ABSTRACT. The aim of this paper is to reshed some light on the broad subject of cleaning from the viewpoint of a museum conservator. One of the main reasons for cleaning or removing the varnish of a painting is a planned exhibition. This is surely not the most convincing reason for an intervention and can lead to more frequent restorations than necessary or desirable, often the fate of famous works of art. These actions are arguably the most controversial and dangerous restoration interventions that a painting will face. Such interventions are difficult because, on the one hand, the painting should not be touched if at all possible but, on the other hand, it is often unavoidable that work must be conducted directly on the painting. This means that the intervention, the effect of solvents, and any contact should stop exactly where the original paint layers begin. This cannot be guaranteed, either by traditional means or with modern materials and methods. The cleaning of a painting is more than a great physical risk for the work of art; under certain conditions it can also cause significant changes in its aesthetic appearance and perception. The success of an intervention, in particular, that of cleaning a work of art, thus depends on the cooperation between practitioners, art historians, and scientists, a partnership that is not always free of conflict. Relationships, historical facts, and questions of meaning must be collected and taken into account. This paper is intended to examine and enlighten the full range of issues encountered by professionals involved in the restauration of paintings, with particular emphasis on conservation ethics and the genesis of conservation treatment decisions.

PRELIMINARY CONSIDERATIONS

The objective of this paper is to reshed some light on the broad subject of cleaning from the viewpoint of a museum conservator. With the rapid developments in new cleaning techniques and analytical techniques in the last decade, it is important and necessary for the conservation community to constantly remind itself of the debate surrounding cleaning. In modern times, this debate began with the National Gallery of London “cleaning controversy” of 1947. Then, as now, it would be good for someone who spends much time looking at a few square centimeters of a painting through a microscope to go to the window and look out into the distance. Although the dedication to detail is understandable, one should not forget to look at the whole picture.

The success of an intervention, in particular, that of cleaning a work of art, depends on the cooperation between practitioners, art historians, and scientists, a partnership that is not always free of conflict. Relationships, historical facts, and questions of meaning must be collected and taken into account.

A painting can be unbelievably deterministic, fascinating, and powerful, analogous to and perhaps even more so than literature or music. On the other hand, the physical
substance and condition of a painting can make it extremely fragile, unstable, and sensitive.

The (surface) cleaning and the removal of varnishes are arguably the most controversial and invasive restoration interventions that a painting will undergo. Such interventions are difficult because, on the one hand, the painting should not be touched if at all possible, although, on the other hand, it is often unavoidable that work must be conducted directly on the painting. This means that the intervention, the effect of solvents, and any contact should stop exactly where the original paint layers begin. This cannot be guaranteed, either by traditional means or with modern materials and methods. The cleaning of a painting is more than a great physical risk for the work of art; it can also cause significant changes in its aesthetic appearance and perception under certain conditions.

HISTORICAL FRAMEWORK

A reading of the history and development of the means and methods for cleaning paintings in the past is still quite disturbing to those trained in modern conservation techniques and ethics. Suggestions for the use of various kinds of solvents already existed in the early nineteenth century. Their effect on picture surfaces was described by the early twentieth century (Doerner, 1921). In this publication, Doerner (1921:328–329) published warnings about the damage that could be caused by solvents and cleaning (my translation):

There are countless cleaning materials, most of which are the secret of a particular conservator. One cannot believe all the possible types of materials which are applied to paintings! The strongest caustics, acids, and solvents are used without a second thought. Solutions with unknown composition, so-called secret solutions, are recommended to the public, as something anybody without any knowledge can use to clean pictures. Such “cleaning” methods are often too successful, right down to the ground layers. In those cases, the “conservator” covers up his sins by retouching. It is not uncommon that such locations appear cleaner to the unknowing public than the older version. Even to this day there are conservators who, in all seriousness, claim that they have cleaning materials which remove new paint but stop at the real, original layers. The only thing missing is that a bell should ring when the original paint layer is reached.

At the time, no one spoke of the removal of varnishes or cleaning, but of scrubbing, washing, and refreshing pictures. Caustics, acids, soaps, solvents, and ethereal oils were used. Every ingredient from the kitchen was put on the table: egg yolks, bread, vegetable juices, onions, garlic, and much more. Even now, instructions for restoration can be found in household manuals and guides for laymen. Rubbing a painting with half of a potato is often suggested.

