lining and that its reputation as a preserving material derived from ancient Egypt.

Much has been written about wax-resin lining since the

1920s, the relevant articles consistently referring to this method as 'The Dutch Method' and often attributing its invention to the restorer Willem Antonij Hopman (1828-1910) or, as did De Wild, to his father Nicolaas Hopman (1794-1870) (Baer and Kunz, 1977).⁴ One reason why the question of who invented this method, and when, has never been fully clarified lies in the obscure nature and the paucity of written sources. The other has to do with the general idea that paintings have been repeatedly re-lined leaving no traces of previous treatments that could provide answers to related questions. During the last decade, the Dutch origin of the wax-resin method of lining has been questioned. This paper will try to clarify the history of its invention.

The introduction of wax for conserving paintings on canvas was thought to be the result of the new interest in antiquity in the mid-18th century, particularly the rise of archaeology (Schaible and Wülfert, 1992).⁵ Wax was considered to be chemically inert and had already been used extensively by the ancients, proving its preservative properties over millennia. The discoveries of Roman encaustic painting in Herculanaeum and Pompei (where excavations had started in 1738) was a demonstration of the high quality of wax as a material that would remain unchanged over time and offer a perfect protection against the deleterious effects of moisture.⁶

Efforts were made to discover the secret of the encaustic painting technique referred to by Pliny in his *Natural History*, but subsequently forgotten. An important book by the Frenchman Jean-Jacques Comte de Caylus (*Compte de Caylus*, 1755), one of many mid-18th-century publications on this subject, describes an encaustic method the author had devised of coating a canvas with a layer of a beeswax mixture, painting on it, then heating the painting in front of a fire to allow the wax to penetrate into the paint (Percival-Prescott, 1974: 29). It is striking that in the four procedures developed by de Caylus for the encaustic technique he always mixed a certain amount of resin into the wax. These were, in fact, wax-resin mixtures (B(P)ernety, 1756: 67-68).⁷ Other methods described concern the use of wax as a binding medium obtained by saponification (B(P)ernety, 1756: 68-80).

Percival-Prescott gives an interesting example of the adoption of the use of wax in paint by a painter called J.H. Muntz who published the results of his experiments in 1760 in London. These involved comparison of test strips with normal oil paint and encaustic. He cut the strips into several pieces and left them for more than two years in various climatic conditions: in the open air exposed to sun, wind and rain; in a damp cellar; attached to the kitchen ceiling near the chimney; and wrapped in paper in a closed drawer. His

conclusion was that ‘encaustic colours having resisted the injuries of the weather better than oil for 27 months, they will be more lasting for longer times...’ (Percival-Prescott, 1974: 29-30).

Hence, it is fairly obvious that the roots of wax-resin lining can be found in this period of fanatical experimentation with beeswax as a paint medium. Perhaps the best known artist amongst the many who tried using wax in their paints is the English painter Sir Joshua Reynolds (1723-1792). It was no great step to see that such techniques could have a preservative effect. Indeed, many artists of that time were, in fact, also restorers who were to a greater or lesser degree informed about current artistic and technical developments, such as the experiments with encaustic technique. They would certainly have been aware of the protective properties of wax against the ravages of moisture, as Muntz had so convincingly demonstrated.

Seen in this context, the notion that wax-resin lining was invented in The Netherlands, a country which conspicuously did not experience the encaustic enthusiasm, seems at once unconvincing.

Early use of wax(-resin) in conservation

Schaible (Schaible, 1992) begins his important article, ‘The myth of wax-resin. A report on early investigations into the (in)constancy of wax-resin mixtures’, with the remark that the history of the origin of what is referred to as the ‘Dutch method’ and the oft-repeated story that this method was invented in 1870 by the Dutch restorer N. Hopman had already proved to be a myth. As early as 1854, Rembrandt’s *Nightwatch* had been lined with wax-resin and, according to Schaible, Pernety had ‘already described’ (*längst beschrieben*) the method in 1757.⁸ Furthermore, Schaible notes a year earlier in 1756, that the *Mercure de France* carried a report of a painting that had been lined with a mixture of beeswax and colophony. Yet, like other authors before and since, he offered no explanation for this enduring ‘myth’ of the origin of the ‘Dutch method’.

There is no good reason to assume that the wax-resin lining technique was already known in the 18th century. What is clear, on the other hand, is that there is occasional mention of the early use of a wax(-resin) in the treatment of paintings, which has more to do with the instant solving of a problem concerning repair than with a conservation method. Schaible states that the use of wax (mixtures) as an adhesive had long been current practice in various trades (Schaible, 1983: 252). The fact that these were natural materials, already used in Antiquity, makes this statement quite self-evident. One can assume that wax, even a mixture of wax with resin, would have been an obvious material to use in art and craft production of various kinds.

The fact that wax was already used as a moisture proofing material for the treatment of paintings on canvas before the encaustic hype is evident from the recent examination of the Rubens paintings, the *Battlefield of Henry IV* and the *Triumph of Henry IV* (1630) in the Uffizi Gallery in Florence. When these canvases, bought by Cosimo III de’Medici in 1687, arrived badly damaged in Florence, it was decided they should be restored. The reverse of the canvases were given a damp-proof layer of manteca (a fatty material

consisting of a mixture of wax, oil and fish glue) to which a quantity of red ochre was added (Blok, 2001).⁹ This treatment confirms that the preservative properties of wax were also known in the 17th century. However, this seems to be an occasional treatment, rather than a systematically applied technique.

