



Split leather

- some basic facts

Animals are three dimensional so when their hide is removed it is not completely flat. Neither is it uniform in regard to substance or texture in every part. Not only is the hide fully contoured to the shape of the living animal, some parts such as the belly area need to stretch far more than along the back as the animal moves around. The former is therefore more elastic, while the latter is thicker, denser and has less extension.

Hides are also uneven with regard to substance. The areas around the belly and into the legs (shanks) are much thinner than those of the back and neck. Raw cattle hides can in fact vary between 3mm to 8mm from belly to butt on those taken from cows and as much as 4mm to 12mm on the much larger steers. If material of this thickness and irregularity was turned into leather, it would be of very little use for most applications including

shoemaking. Excess material is therefore removed from the flesh side to leave a uniform substance hide ready to be further processed into leather for whatever end use is intended. The material that has been removed can also be finished into what is referred to as 'split leather'.

BASIC TANNING

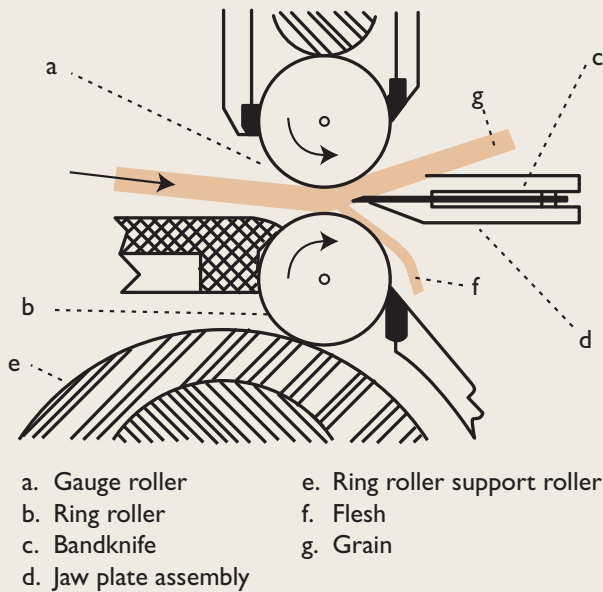
The first stage in the tanning process is that of liming to remove any hair. This also causes swelling and an opening and separation of the fibre structure which, in turn, encourages the hide to become flatter. It is followed by fleshing to remove unwanted membrane-like tissue from the flesh side of the hide which restricts movement, especially in the extremities such as bellies, shanks and the neck. The next stage is to split down to a set overall substance (*Figures 1 & 2*). This is followed by deliming to remove residual components from the

liming process.

If we compare the total hide substances previously referred to and those normal for the finished leathers used in shoemaking of say 1.2mm to 1.8mm or even 2.0mm, it becomes obvious that the amount of material that has been removed can be quite extensive.

Hides are bought in terms of weight whereas finished leather is sold by area, so tanners must convert as much of the total hide into saleable material as possible. This surplus material has long been further treated to produce 'split leather' which can be used for various consumer products including footwear, particularly when it has been given a sueded finish.

The main drawback with finished splits is that they have less physical strength than the actual upper leather which has retained the dense outer grain surface, but also part of the

Figure 1 – Splitting the hide to substance.

use of a suitable backer to add a degree of reinforcement. As far as tensile strength is concerned, the better the quality of the original hide in terms of its fibre structure, the better the split that is taken from it will be, particularly in terms of tensile strength.

Substance has a similar effect and, generally, it is advisable to use as thick a split as practically possible. In the case of suede splits, this also helps to give the material a 'rounder' feel. In the case of splits that have an imitation grain applied – usually by laminating on a pre-finished polyurethane skin – some extra strength can also be provided. Suede splits can also have some stiffening added to the underside at the tannery; this used to be called 'moss or mossed suede' from the earlier use of a paste made from Irish moss to stiffen items of leathersgoods.

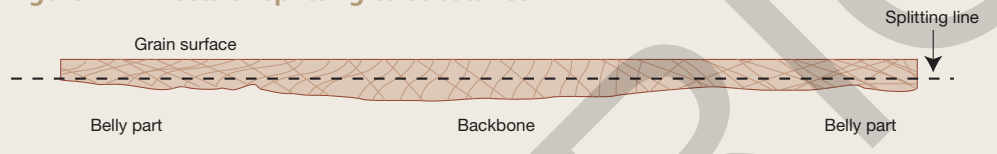
REINFORCEMENT

Tensile strength as well as controlling stretch and assisting shape retention can also be increased by using a more substantial reinforcement backer, that gives the right balance of properties. Swansdown woven cotton has long

been the traditional choice where the fine raised pile provided strength with a relatively soft feel. Nowadays, better options are jersey knit cottons (particularly on boots when pre-

shaping is called for) or non-wovens where polyester, polypropylene and nylon are used in a variety of formats depending on the final result required.

Toplines should also be well reinforced either by using an edge binding or by incorporating a topline tape on folded edges. Topline tapes fall into two distinct types; the narrow nylon or polyester braids inserted during thermo topline folding, which are very easy to use, or the wider adhesive coated cut tapes which are applied before folding and can be pre-tensioned to counteract stretch on the folding machine. ■

Figure 2 – Effects of splitting to substance.

stronger fibre structure that lies directly under it. It is also the case that the belly and shank parts of the total fibre structure of the original hide is also at its weakest or most stretchy (Figure 3). Splits must therefore be extensively trimmed to remove all such material to leave only the best material lying across the back. When further split to a final substance they are referred to as 'butt splits'.

Splits do have some plus points however in that they are easy and economical to cut, and also very easy to last provided they are not overstretched in the process. This can be avoided by carefully controlling machine settings and the

Figure 3 – Comparative fibre structures. Those in the butt area are clearly tighter and more dense those in the belly.