By the mid-nineteenth century, questions and concerns about new painting techniques and approaches to cleaning paintings began to appear. These questions led to more contact with scientists in order to find a new fundamental starting point for interventions. This approach was sometimes successful; at other times it ended in failure. An example of the latter is the serious consequences of the regeneration process using alcohol and copaiba balsam vapor developed by Max von Pettenkofer, a Munich medical doctor, pharmacist, hygienist, and chemist (Schmitt, 1990). His procedure promised to be the solution for all problems related to the treatment of coatings and finishes and was long the fashion throughout Europe. He was named as the first scientist to head a commission dealing with restoration questions in 1862. He was cofounder of the German Society for the Promotion of Rational Methods in Painting (Deutsche Gesellschaft zur Förderung rationeller Malverfahren).

The use of balsams themselves for cleaning paintings, in particular copaiba balsam, was fashionable until the end of the nineteenth century. The effect of this balsam was devastating and catastrophic, especially on oil paintings (Urban, 1939; Schmitt, 1990). Copaiba balsam is a resin now known for its softening properties that remain active over a long period of time. An original paint layer treated with copaiba balsam is thus much more sensitive and subject to future damage than prior to the intervention. It is to be noted that commercial solutions such as Winsor and Newton Artists’ Picture Cleaner still contain copaiba balsam.

The problems posed by cleaning paintings were the subject of extremely detailed, deep, and controversial discussions between conservators, scientists, and curators from 1947 to 1963 as a result of the exhibition Cleaned Pictures held at the National Gallery in London in 1947, the well-known cleaning controversy. For this exhibition, pictures underwent total and complete varnish removal, down to the paint layer. The paintings were, of course, analyzed exhaustively with the instruments and methods available at the time in order to assess their condition and identify later additions, such as overpainting and retouching. The objective of this controversial method was to recover the original appearance of the paintings to “bring the intention of the artists to light.”

The discussions were at times polemic, the negative criticism prevailing in both professional circles and the public in general (Keck, 1984). The aesthetic changes and the new appearance were deplored by many. Directors of foreign museums argued that the radical and complete removal of varnish created the danger of damaging authentic materials by inducing irreparable damage and that the original condition of the picture could not be reached by the intervention. The National Gallery claimed, on the other hand, that it had taken great care in analysis, cleaning, and documentation and that there was no damage to the paint layers.

FURTHER CONSIDERATIONS

The arguments presented by the National Gallery are very similar to those expressed today. One of the main goals of
cleaning is still often defined as coming as close as possible to the original condition. Haag (1987:177–178) stated, “Restoration means bringing a work of art as close to its original appearance as the remaining material allows.”

However, it cannot be emphasized sufficiently how complex such cleaning processes are and that individual and completely different aesthetic conceptions are not a responsible basis for making decisions concerning necessary restoration interventions. In fact, many dangers remain to this day.

Much progress has been made in the development of techniques for the analysis of binders and pigments since the time of the London controversy. Whereas scientists at the time could only identify protein-containing groups such as glues, egg white, etc., a far more detailed analysis is now possible. Scientists have looked more closely at solvents and cleaners and found that they can induce damage that is not readily visible. Information about the interactions and behavior of these materials has helped provide a better understanding of the effect of the application of solvents and has led to the development of alternative methods, such as special gels, soaps, tensides, and enzymes.

The reason for cleaning a painting or removing varnish is often a planned exhibition. This is surely not the most compelling reason for an intervention and can lead to more frequent restoration than necessary or desirable, often the fate of famous works of art. The wear of irreplaceable works of art will always be connected to large exhibitions that can be financed only if they travel to multiple venues. The damage that is unavoidably done to these irreplaceable works of art, even if the damage seems minimal at first, causes a huge loss in their life expectancy (Carlyle et al., 1990; Mansmann, 1998). This kind of attention casts a shadow on the conservator, scientist, art historian, patron, and the art business in general. How often does a work of art become the victim of publicity seekers?

It would be ideal if the conservator, when approaching a painting to be cleaned, were not influenced by the current restoration “fashion,” the unavoidable “good taste,” as these are products of the whims of time. However, these fashions still exist because conservators do not always recognize that they subconsciously apply contemporary taste to everything, including works of art, and that they are always dependent on current technical and intellectual resources and possibilities. As an example, the extension of the original use of ammonium citrate of varnished paintings to the surface cleaning of unvarnished classical modern paintings proved to be a damaging treatment procedure (Phenix and Burnstock, 1992; Mansmann, 1998). The same can be said for the development of artificial varnishes, which supposedly do not yellow or age. Ironically, many of them are not removable (Nicolaus, 1998; Koller and Baumer, 2001).

Unvarnished paintings are another point of contention. Varnishes and the cleaning of paintings are part of the lives of most classical works of art. On the other hand, many contemporary artists did not varnish their paintings. Many unvarnished pictures were trapped by the tastes of the time and were generously varnished, losing a certain important transparency. Victims include many classic modern and contemporary artists.