The sources mentioned above, which Schaible cites as evidence of the existence of wax-resin lining by the 18th century, in the author’s view also refer to isolated instances. In his 1756 *Dictionnaire Portatif*, under the heading *Rentoiler*, the Benedictine monk B(P)ernety gives a very brief description of what is meant by lining: ‘glueing on to a new canvas. For this purpose, some make a glue from flour and a little finely mashed garlic in water; others melt a little strong glue in water and use this solution to mix in the flour and then let it boil’ (B(P)ernety, 1756: 497).¹⁰ This is the whole extent of the description given by Pernety in his account of how to treat paintings on canvas that have become decrepit through age. Later on, under *maroufler*, one finds the wax-resin mixture that is cited by Schaible. *Maroufler* is introduced here as ‘a term from the art of painting’, and there is no indication that it concerns restoration. ‘It is sticking a painting to a backing of canvas, wood or plaster. For this, one uses strong glue, or fatty pigments [probably residues of oil paint]. *Maroufler* can also be carried out using a mixture of Greek pitch and wax.’ (B(P)ernety, 1756: 405).¹¹ According to Marijnssen (Marijnssen, 1965: chapter 1, note 134), De Mayerne identifies Greek pitch with colofonium.¹² It would seem clear that this is meant as an account of a practice of the artist himself, not of lining an earlier painting as part of its restoration. Wax-resin lining is thus not what P(B)ernety ‘already described’ (*längst beschrieben*); B(P)ernety’s description of lining concerns glue-paste lining (no mention of wax-resin) and the use of greek pitch and wax deals with *marouflage*, carried out by painters themselves as part of their techniques. The single conclusion one can draw from this text is that a wax-resin mixture was already known as an adhesive (also by painters), but was not in current use for the restoration of paintings.

In the *Mercure de France*, the second source cited by Schaible, the 1756 report does indeed deal with a painting that was fixed to a canvas using a mixture of wax and resin. But Schaible omits the context of this news report, which in fact concerned the ‘miracle’ of a painting that could be saved from a fire and subsequently resurrected, ‘like the phoenix, from the ashes’ (*Mercure de France*, 1756: 187).¹³ The writer reports that the painting

had already been damaged before and was badly restored; that it had already been lined, i.e. strengthened with a second canvas, after the original canvas had been repaired in several places with flax, colofonium and soft wax, red and green;¹⁴ that the two canvases had been stuck together with the same ingredients; that the whole had then been given a thick coating of very poor quality varnish; and that you could see how fierce the fire had been. The colours had melted and mingled with this hotch-potch of materials and blistered extensively in the heat¹⁵

From the way this situation is sketched, one suspects that the previous restoration referred to was not of a kind in current practice, but a rather botched solution improvised by an amateur.

In short, these examples do not provide any evidence, for the existence of a wax-resin lining method in the 18th century.

This holds too for the early 19th century, even though one can point to an early case of 'lining' where a mixture of wax-resin was used as an adhesive. This case is a 'lining' found on a painting from the large-scale 17th-century ensemble in the Oranjezaal in Palace Huis ten Bosch in The Hague, *The education of Frederick Henry* (1648) by Theodorus van Thulden. With the help of sources and technical research, it has been established with reasonable certainty that this treatment was carried out in 1806 (Te Marvelde, 1999). The new canvas was stuck onto the original with a mixture of beeswax and colofonium.¹⁶ This is the oldest, still existing, 'wax-resin lining' yet known to us and therefore of the utmost interest for research in this area. Investigation of the way the treatment was carried out, however, can only lead one to conclude that here, too, there is no question of an established method. The treatment appears to have been carried out with the intention of saving a painting damaged by leaking water, and which needed to be strengthened and protected against damp. In fact, nothing more was done than to stick a canvas to the back of the damaged work. The roughly woven new canvas was not stretched but apparently laid loose on the back of the original and a considerable quantity of wax-resin was applied with a brush over the irregularly stretched and bulging second canvas. The fact that the brush strokes are still visible, with recognisable gobs of the wax-resin that have fallen from the brush and that, furthermore, the wax-resin has not impregnated the original (nor even sometimes the new canvas) leads to the conclusion that no heat has been applied after application of the molten wax-resin. The mixture has been used here merely as an adhesive and not, as is the essence of 'the Dutch method', as an impregnating agent. Because wax-resin cools rapidly once applied, it is virtually impossible to get an even application without some instrument of heat, e.g. a hot iron. The thick lumps have caused major deformations in this painting and in many places no attachment has actually occurred. Thus, neither can this treatment be considered an instance of a clearly thought out technique, but rather as a crude precursor of the wax-resin lining method.

The origin and initial dissemination of 'the Dutch method'

Carel de Wild (1870-1922), the art restorer quoted at the beginning of this article, who said in 1904 that the wax-resin lining 'in fact comes from a Dutchman, the famous Hopman, the elder Hopman, father of the present day painter and restorer' (*De Hollandsch Revue*, 1904: 767) will turn out to have been a reliable source.

