# Hands On Learning
## *with Reading Museum Service*

## LEATHER G98

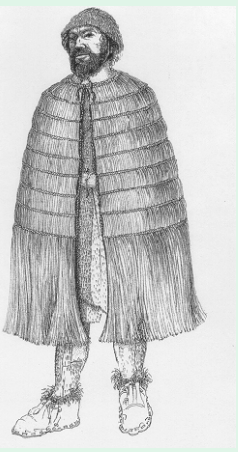
Animal skin, if left on the body of a dead animal, will rot. The process of removing it from a carcase and turning it into a flexible and long-lasting material has been known for thousands of years. It is, however, a very messy and complicated procedure. It must have been gradually discovered by a process of trial and error, although as it traditionally involves large quantities of dung and urine it is sometimes difficult to imagine how anyone thought of it!

Animal skin that has had the fur, meat and fat scraped off is called rawhide. However, when this material dries it turns hard. While wet it can be wrapped around moulds so that when it dries it forms stiff containers. Such containers will still eventually rot, but if kept dry they could last for a long period. To give some idea of the stiffness of rawhide, the bone-shaped treats (right) which are sold in pet shops for dogs are actually made of rawhide!



The Inuit are one of the few peoples that have regularly used rawhide for clothing, as maintaining such items is difficult and time consuming. They prepared caribou hide by folding, kneading and pounding in order to stretch and soften the fibres. However, when caribou hide clothing became wet it was liable to both rot and stiffen again once it had dried. Inuit people had to freeze and then beat snow off their clothes before bringing them into warm areas to stop them getting moist. Even so, the woman of the household had to spend a lot of time re-softening her family's clothing. Places that had become stiff often required chewing to do this, a procedure that resulted in the woman's teeth being worn down to stubs.





The solution to these difficulties lies in changing the chemical composition of the rawhide, so that it becomes both flexible and durable. It was discovered that this could be done by washing and immersing the hides in various liquids. This process is known as tanning leather.

*Far Left: An Inuit parka made from caribou hide. Left: A drawing of Ötzi, the man found in the Alpine ice who lived over 5,000 years ago. He wore a cloak made of woven grass and a vest, a belt, a pair of leggings, a loincloth and shoes, all made of tanned leather. He also wore a bearskin cap with a leather chin strap.*



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Leather tanning varies from place to place and over time, but the basic procedure was as follows:



The hides were soaked to soften them and then the flesh, fat and hair were removed. The hair on the hide was loosened by either soaking the skin in urine, painting it with an alkaline lime mixture, or by letting it putrefy for several months then dipping it in a salt solution. The hair was scraped off by laying the hide on a log and scraping it with a blade.



In order to soften the hide it was then immersed in a cold infusion of poultry or pigeon dung, or a warm infusion of dog dung. The tanner would use his bare feet to knead the skins into the dungy water for two or three hours!



For centuries poor people made a living gathering dog poo to sell to leather tanners. In the nineteenth century dog poo was called 'pure'. Henry Mayhew, in his *London Labour and the London Poor* (1851), described these 'pure-finders':

The pure-finders meet with a ready market for all the dogs' dung they are able to collect, at the numerous tanyards in Bermondsey, where they sell it by the stable-bucket full, and get from 8*d*. to 10*d*. per bucket, and sometimes 1*s*. and 1*s*. 2*d*. for it, according to its quality. The "dry limy-looking sort" fetches the highest price at some yards, as it is found to possess more of the alkaline, or purifying properties; but others are found to prefer the dark moist quality… From all the inquiries I have made on this subject, I have found that there cannot be less than from 200 to 300 persons constantly engaged solely in this business. There are about 30 tanyards large and small in Bermondsey, and these all have their regular pure collectors from whom they obtain the article.

Urine was another ingredient which had to be regularly collected. In the ancient city of Pompeii large pots stood on street corners for people to put their urine in. It was used both to clean clothes and to soften leather.

*The photographs on this page show the traditional tanning vats in Fes, Morrocco, which are still in use by leather tanners.*



The softened leather was put into a series of tanks containing increasingly strong tannin concoctions. The amount of time spent in each tank varied, depending on the kind of leather that was to be produced and the local traditions. Eventually the leather was soft and strong and ready to be used - the process could take months.