Then there is also a hierarchy of paintings. For example, pictures by Albrecht Dürer, Titian, or Diego Velázquez generally are damaged by accident or by overzealous treatments. Such works of art are almost always well treated and conserved as valuable treasures or, actually, are too well treated and often too conserved. Other paintings suffered more under the influence of the tastes of time or were forgotten, as is the case of works of Matthias Grünewald (circa 1480–1528), a contemporary of Albrecht Dürer and now recognized as the painter of the Isenheim Altarpiece. The question then remains as to how paintings of less significance are affected by treatments over time.

**ACHIEVING THE OBJECTIVE**

A short paper cannot possibly cover the entire discussion of the development of aesthetic, ethical, and scientific concepts of restoration. It is to be hoped that current restoration methods will provide a certain catalytic effect and direction that will help guide treatment decisions. Of course, the analysis of the binders, coatings, etc., that were used in past centuries has become more precise, and this makes restoration work far better informed. Also, more is known about the materials in use today. However, this should not be taken as a license to use these materials without thought. One should be careful not to rely entirely on science, which can convince us with unjustified certainty that currently available restoration materials and techniques are always much better than earlier methods. In particular, it is to be noted that the long-term effects of chemicals and solutions used today are still not known.

In order to achieve an optimal and objective result in restoration, art historians, scientists, and conservators must take an equal part in formulating the goals and methods for cleaning paintings, using technical, historical, and aesthetic aspects. It is important to realize that the combination of art historical and scientific research is optimally effective for a work of art when the participants respect each other’s discipline to the same degree.

The critical preliminary steps before treatment are historical research and condition reporting. Treatises on paintings and their correct interpretation are an important source of information for preparing an intervention. The appearance that painted surfaces present is the result of many factors, including the techniques used by the artists and the aging and restoration history. The surfaces can be clear, tinted, matte, or glossy, and natural or artificial resins and oils may have been used. The subjects of glazes, glazing techniques, pigmented oil, and resin coatings and the materials used played an important role. These are discussed in many treatises on painting and are an important source of information for making judgments about cleaning (Schick, 1906). The excessive use of poppy seed oil and asphalt and also the individual painting technique of the artist are often the basis for the poor condition of many paintings. These situations have
occurred many times since the nineteenth century. Examples include works by Hans von Marée, Arnold Böcklin, and Joshua Reynolds. Hans von Marée painted an almost uncountable number (up to 70) of oil and tempera layers, one on top of the other. Böcklin had phases with wax techniques, did experiments with antique encaustics, painted with tempera, and used varnish. He was unbelievably innovative, to the detriment of conservators.

More importantly, a carefully prepared condition report must be the basis for every decision made during the subsequent restoration. It must contain all information about the work of art, including a precise listing of all visible phenomena without interpretation or judgment. Knowledge about topographic features, the various paintings traditions, and individual painting techniques and experiments is necessary. However, sources of information are often scarce. This is also one of the reasons why the Munich Pinakothek museums prefer in many cases to perform a careful reduction in the varnish rather than a total removal.

Cleaning interventions still run the risk of damaging the original paint layer and are the cause of the greatest changes in aesthetic appearance of paintings. Obviously, cleaning is always based on subjective criteria. However, the goal should still be to proceed on a historical basis and from technical as well as aesthetic viewpoints. The motto should be “first observe, then act.” In order to fulfill the task of preserving the original, practical and technical skills, broad knowledge, and ethical principles serve equally as fundamental criteria for all restoration decisions. Only these criteria and their use can be the leading principle for a relatively objective work, free of the fashion of the time.

Art historians, scientists, and conservators share one thing in common: the painting under discussion. A discussion that focuses on an analysis of what a work of art is saying, what the artist intended, and what the artist’s working and living conditions were as related to the society at the time should fascinate and enrich all participants.

**BRIEF CONCLUSIONS**

Less is more. On the basis of the experience at the Munich Pinakothek museums this is applicable to all areas of restoration and conservation. Conservators often have to deal with interventions that their predecessors performed in previous decades to the best of their knowledge and with the best methods at the time. These interventions have, in some cases, compromised the integrity of the paintings. Even if the gentler methods of the twenty-first century are used, conservators should be aware that they most likely will not be able to assess whether their work has been sufficiently gentle. However, there are no hard and fast rules. The best one can do is to be aware of the whole intervention, ask meaningful questions, and pay attention to associations and correlations. Although this should prove reassuring, it may also be disquieting.

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