Having begun as an assistant to an art dealer, De Wild's skill at retouching and his care for art were discovered by the great art historian Dr. Hofstede de Groot, who encouraged him to learn the business of restoring professionally and helped him obtain a bursary to do so. In 1895, De Wild was thus able to acquire the necessary knowledge and expertise at the studio of the Royal and Imperial Paintings Collection in Vienna. Similarly, through the advocacy of Hofstede de Groot, together with the great Rembrandt expert of the day and director of the Mauritshuis in The Hague, Dr. Abraham Bredius, De Wild subsequently obtained a trainee post under Professor Alois Hauser Jr. (1857-1919) in Berlin. This was a

unique opportunity, since Hauser, who had a considerable reputation in art historical circles as a restorer and was seen as the specialist in the treatment of Rembrandt's paintings, normally took no pupils (*De Hollandsche Revue*, 1904: 767-768).

According to De Wild's interview quoted above, it was Hauser who had taught him the lining method he had by then adopted as general practise. The method was entirely new to De Wild at the time. In the Vienna studio he had learned the technique of glue-paste lining, but had never come across a lining in the Hopman method (*De Hollandsche Revue*, 1904: 767). Initially, Hauser, who had learned his profession from his father, Alois Hauser Sr. (1831-1909), had also been ignorant of this method. According to his own testimony and to records from the Mauritshuis in The Hague, Hauser Jr. had learned the wax-resin lining method from Hopman Jr. in 1891 at the time when he was invited to the Mauritshuis by Bredius to restore a number of paintings (treatments concerning the varnish and paint layer) (Mandt, 1995: 217 and letter archives Mauritshuis 1890-1893).

The fact that Carel De Wild had learned the wax-resin lining method from Hauser takes us closer to the source and certainly lends greater credibility to what he has to say about its origin. Hauser, who had learned it from Hopman Jr., must have discussed the method with Hopman at length. It would seem obvious that Hauser must have asked him where this method, unknown to him despite his stature in the art restoration world, had come from. Upon which Hopman surely referred to his father who, from his work as a painter, seems to have devoted himself entirely to restoration from about 1840 (Van Leeuwen, 1990). Subsequently Hauser would undoubtedly have told De Wild of the way in which he had learned the method and about its origin.

That this Nicolaas Hopman Sr. was famous in his profession, as De Wild alleged, is also well attested. It is clear from various archives, and through other investigations, that in the period from 1841 until his death in 1870 he was given many of the most important commissions in The Netherlands. These included the treatment of many paintings in the Mauritshuis and the Rijksmuseum in Amsterdam (including the oft-cited wax-resin lining of Rembrandt's *Nightwatch* in 1851) (Archives Mauritshuis and Rijksmuseum) and the treatment of the large-scale paintings in the 17th century Oranjezaal in 1855, including the wax-resin lining of a painting of some 4 x 7m, *Allegory on the Marriage of Frederick Henry and Amalia of Solms* (1651) by Gerard van Honthorst (Heiden, 1997: 87).¹⁷ Until very recently it appeared that Hopman Sr.'s last extant, documented wax-resin lining had been removed when Rembrandt's *Nightwatch* was restored in 1947 (Schendel & Mertens, 1947). However, the recent restoration of this huge painting in the Oranjezaal, which was lined by Hopman in 1855 and relined again after World War II, brought to light a new trace. Along the top margin, at a spot where there was a hole in the original canvas, a remnant of Hopman Sr.'s earlier lining was found between the original canvas and the present lining - a small piece of thin, blue and white striped twill canvas. As chance would have it, there is in the Mauritshuis a painting by Salomon de Koninck *The Adoration of the Kings* (inv.nr. 36) that has been lined with exactly the

same canvas. A letter in the Mauritshuis archive says of this painting: 'removed from the [lining] canvas 1861, re-lined...' (letter nr. 1021), without giving the name of whoever carried out this work. It was already strongly suspected that this was one of Hopman Sr.'s linings, since he had done much work for the Mauritshuis before that date and was still active during this period. The fact that here the same lining canvas has been used as was used for the painting in the Oranjezaal in 1855, makes it as good as certain that this is the sole remaining (never removed) wax-resin lining by Hopman Sr. There is still no reason to remove this 140 year old lining.

Hopman's son, Willem Antonij, became even more famous than his father.¹⁸ Between 1870 (after his father's death) and 1899 he was also given a number of important commissions, also including paintings from the Mauritshuis, the Rijksmuseum, the City of Amsterdam and the Oranjezaal. Various sources lead one to suppose that, unlike his father, he did not begin as a painter, but that from the outset he developed (under his father's tutelage) specialist skills as a restorer (Hopman, 1871: 60; Duyn, 1996: 10-11). He often left the aesthetic side of a treatment to an artist. His great speciality, in fact, was wax-resin lining. A letter from the then director of the Mauritshuis, Abraham Bredius, gives us a glimpse of the kind of esteem in which Hopman Jr. was held: 'Mr. Hopman, who for reasons of health has had to retire from his work from December 31, 1899, is renowned as the best living liner of paintings, and as such has given his country inestimable service' (Archives Mauritshuis, 1899: letter nr. 225).¹⁹ Various sources from the long period during which he was active (1847-1899) indicate that Hopman Jr. was a cultivated, inquiring, thoughtful man, thoroughly convinced of the ethical aspects of his work. In 1871 he published a translation of the book *Über Ölfarbe und Conservirung der Gemälde-Gallerien durch das Regenerations-Verfahren* by the German chemist Max von Pettenkofer which had been published in its original German edition in 1870. This book, which had a huge influence on the practise of restoration in Germany and, as a result of Hopman's translation, also in The Netherlands, described a method by which a blanched varnish could be made transparent again through the action of alcohol vapours and copaiba balsam, thus circumventing the risky intervention of removing the varnish. It was ironic that this regeneration method, developed on the basis of an extremely cautious, ethical approach, should ultimately turn out to have deleterious side effects whose full extent only became apparent later (Schmitt, 1990).²⁰