In England, during the early nineteenth century, oak bark was more valuable than oak timber. Oak was felled in the Spring, to obtain freshly grown bark that was full of tannin. Later in the century, bark from tree species discovered in other parts of the world began to be used instead, such as the north American sumac tree. In the twentieth century leather began to be tanned using artificial chemicals such as chromium sulphate. Today the hides are processed in large drums (usually these drums can take up to 300 hides at a time). The chromium binds to the collagen in the hide and makes it blue in colour. Modern tanning is very quick compared with earlier methods. Rather than months, the process is now complete in days.





Tanning took place in sixteenth century Reading. When the Oracle shopping centre was built in the 1990s the site was excavated and a series of clay-lined pits were found that had been used for tanning leather. According to the excavation director, David Wilkinson of the Oxford Archaeological Unit, the site had a similar lay-out to those found in North Africa today (shown in photographs on page 2). The site was right in the centre of town and must have created quite a smell. Mr Wilkinson added: 'The children in the area must all have had anthrax, which is carried on the hairs of animal skins.'



*Above left: A medieval shoe excavated near Reading Abbey in the 1980s.*

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The stink of putrefying flesh, excrement and urine tended to make tanyard workers a despised group. This tendency is found around the world. In India, for example, leather workers are one of the groups that are included in the lowest caste, the Dalits (the Untouchables).

Less well known is the situation of the Burakumin in Japan. The burakumin are descendants of outcast communities of the feudal era, which mainly comprised those with occupations considered tainted with death or ritual impurity (such as executioners, undertakers or leather workers), and traditionally lived in their own secluded hamlets and ghettos. Severe social stigma was attached to these occupations, influenced by Buddhist prohibitions against killing and Shinto notions of defilement. They were legally liberated in 1871 with the abolition of the feudal caste system; however, this did not put a stop to social discrimination and their lower living standards. In certain areas of Japan, there is still a stigma attached to being a resident of such areas, who sometimes face lingering discrimination in matters such as marriage and employment.



*Photographs of Rhayader Tannery, the last traditional working tannery in Wales, which was moved to St Fagan's Museum in 1962.*

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Leather can be made from the skin of most animals. Included in this box are samples made from animals including snake, lizard, buffalo, kangaroo, ostrich and crocodile. Most leather goods, though, are made from cattle skin.

Each kind of skin has different properties which makes it suitable for specific purposes. Kangaroo skin, for example, is often used to make motorcycle leathers because of its lighter weight and higher abrasion resistance compared with cowhide, thus providing greater protection in case of a fall on the roadway.

Some exotic skins, such as lizard and crocodile, are thought to have very beautiful texture and patterning and have been used to make fashion accessories such as handbags. Some species have been hunted to near extinction because of this.

In the 1970s, ostrich farming for their feathers became popular and ostrich leather became available as a side product. Ostrich leather is now considered one of the finest and most durable in the world and is currently used by many major fashion houses. It has a bumpy look because of the large follicles from which the feathers grew.

Shagreen is a type of roughened untanned leather. It used to be made from a horse's back and was typically dyed green. Shagreen is now commonly made from the skins of sharks and rays.

Identifying a leather is complicated by the fact that rare leathers can be imitated using common material. Five of the samples in this box are made from calf skin, but have been stamped and dyed to make them appear more exotic. Also, synthetic leathers have become widespread, usually made from polyurethane. Vegetarians often wear shoes made from synthetic leather rather than natural leather.



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The complete snakeskin in this box is from a python. It is from Burma.



The shoe with coloured stitching is from West Africa and is very well worn. The back seems to have been trodden down so that the shoe could be slipped on easily. The upper part is made from two pieces of leather, which have been hand-stitched together at the side. Look closely at the bottom of this shoe - notice there is still some hair attached to the leather.

This pointed shoe is Arabian. It might have been worn for a wedding or party. The beautiful embroidery adds elegance and is mirrored by the decorated leather inside the shoe.

The pair of shoes is from Egypt. The heels have been crudely cut out and roughly nailed on to the sole.

The long boot is from Nigeria and is missing its sole. A pattern has been cut into the side by cutting away the surface of the skin.

