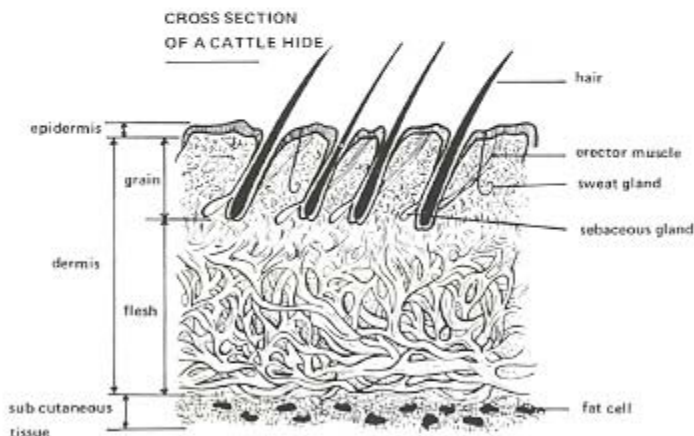


The composition of mammal hides

The structure of a hide varies somewhat depending upon the species of the animal but generally the disposition is as follows.

The hide is composed of three major parts which are, from the «outside» to the «inside» :

- 1 The Epidermis
- 2 The Dermis
- 3 The Sub cutaneous tissue



1 The epidermis is a thin layer on the surface of the hide. In certain places it enters deeply into the dermis to form bulbs

or hair follicles. Highly magnified, the epidermis appears to be a juxtaposition of horny cells which give it a homogeneous appearance.

2 The dermis constitutes the major part of the hide, which alone, will be transformed into leather. The two other parts will be eliminated.

It has a felt-like appearance being composed of fibres of different lengths.

The dermis itself may be considered to have two zones. The first, between the epidermis and the base of the hair follicles, seems to be composed of a tight mass of thin fibres. This is the grain side of the dermis which will correspond, eventually, to the grain side of the finished leather.

The second zone, much thicker than the first, is composed of larger, looser fibres and extends down to the subcutaneous tissue. This is the flesh side of the dermis.

3 The subcutaneous tissue is the part of the hide in liaison with the flesh of the animal. It is composed of a loose intertwining of long fibres, which are almost horizontal. Here, fat cells are to be found which vary in quantity according to the species of the animal. The subcutaneous tissue is sometimes called adipous tissue because of the presence of this fatty matter.

Within this general structure there are other elements. In the grain part of the dermis there are : the sebaceous glands, which secrete sebum into the outer cover of the hairs (for sheep wool, this is called suint) ; the sudoriferous or sweat glands near the surface of the skin.

Each hair possesses a small erector muscle which makes the hair «stand up» under the influence of certain external conditions. (This is very characteristic with cats, for example).

A deeper examination reveals the presence of another sort of fibre, the «yellow» or «elastine fibres», situated principally in the grain part of the dermis and in the sub-cutaneous tissue. These fibres are thinner and generally ramified.

From a chemical point of view, there are fundamental differences between the components of the epidermis and hairs and the components of the dermis.

All the components of skin are proteins but their composition varies.

The epidermis and hairs are composed of keratin whilst, the dermis and the sub-cutaneous tissue are composed of collagen.

These elements have different properties some of which facilitate the separation of the dermis from the epidermis during leather manufacture.

The epidermis and hairs, composed of keratins, are very sensitive to alkaline products and reducers in an alkaline milieu (lime, soda, sodium sulphide). The keratins can thus be dissolved in solutions of these products.

The collagen component of the dermis is only very slightly affected by these products. Thus by treating the hide with alkaline solutions the epidermis and hairs may be eliminated leaving the dermis, virtually intact.

The sub-cutaneous tissue, which is equally composed of collagen, must be eliminated mechanically.

Qualities and defects in hides

Within a single category, the hides do not have an identical structure and may have considerable differences which are