Hopman Jr.'s translation appeared soon after the publication of Pettenkofer's book. He had devoted his evenings to translating the work because, in his view, it was important 'to inform collectors of paintings, connoisseurs and restorers of matters that are of such enormous importance for the conservation of paintings' (Hopman, 1871: V).²¹

It must have been the state of long-neglected paintings in Dutch collections that necessitated the urgent development of a method to consolidate the paint layer over large surfaces in a single operation and to strengthen the linen supports affected by damp. In the above mentioned treatment of a painting in 1806, a wax-resin mixture was used to stick one

canvas on to another. What Hopman father and son discovered was how, by applying heat, this mixture could be ironed without much pressure²² into the back of the canvas so that with a single treatment (consisting of several phases) the entire painting could be conserved. One repeatedly comes across accounts in the letters of Hopman Jr. of paintings where poor adhesion of the paint layer was the reason for resorting to this method of treatment (Archives Mauritshuis).

Hopman Jr. had a low regard for glue-paste lining. In a note appended to his translation of Pettenkofer's book he writes in this connection of 'feeding' paintings with wax that some people allege that this is bad for paintings because the wax contains honey, which attracts moisture. Hopman goes on to say:

... if there were any basis in this contention, wax would undoubtedly have an adverse affect, contrary to the desired end, but how much more deleterious the way of so-called re-lining that is still frequently employed, in which glue and other water-soluble adhesives are used that, from the nature of things, with all its substance attracts moisture. (Hopman, 1871: 43)²³

In another place in the same publication he calls glue and other water-soluble adhesives 'erroneously applied materials' (Hopman, 1871: 49).²⁴ Various critical notes in his writings attest both to Hopman Jr.'s circumspection and to his investigative turn of mind. In response to a remark by Pettenkofer that one had never noticed any difference between copaiba balsam and oil, Hopman registers his surprise: 'It strikes us as strange that the German restorers are unaware of the difference; do they not investigate the agents they employ, or if this is too difficult, do they never consult the works of chemists?' (Hopman, 1871: 39).²⁵

It so happens that the quality of the linings for which Hopman Jr., like his father, was famous can be confirmed by investigation of the paintings he lined. Because most of these paintings have not been re-lined again to this day, it has been possible to investigate many of them. The linings were all carried out between 1870 and 1899 and most of them remain in good condition. Bredius' remark of 1899 'that a painting lined by Hopman certainly won't need to be re-lined for another hundred years' (Archives Mauritshuis, 1899: letter nr. 225)²⁶ has thus turned out to be more than true. Investigation of these linings shows that all stages of Hopman Jr.'s 'Dutch Method' were properly conceived. Most remarkable is the fact that there is almost never any superfluous wax-resin to be seen on the back of the canvas. This is not the image that has generally been held of wax-resin lining. It is evident from various condition reports from later periods that Hopman's linings were often misidentified as glue-paste linings precisely because of the absence of excess wax-resin. Another characteristic of Hopman Jr.'s lining is the use of very thin, densely-woven twill canvas, the thread straight, pre-stretched with great care. He always stretched the newly lined painting on a new, solid stretcher, made of broad lathes bevelled on the canvas side, and with a roundel at the outer edges at the interior side. Research on the sole remaining canvas of Hopman Sr. from 1861 has shown that father and son worked in the self-same manner.

It is clear that we are looking at a 'method' that has been elaborated in all its stages for the purpose of preserving the painting as long as possible: The structure of the lining

canvas is so fine that this cannot print through on to the front of the painting while, at the same time, the twill weave imparts great strength and contains little flexibility so that it can be stretched well and true. Because such enormous care was paid to removing superfluous wax-resin, the canvases remained relatively supple without developing deformities that one so often finds in paintings where there is a thick and irregular wax-resin mixture. The fact that canvas stretchers were constructed with a roundel and bevelling on the interior side indicates that the Hopmans were well aware of the marks caused after some time if the canvas came into direct contact with the stretcher.

Information can be found in various sources on the composition of the mixture Hopman Jr. used for lining. In the manuscript written by Alois Hauser Jr. in 1896/7 and modified in 1901/2, he gives an account of the method he had learned from Hopman Jr. According to Hauser, Hopman Jr. used 3 parts colophony, 4 parts white wax and 2 parts Venetian turpentine for his mixture (Mandt, 1995: 222). According to Hopman Jr. himself, however, he also added as a component one part of copaiba balsam. In the introduction to his translation of Petterkofer's book, he reports that he had used this mixture on the back of paintings for years as a 'nutrient' as well as a lining adhesive (Hopman, 1871: 43). In an interview in the German journal *Die Kunst*, H. Heydenryk, a pupil of Hopman Jr., confirmed that the latter's mixture consisted of wax, resin, Venice turpentine and copaiba balsam (Raaf, 1905: 451). The addition of copaiba balsam was probably intended to keep the mixture supple. Although chemical analysis has never confirmed the presence of this balsam in the wax-resin mixture (Werf *et al*, 2000) it is striking how supple the adhesive has usually remained compared with many other (and, significantly, much younger) wax-resin mixtures.

