Shoe Conservation: Freeze-Drying Problems?

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I was Keeper of the Boot & Shoe Collection, Northampton Museum, 1950-1988, and have since worked as consultant on the history of shoes and shoemaking, visiting museums and collections in Britain and most continents around the world. I am also a member of the ICOM Costume Committee Working Group which produced Guidelines for Costume in 1989 and its subsequent editions (available from Costume Committee members, or Espoo City Museum, Finland). Thus I see the effects of the various conservation methods used both before and since 1950.

Before 1900 little seems to have been done to leather when it was dug up. But soon after that, building development in London suddenly began to produce quantities of shoes. More were saved, as it coincided with the huge interest in the history of shoe fashions shown in the shoe exhibitions of the 1890’s. Being salvaged by builders, the shoes were allowed to dry naturally, and uppers and soles matched up, sometimes incorrectly.

A number of museums have such shoes, invariably black and hard. But nonetheless many when displayed in showcases have a reasonable resemblance to the original, show no deterioration and no problems, so long as no attempt is made to bend the leather, though I suggest that mismatched pieces be detached.

Then in the 1940’s, with the war damage and rebuilding, a new generation of conservators an increased scientific awareness began to look for ways of avoiding the black colour and hardness. For a time Turkey red oil was applied by various methods, and in desperation to make the leather soft, often too much, leaving a white waxy film or puddle on the surface, the penetration being minimal.

In the meantime the British Museum had produced a dressing for its leather bookbindings still suffering from 19th century gas-lighting, as well as continual use. For the first time, the formula included a solvent to lead the lubricants into the leather.

I have found this formula utterly reliable when used according to the direction: sparingly, and massaged into the leather; except, of course, it is not suitable for white alum-tawed leathers, some native-tanned leather and leathers coated with lacquers of linseed etc, though for the latter, it can be effective if applied to the non-lacquered side.

It was understandable if no use for excavated leather just laid in baths of the dressing. Hides during tanning have to be worked, massaged by various methods to ensure penetration, and this must be borne in mind for conservation lubricants also. Please make yourself familiar with the principles of the various tanning methods and the characteristics they produce.

By the 1960’s there were experiments with various other dressings and solvents, some more drastic than others. There are briefly mentioned in the article by Ganiaris et al., The Conservator 6, 1982. Please note that energetic washing to remove dirt can also remove tans. It is one problem for leather to stay for hundreds of years in damp soil, quite another to soak indefinitely in water. If we are ever to learn anything about historic tans and dyes, which must be one of our aims, this must be avoided.

Here a plea for old shoes: shoes, because they are worn by all and now cheap and the plastics smelly, discarded (up to the recent past) only when impossible to wear longer, associated with corns and bunions, and inevitably take on the spirit of the wearer, they can provoke all too often a reaction in the handler, a subconscious fear of that spirit, or at the least distaste. The large quantities being found can be overwhelming, and encourage a feeling that samples could be spared for experiments. Shoes are not expendable. For most were repaired and altered by cobbler and translators to prolong life and keep up with fashion, and thus become unique. They must be examined by shoe specialists before assumptions are made.

The latest methods developed in the 1970’s, use freeze-drying, which has virtually turned the treatment into a mass-production system, and enabled the human associations to be ignored.
Freeze-drying was preferred as cleaner, safer to the operator than some solvents used for drying, while apparently giving similar results in flexibility, amount of shrinkage, and what some found a more acceptable brown 'leathery' colour, in reality equally as false as the black which preceded it. But some curators find it looks desperately dry.

By 1985 when the Museum of London produced its Information Leaflet entitled Treatments for Excavated Leather, the conclusion was that freeze-drying was preferable. Their procedure was summarized: clean with non-ionic detergent and water. Rinse. Soak in 25% glycerol/water 3 days. Freeze, freeze dry about 2 days.

Here I want to draw attention to the work of a Dutch conservator at ROB, working sympathetically with excavated shoes, producing more attractive results by less drastic means, and with the long-term effects after twenty-five years looking preferable. Olaf Goubitz published this in 1981 and 1987.

I realise that conservators may be at a disadvantage in that, having treated the leather, it too often disappears into museum stores and ceases to be monitored by those who treated it. So I draw your attention to the problem that curators have been aware of since at least 1992, shoes from Wapping, conserved 1983-4, where powder appeared beside the shoes in carefully controlled display cases.

I have since been examining shoes and soles of sturdy cattlehide from Roman, through medieval to 16th-century dates. Even as it sat on the table before me, fine powder was dropping from the object. Most tanners would be very reluctant to freeze leather because its natural water content makes the danger of breaking the linkage between the fibres so obvious, and excavated leather may contain four or five times more water.

I realise that the evidence I present to you may appear unscientific, being largely based on visual appearance and some forty-five years experience of working with historic leathers. But it is obvious to me that something is wrong. I urge conservators and curators to check their conserved shoes, and where you find a problem, look up the methods used and report back to this committee.

It may be the fungicide or other chemicals involved, but it is no use continuing with this convenient mass-production method if the end result is the destruction of the object.

References

1. British Museum Leather Dressing for Library Use, c 1940


