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# LUXURY ANIMAL FIBRES

Part 1: Hair Fibres from Goats

Rıza Atav  
Lawrance Hunter



NOVA



# Polymer Science and Technology



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**Rıza Atav  
and Lawrence Hunter**

# **Luxury Animal Fibres**

**Part 1: Hair Fibres from Goats**



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## Preface

It is today almost impossible to compete by producing simple and ordinary textile products with low added-value, the only way to survive is to focus on the production of high added-value products that require specialised know-how. From this point of view, it can be said that there are three main areas that offer important opportunities in textiles. The first of them are knowledge-intensive (not labor-intensive) textiles which require know-how, including technical, smart and functional textiles. The second area is the production of fashionable products. At this point, it can be said that the denim and piece garment sectors give big opportunity to produce innovative textiles. The third and final area is the niche product area covering low volume big value-added products. Luxury animal fibres, the subject of this book, fall within this area, since it offers important opportunities in terms of products that are light in weight but heavy in value. On the other hand, information on luxury fibres, especially their processing, is kept “like a secret” as stated in Prof. Dr. Lawrence Hunter’s books. Although the number of publications on luxury fibres have increased in recent years, there is still very limited information available in this field.

Before starting the chapters of the book, I think it will be useful to give the definition and terminology of luxury fibres in this preface. Fibres such as mohair, cashmere, alpaca, vicuna, angora, silk are obtained from animals living in hard-to-reach regions of the world and are produced in very low quantities and therefore they are called “*Luxury Fibres*”. Luxury fibres give people wearing clothes made of these fibres a different status in society. This is confirmed by Fabio d’Angelantonio (CEO of the Italian luxury fashion brand Loro Piana, whose main materials are vicuna and cashmere) who said in an interview “If people buy Loro Piana, they enjoy feeling part of a private club.” As B. Franck says in the preface of the book entitled “Silk, Mohair, Cashmere and Other Luxury Fibres”, “A cashmere garment is the textile equivalent of a Rolls Royce, a diamond necklace or a holiday home in the Caribbean!”. Although the word “luxury” evokes connotations such as being

accessible by the limited population, beyond need, unnecessary, squander; Coco Chanel defines luxury as “a necessity that starts where the necessity ends”. In addition, while luxury was limited to a more specific people segment in the past, it is increasingly getting accessible by wider population.

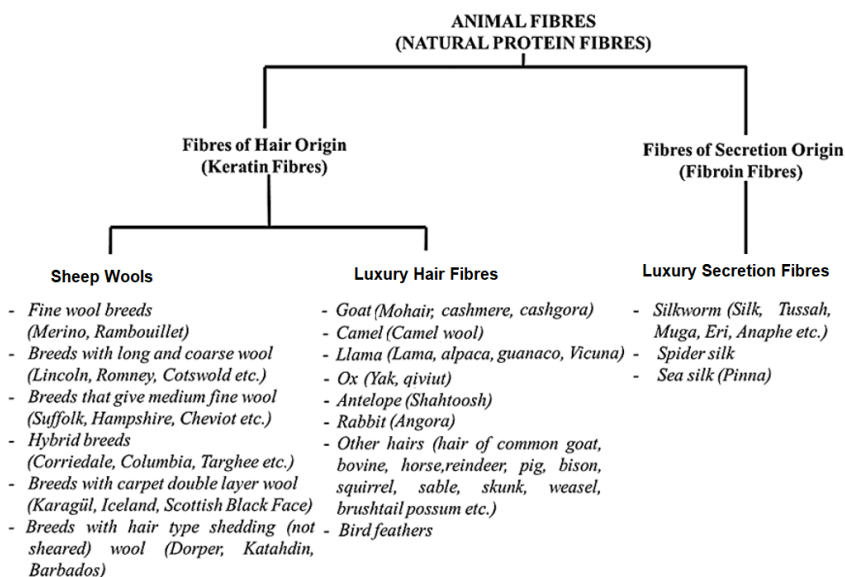
Like moving to a higher-level need after a need at a lower-level is met in Maslow’s hierarchy of needs; for those who fulfill any kind of a need at a basic-level, meeting this need at a higher-level becomes a necessity, even if it may seem like luxury for those who cannot afford this need even at a basic-level. Such are the needs in the field of textile clothing. Throughout history, people used to dress only to cover themselves and thus to protect themselves from natural atmospheric conditions, and it was satisfactory enough for the clothes they wear to provide this. Later on, this became unsatisfactory, and they got into the expectation of wearing stylish and beautiful clothes and to dress for adornment beyond covering. Nowadays, people increasingly want their clothes to provide additional functions (like protection from various impacts (such as harmful microorganisms), notifying against changes in the body (such as fever), treating (such as relieving impaired circulation disorders with thermoregulatory effect) and so on) and/ or comfort and special touch, as well as covering and adornment. Clothings made of luxury animal fibres offer the highest level of features that a person can expect from clothing thanks to their unique softness and thermophysiological comfort. Pierre Giuseppe Alvigini expresses the passion that occurs in people who use luxury fibre as “It is not easy for someone who is used to drive Rolls Royce to start driving simple passenger cars, and for a person who uses luxury fibres, this becomes not a habit or a caprice, but simply a necessity.”. The founder of Silk & Cashmere, Ayşen Zamanpur, expresses this passion on the website of her company as “If you touch the cashmere, it will touch you...”.

In general, animal fibres other than wool obtained from sheep can be described as “*Luxury Fibre*”. Luxury fibres are also called “*Speciality Fibres*” as they are extraordinary fibres with very special properties not found in other fibres, or “*Rare Fibres*” as they are fibres grown only in certain regions of the world and produced in limited quantities. Meanwhile, Pierre Giuseppe Alvigini describes these fibres in his book as “Fibres Nearest to the Sky”, which should be due to the fact that a significant portion of the animals from which they are obtained live in high places such as the Andes mountains. In fact, as William Shakespeare said in his *Romeo and Juliet*: “What’s in a name? That which we call a rose, by any other name would smell as sweet.”.

As is known, the group of animal fibres consist of natural and regenerated protein fibres. Luxury fibres, which are in the class of natural protein fibres,



have two main classes: hair and secretion fibres. Since the hair fibres are produced by the follicle cells in the skin and they consist of keratin macromolecules, they are also referred to as “*Keratin Fibres*”. Hair protein fibres are generally called wool fibres. Although it is sufficient to call the fibres obtained from sheep just as wool, the fibres obtained from other animals are known with the name of the animal or with its private name. For example, the fibres obtained from Angora rabbit are called Angora rabbit wool or angora. The fibres of secretion origin are also referred to as “*Fibroin Fibres*” since they consist of fibroin macromolecules as the main component. Secretion protein fibres are generally called silk fibres. Although it is sufficient to call the fibres obtained from domestic silkworm (*Bombyx mori*) just as silk, the fibres obtained from other animals are referred to with the name of the animal (such as Tussah silk, Spider silk, Sea silk) or with their private names (Pinna fibres).



I started to get to know luxury fibres closely for the first time while preparing my undergraduate thesis entitled “Natural Fibres Other Than Cotton and Wool”. Then during my PhD thesis on improving the dyeability of Angora goat (Mohair) and Angora rabbit (Angora) fibres, I had the opportunity to work experimentally. I later deepened my knowledge within the scope of various scientific research studies. Consequently, I came up with the idea of