



# Conserve O Gram

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## Leather Dressing: To Dress Or Not To Dress

In recent years, museum conservators have begun to question the widespread use of leather dressings. The indiscriminate treatment of leather with fatty substances is a long-standing tradition among museum and library staffs. The dressings are usually applied in an attempt to slow deterioration, improve the appearance of the leather, and perhaps restore some of its former strength and flexibility. Although the actual outcome usually does not meet these goals, the applicator often has the feeling that he or she is *doing something* to preserve the historic material.

In fact, the quest to discover which dressing to use seems to have distracted conservators and curators from the more fundamental questions: what is the intended effect of each dressing application versus its actual effect, and should we be applying these lubricants at all?

### *Research on Leather Dressings*

The effect of dressings on leather permanence has been studied, and almost invariably the researchers conclude that the dressing has no preservative effect (Smith, 1964). One study (Wallace, Critchfield and Beek, 1935) found that chestnut-tanned leather treated with sulphonated cod-liver oil deteriorated faster than untreated leather. The British Leather Manufacturers Research Association (BLMRA) included degreased leather in their long-term study (Elliott, 1969) and found that the absence of grease did not make the leather more prone to decay.

Another study (Hannigan, Naghski and Windus, 1965) found a slight beneficial effect from certain dressings. This study compared the results of four different dressings applied at two-

year intervals for 34 years on both chrome- and vegetable-tanned leather bookbindings, a thorough and fair test, likely to show up an effect if there was one at all. The four dressings used were 1) vaseline, 2) neatsfoot oil and lanolin, 3) oil and tallow emulsion in water, and 4) a mixture of lanolin, wax, castor oil, sodium stearate, and water. The authors' conclusion states that chrome-tanned leather is more durable than vegetable-tanned leather when used for bookbindings. Although the dressings provided some protection to both leathers, the use of dressings "was not adequate to prolong the life of the vegetable-tanned leather effectively," with tests averaging slightly better for chrome-tanned leather. Most bookbinding leathers are vegetable-tanned; chrome-tanned leather is more commonly used for shoe uppers, clothing, and gloves.

### *Understanding Leather Needs*

Conservators are learning how complex leather is. Its preservation depends upon a clear understanding of a great number of factors. The need for relubrication of an object, or for increasing its fat content, can only be established by making numerous calculations involving the animal origin of the leather, its process of manufacture, present chemical and physical condition, and future use. The scientific research of Stambolov and colleagues of the Central Research Laboratory for Art and Science in Amsterdam (1984) has stressed the need for careful monitoring of a leather's existing fat content to establish the need for dressing. "Dressings should not be applied haphazardly, but the solution's fat contents should be calculated and matched to the gram weight (by percentage) of the leather."

Another important consideration is that, except in the case of bookbindings, the function of historic leathers, and museum objects in general, is often changed from that of the object's original function. Flexibility no longer plays an important role. As long ago as 1946, H. J. Plenderleith noted that the only advantage to be gained from application of a dressing was possible increased flexibility. An increase in fat content, however, will only affect the object's flexibility when the inflexibility is not the result of irreversible deterioration in the collagen fiber.

### ***New Problems Created***

In practice, the dressing of leather is also a largely irreversible procedure because of the deep penetration of the foreign ingredients and the movement of soluble components within the leather. The dressing can also impede future conservation treatments such as resin impregnation.

One of the major problems with commercial dressings is that people apply them for their immediate results without awareness of their long-term effects. Instability of certain fats or oils, dressing additives, and solvents contained in dressings can be responsible for numerous undesirable and unexpected effects:

#### ***Oils and fats can:***

- become increasingly acidic
- form unstable surface spews
- oxidize and stiffen
- discolor and stain
- wick into adjoining materials
- leave a sticky surface
- encourage biological deterioration

#### ***Wax additives can:***

- block surface porosity
- discolor and collect dust
- change the surface appearance
- impede further treatment
- encourage biological deterioration

#### ***Dressing solvents can:***

- wet and swell the leather
- dissolve/dislocate original components
- affect surface finishes

### ***Conclusions***

It is evident that the dressing of leather is a popular and well-established procedure, yet there is a fair amount of experimental and practical evidence that suggests it has little or no effect on leather's rate of deterioration. The regular dressing of leather is hard to justify in terms of conservation principles since it has little or no preservative effect when applied in a customary uncalculated manner and there are so many potentially dangerous side effects.

It is recommended that park staffs not apply leather dressings to their historical collections on a routine basis. However, in certain individual situations, it may be appropriate for dressings to be applied by park staff under the direction of a conservator. Lubricant solutions will also continue to be used on a limited basis during conservation treatment in which the specific components and quantity can be carefully monitored by a conservator.

[See NPS *Museum Handbook*, Part I (Rev 9/90), Appendix S, "Curatorial Care of Leather and Skin Products," forthcoming.]

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