The dissemination of the 'Dutch method' beyond the Netherlands

It is relatively easy to follow the way the Hopmans' method of wax-resin lining spread throughout Europe, and even beyond. As has been described above, the 'Dutch Method' was introduced into Germany by Hauser in 1891. In his manuscript, mentioned above, Hauser writes that he developed a formula of his own for the wax-resin mixture consisting of '2 parts yellow wax and 1 part Burgundy resin (white pitch)' (Mandt, 1995: 222). This mixture would be more flexible and smoother than Hopman's. In a reference to Hauser, E. Voss subsequently mentions this mixture in his *Bilderpflege. Ein Handbuch für Bilderbesitzer*, published in 1899 (51). And five years later, in 1904, Theodor von Frimmel mentions in his *Handbuch der Gemäldekunde* (Frimmel, 1904) a restorer from Dresden called Nahler who lined with a mixture of 'Wachs und weisses Harz (helles Pech)' (134). Although Frimmel does not mention his name, these materials clearly refer to Hauser. What is also striking in Frimmel's book is that he cites the restoration studio in Vienna: 'Gerisch in Vienna used flour-paste with some alum and a little 'Sublimat', the latter to prevent damage caused by insects. Since about 1896 he has also used [Venice] turpentine and wax.' (Frimmel, 1904: 135).²⁷ We already know from Carel de Wild's interview of 1904 that wax-resin

lining was still unknown during the time that he was apprenticed in Vienna in 1895, where a mixture of glue-paste and alum was then used (*Hollandsche Revue*, 1904: 767). Subsequently, in 1896, De Wild was introduced to the wax-resin lining method by Hauser in Berlin. It can hardly have been a coincidence that suddenly, in the same year, wax-resin was also used in Vienna. De Wild himself must surely have brought this stunning new method to Vienna, where shortly before he had had the opportunity to gain professional experience and build up contacts. After running a successful studio for some time in The Hague, De Wild emigrated to New York in 1911 where he further established his reputation as a respected restorer and connoisseur of paintings. In 1921, at the University of Pennsylvania, he became 'the first Instructor in the United States' on 'Care, Preservation and Restoration of Paintings' (Archives De Wild) and must have introduced the 'Dutch Method' into the USA through his lectures and training courses.

When Carel de Wild emigrated to the U.S.A. his studio in The Hague was continued by his brother Derix de Wild (1869-1932), who later shared it with his son, Agenitus Martinus de Wild (1899-1969). Together, father and son carried out important work for the Mauritshuis (Archives Mauritshuis). Martinus de Wild gained his doctorate in 1928 with his thesis on 'The Scientific Examination of Pictures', which heralded a revolution in the restorer's profession in The Netherlands. He was given the chance to investigate many paintings from various collections and even to take samples (De Wild, 1929). Remarkably, it was this man who was the first to look at the linings of Hopman Jr. in the Mauritshuis. In publications of 1959 and 1964 he expressed his admiration for these 'old' linings which he found to still be in such good condition. It is highly probable that Martinus de Wild introduced the wax-resin method of lining to Great Britain. A letter from the Director of the Edinburgh National Gallery in 1928 reveals that De Wild had already been engaged on work for him, including wax-resin linings, for 4 or 5 years.²⁸ It would seem hardly by chance that the first time the method is mentioned in the English literature was in 1925 when Martinus De Wild was at work there. This was an article by A.P. Laurie, the well known Professor of Chemistry at the Royal Academy of Arts in London, in which lining is briefly discussed. The canvases are fixed to each other '... with mixtures which vary in composition, generally containing glue and oil and resin. ... You will find every country has its own methods of relining. In Holland they use a preparation of wax and resin.' (Laurie, 1925: 133).

France, too, became cognizant of the wax-resin lining method. An article by P. Tudor-Hart in 1931 expresses the view that all hygroscopic glues are unsuitable for lining. He goes on to give a number of criteria that every lining should fulfil and following this list asserts that all these advantages come together in '*la méthode hollandaise*'. The adhesive used in this method is 'composed of resin and wax dissolved in Canada balsam and copaiba balsam' (Tudor-Hart, 1931: 30-31).²⁹ The mention of copaiba balsam in the lining adhesive indicates a direct link to the method of Hopman Jr. From the early '30s, there has been a stream of publications in many countries concerning variations in lining methods, particularly with regard to research into the properties of

different wax-resin mixtures (Baer & Kunz, 1977). Improvements on the method were continually sought, particularly since the method's disadvantages had all too soon become visible. However, up to the 1970s the wax-resin method in all its variant forms, remained the most commonly used for the treatment of canvases.³⁰

Conclusion no myth, 'The Dutch method' is Dutch'

This paper has tried to demonstrate that the oft-repeated allusion in the 20th-century literature to wax-resin lining as an invention of the Dutch restorer Nicolaas Hopman in the mid-19th century is no myth, but based on fact, with documentary evidence.

As a result of developments in several areas, a climate had arisen in the 19th century in which the invention could have occurred in virtually any European country. However, it was a Dutchman who took the actual step of developing this method. Just as with Petterkofer's method of regeneration, it was concern for the maintenance of the art work for the future that motivated the development. Even though, in this case, the negative effects of this well-intentioned invention were unfortunately to become apparent later, it has to be said that a great deal of damage could have been prevented if the wax-resin method had been continued by subsequent generations with the same care as exercised by the father and son Hopman.

Acknowledgements

This paper has been written under the aegis of the Dutch MolArt Project. MolArt (Molecular Aspects of Ageing in Painted Works of Art) is a subsidiary of the Dutch Organisation for Scientific Research (NWO).

I wish to acknowledge the conservation studios of the Mauritshuis, The Hague (especially Jørgen Wadum); the Rijksmuseum, Amsterdam (especially Hélène Kat); the Frans Hals Museum, Haarlem (Koos Levy and Ella Hendriks - E. Hendriks is now head of conservation at the Van Gogh museum, Amsterdam); The Limburg Conservation Institute, Maastricht (Anne van Grevenstein); and the State Buildings Department, The Hague, for their support of conservation-restoration historical research in the MolArt Project by allowing their paintings to be examined in this context. I also wish to acknowledge Annetje Roorda Boersma-Pappenheim (private conservator-restorer Rotterdam) for providing access to her family archives; Egbert Haverkamp-Begemann (Art History, University of New York) for informing me of the existence of the De Wild Archives; Klaas Jan van den Berg and Leo Spetter for chemical analyses of wax-resin mixtures (FOM institute, Amsterdam - K.J. van den Berg is now working at the Netherlands Institute for Cultural Heritage, Amsterdam); Vera Blok for assistance in finding and copying some of the publications and for allowing me to use information from her thesis; Ernst van de Wetering (Art History, University of Amsterdam) and Hans-Christoph von Imhoff (Conservation-Restoration, Queens University, Kingston, Canada) for comments on the text; Margaret Oomen (University of Amsterdam) for secretarial assistance with the text and Murray Pearson (Amsterdam) for his part in translating and editing the English text.

Notes

- 1 'is eigenlijk afkomstig van een Hollander, den ouden Hopman, den vader van den tegenwoordigen schildertjen-hersteller', *De Hollandsche Revue* (1904) 767.
- 2 'Mijn middel bestaat uit... De heer De Wild deelde ons de samenstelling van zijn middel wel mee, maar verzocht ons 't niet aan de groote klokke hangen en 't dus niet te publiceerden. We volstaan dus met te vermelden, dat dit middel overeenkomt met het preservatief, waarmee de oude Egyptenaren hun mummies behandelden en waarin men allerlei voorwerpen uit dien tijd gedompeld en gewikkeld heeft, welke men nu nog geheel onaangetast in de oude Egyptische grafsteden aantreft.', *De Hollandsche Revue* (1904) 768.
- 3 "Pappe", dat is een kleverig mengsel van roggelbloem en gekookt

lijmwater, waar nog een ietsje aluin in gaat, (...), De Hollandsche Revue (1904) 767.

- 4 Baer and Kunz published an annotated bibliography on the lining of paintings from 1900-1975. These abstracts give a clear overview of the nature of the articles published and give easy access to their content.
- 5 See for example Schaible, V. & Wülfert, S. 1992. In this important contribution to our understanding of the consequences of wax-resin lining on paintings, the authors refute the perennial assumption of the 'proven stability of wax'. Early chemical sources (beginning 20th century) had already proposed that wax-resin mixtures are not stable. Discussing the results of this early scientific investigation, the authors express their astonishment that this work had never entered the conservation-restoration literature before.
- 6 Berger and Zeliger investigated the influence of wax-resin mixtures on canvas and paint layers, demonstrating the error of this conviction of the qualities of wax(-resin). See several papers presented at the Conference on Comparative Lining Techniques in 1974.
- 7 B(P)ernety reports in detail the discussions held on the interpretation of Pliny's encaustic. The resin component seems not to be specifically mentioned in later literature dealing with encaustic in relation to wax-resin lining. Although this author is always referred to in the literature as 'Pernety', and the book dated 1757, I found an edition from 1756 with the name written 'Bernety' (Library Rijksmuseum, Amsterdam). As far as I could check, the contents of the two editions are identical.
- 8 Schaible makes several minor errors here: N. Hopman had carried out the wax-resin lining of Rembrandt's *Nightwatch* in 1851 (not 1854) and died in 1870. He cannot therefore have invented the method in 1870. It is sometimes alleged in the literature that his son W.A. Hopman invented the method in 1870. Schaible may have conflated these data.
- 9 About the recent conservation-restoration treatment of the two paintings by Rubens, a book recently appeared in M. Ciatti (ed) *Rubens agli Uffizi. Il restauro delle Storie di Enrico IV*, Firenze 2001
- 10 'coller sur une toile neuve... Les uns, pour cet effet, font une colle avec de la farine & un peu d'ail écrasée dans l'eau; d'autres font fondre un peu de colle, forte dans l'eau, & se servent de cette eau pour y délayer la farine & et la faire cuire ensuite'. Although this account at first sight seems to concern transfers (the literal meaning of 'rentoiler'), one can only conclude that it is in fact an account of lining. Subsequently, in addition to various other restorative treatments, transferring is specifically described under the chapter *Reparer*. It should also be said that a similar confusion has always dogged the Dutch terminology where these two procedures are concerned. The reason for this confusion lies, in my view, in the fact that there has not always been a strict separation between the two techniques. This is evident from various sources, including the 1904 interview with Carel de Wild cited above. He used the term *verdoeken* (relining) in the context of explaining at length how the original canvas was completely scoured off from the paint layer in order to stick a new canvas onto it. If however the original canvas remained in good condition, it need not be removed in its entirety. It could be scoured down to a certain level in order to provide an even substrate to which the new canvas could be stuck. In the 19th and the first decade of the 20th century, there was, at least in Dutch, only one term for what we now recognize as two different treatments.
- 11 'terme de peinture... C'est coller sur du bois ou un enduit de plâtre, un tableaux sur toile. On se sert pour cela de colle forte, ou de colleurs grasse. On maroufle aussi avec une composition de poix grecques & de cire.' B(P)ernety's work is primarily a painter's manual. The book devotes relatively space to the treatment of paintings, but where the author does deal with such treatment he makes it explicitly clear.
- 12 Marijnissen refers to the same source as Schaible: Pernety 1757, II, p. 61. Neither the edition of 1756 or 1757 that I found, however, consist of 2 volumes; while in both editions the passage quoted by Schaible and by Marijnissen occurs on p. 405 and not p. 61.
- 13 '...phénix qu'on ait vu renâître de sa cendre'.
- 14 I assume that here 'red and green coloured' means wax-resin fillings, or wax-resin fillings that had been appropriately retouched in these colours in a particular passage.
- 15 '...avoit déjà été endommagé autrefois, & mal raccommodé; qu'il avoit même été rentoilé, c'est à dire, renforcé d'une seconde toile, après qu'on eut restauré la première en plusieurs endroits, avec de la filasse, de la colofane, de la cire molle, rouge & verte; qu'avec ces mêmes ingrédients, les deux toiles avoit été appliquées l'un sur l'autre'; que sur le tout on avoit donné une forte couche d'un très-

- mauvais vernis; & vous jugerez par-là des effets de l'ardeur du feu. Les couleurs fondues, brouillées avec ces drogues, avoient en brouillonnant formé quantité d'ampoules;...*
- 16 Unpublished results of chemical analyses by Klaas Jan van den Berg (FOM-institute, Amsterdam), using DTMS (Direct Temperature resolved Mass Spectrometry) and PY-TMAH-GCMS (Pyrolysis-Tetramethyl ammonium hydroxide-Gas Chromatography/Mass Spectrometry). Technical assistance by Leo Spetter.
 - 17 'the large painting by Hondhorst removed from the backing canvas, flattened re-lined stretched' ('de groote schilderij van Hondhorst van 't agter doek afgenomen geplet verdoekt opgespannen').
 - 18 For other information on Hopman Jr. see also Duyn, 1996 and Broos and Wadum, 1998.
 - 19 'De heer Hopman, die zich om gezondheidsredenen met 31 dec. 1899 uit zijne zaken terugtrekt, staat bekend als de beste verdoeker van schilderijen en heeft als zoodanig den lande onschatbare diensten bewezen.'
 - 20 For the implications of this regeneration method see the research of Sibylle Schmitt. Her investigations have been continued within the framework of the Molart Project. See also Werf, 2000.
 - 21 'Om daardoor verzamelaars van schilderijen, liefhebbers en restaurateurs op de hoogte te brengen van zaken, die werkelijk van zoo veel belang zijn voor het conserveren van schilderijen'.
 - 22 De Wild gives as one of the advantages of wax-resin lining (though he never actually calls it that) over glue-paste lining the fact that there is less chance of crushing the painting (*De Hollandsche Revue*, 1904: 768). From Hauser's account, one may infer that it had been clearly realized that the mixture penetrated as a result of its temperature, and that additional applied pressure was unnecessary (Mandt, 1995: 222-223). This was later explicitly stated by Martinus de Wild: 'It must be emphasized that the absorption of the relining mixture is a capillary action and is not due to pressure with the iron.' (Cursiter and De Wild, 1937: 171).
 - 23 '...indien deze bewering gegrond ware, dan zou de was zeker nadeelig zijn voor het doel en hoe veel nadeeliger is dan wel niet de nog zoo vaak gebezigde wijze van zogenaamd verdoeken, waarbij men lijn en andere klevende in water oplosbare stoffen gebruikt, die uit den aard der zaak met hare geheele massa het vocht aantrekken.'
 - 24 '...verkeerdelijk aangebrachte stoffen...'
 - 25 'Het komt ons vreemd voor dat de Duitsche restaurateurs dit onderscheid niet kenden; zouden deze dan de hulpmiddelen, die zij aanwenden niet onderzoeken, of wanneer hun dit te moeielijk is, geen scheikundige werken lezen?'
 - 26 'Daarbij kan men aannemen, dat eene door Hopman verdoekte schilderij zeker in honderd jaren niet weder verdoekt behoeft te worden.'
 - 27 'Gerisch in Wien verwendete Mehlbrei mit etwas Alaun und ein wenig Sublimat, lezteres, um dem Schädigen durch Insekten Vorzubeugen. Seit etwa 1896 nimmt auch er Terpentin und Wachs.'
 - 28 This information was found in the file concerning painting Bredius 110 of the Rembrandt Research Project, Amsterdam.
 - 29 '...composée de résine et de la cire dissoutes par les baumes du Canada et du Copahu'
 - 30 It has also been possible to investigate linings carried out by A. Hauser, C.F.L. de Wild, H. Heydenryk, D. de Wild and A.M. de Wild. The assumed lines of influences are clearly evident. However, it is beyond the scope of this paper to pursue these investigations in detail.
- Bibliography**
- Archives Royal Cabinet of Paintings, Mauritshuis, The Hague
 Archives C.F.L. de Wild, Netherlands Institute for Art History, The Hague.
- Baer, N.S. & Kunz, N.L. 1977. The lining of paintings-1900 to 1975: An annotated Bibliography, in *AATA Abstracts* 14 (1), 181-243.
- Berg, K.J. van den. 1997. Report on analytical results within the Molart 'wax-resin research' (unpublished).
- B(P)ernety, A.J. 1756. *Dictionnaire portatif de Peinture, Sculpture et Gravure; avec un traité pratique des différentes manieres de peindre*, Paris.
- Blok, V. 2001. Rubens' 'Veldslag van Hendrik IV' en 'Triomf van Hendrik IV'. Een onderzoek naar de schildertechniek en restauratiegeschiedenis, Master's thesis in Art History, University of Amsterdam (unpublished).
- Broos, B. & Wadum, J. 1998. Under the scalpel twenty-one times. The restoration history of The Anatomy Lesson of Dr. Nicolaes Tulp, in *Rembrandt under the scalpel*, The Hague/Amsterdam, 39-50.
- Compte de Caylus. J.J. 1755. *Sur la peinture à l'encaustique et sur la peinture à la cire*, Genève.
- Cursiter, S. & De Wild, A.M. 1937. Picture relining, in *Technical Studies in the Field of the Fine Arts* 5 (3), 161-178.
- De Hollandsche Revue*, December 1904, 758-771.
- Duyn, E. van. 1996. Van brood tot alcohol damp; De ontwikkeling van het restauratieberoep in Nederland in de negentiende eeuw, Master's thesis in Art History, University of Utrecht (unpublished).
- Frimmel, Th. Von. 1904. *Handbuch der Gemäldekunde*, Leipzig.
- Heiden, P. van der. 1997. Report on the archival research for the history of restoration of the Oranjezaal, Huis ten Bosch, 1-150, The Hague (internal report in Dutch).
- Hopman, W.A. 1871. *Over Oliveverven en het Conserveren van Schilderijen door de Regeneratie-Behandeling*, Amsterdam.
- Laurie, A.P. 1925. The Preservation and Cleaning of Pictures, *Connoisseur* 73, 131-137.
- Leeuwen, R. van. 1990. *Newsletter of the Royal Cabinet of Paintings, Mauritshuis, The Hague*, 3 (3/4) (December).
- Mandt, P. 1995. Alois Hauser d.J. (1857-1919) und sein Manuskript 'Über die Restauration von Gemälden', *Kunsttechnologie und Konservierung* 2, 215-231.
- Marijnissen, R.H. 1965. Het beschadigde kunstwerk. Een onderzoek naar de mogelijkheden van een discipline inzake conservatie en restauratie, Phd thesis typescript, 3 vol. Published in French:
- Marijnissen R.H. 1967. *Dégradation, conservation et restauration de l'oeuvre d'art* (2 vol.). Brussels.
- Marvelde, M.M. te. 1999. Research into the history of conservation-restoration: Remarks on relevance and method, in J. Bridgeland (ed.) *12th Triennial Meeting, Lyon 29 August - 3 September 1999*, ICOM-CC, vol 1, 194-199, James and James, London.
- Mercure de France*, 1756 (Jan), Vol. 2, 187-188.
- Percival-Prescott, W. 1974. The lining cycle. Fundamental Causes of Deterioration in *Painting on Canvas: Materials and Methods of Impregnation and Lining from the 17th Century to the Present Day*, *Conference on Comparative Lining Techniques* (Preprints), National Maritime Museum, Greenwich, April 1974, 1-47.
- Pettenkofer, M. von. 1870. *Über Ölfarbe und Conservirung der Gemälde-Gallerien durch das Regenerations-Verfahren*, Braunschweig.
- Raaf, J.J. 1905. Über das konservieren von Gemälden, *Die Kunst*, 6 (II), 450-452.
- Schaible, V. 1983. Der Weg der Doubliertechniken - Versuch einer Zwischenbilanz, *Maltechnik Restauo* 4, 250-256.
- Schaible, V. & Wülfert, S. 1992. Das Märchen vom Wachs Harz. Ein Bericht über frühe Untersuchungen zur (Un-) Beständigkeit von Wachs-Harzgemischen, *Kunsttechnologie und Konservierung* 2, 241-243.
- Schendel, A. van & Mertens, H.H. 1947. De restauraties van Rembrandt's Nachtwacht, *Oud Holland* 62, 1-52.
- Schmitt, S. 1990. Examination of paintings treated by Pettenkofer's process, in J.S. Mills & P. Smith (eds.) *IC Preprints of the Contributions to the Brussels Conference Cleaning, Retouching and Coatings*, 3-7 September 1990, 81-4.
- Tudor-Hart, P. 1931. Nettoyage, Rentoilage et Vernissage des Peintures, *Mouseion* 15 (4), 23-40.
- Voss, E. 1899. *Bilderpflege. Ein Handbuch für Bilderbesitzer*, Berlin
- Werf I.D. van der, Berg K.J. van den, Schmitt S. & Boon J.J. 2000. Molecular characterization of copaiba balsam as used in painting techniques and restoration procedures, *Studies in Conservation*, 45 (1), 1-18.
- Wild, A.M. de. 1929. *The scientific examination of pictures*, London.
- Wild, A.M. de. 1959. Verdoeken van Schilderijen, *Chemisch Weekblad*, 55 (32), 417-421.
- Wild, A.M. de. 1964. Wiederfestigung von Leinwand und Bildschicht, *Maltechnik*, 4, 97-111.
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