

"Australian Sheep and Wool"

A Practical & Theoretical Treatise

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CLEANSING WOOL.

Heretofore manufacturers have contented themselves with simply securing the fibre cleansed from all impurities, without any thought being given to the valuable properties that are contained in the yolk. Though this latter has long been recognised as being of great importance for commercial and pharmaceutical purposes, its several parts have not been utilised to any great extent, because the methods for its collection and separation involved too great an expense, though efforts have been made to bring this on to a profitable basis for the last forty years, at least during that time

mechanical devices have been invented for cleansing wool with volatile liquids of the hydro-carbon class. There are important desiderata to be considered in freeing wool from its impurities. The scouring process should be as mild as it is possible to make it for the efficient removal of the grease. In order to do this there are only two known methods—the emulsion and the solvent. The former has usually been employed in connection with an alkali, such as soda ash, the fatty matter in the wool forming an emulsion with an alkaline solution. This process has been in long use, and is familiar to every manufacturer, the only advantage of which is its cheapness and safety from fire. Its disadvantages are numerous and have been frequently pointed out to those using it as liable to cause great injury to the fibre by seriously impairing its physical structure. So subtle, however, has been the destructive action of the alkali upon the fibre that it has remained unobserved, except when subjected to examination under a microscope. The detrimental effect of the alkali is double if used at a high temperature, which is very apt to be the case when the operation of scouring is placed in the hands of ignorant persons, as is usually done. Caustic alkalies, such as are used for scouring wool, cannot be used effectively, except in a solution at a high temperature, and then the action can readily become so intense as to completely dissolve the wool. Not unfrequently this is carried to such a degree that partial dissolution does take place. The temperature of the alkaline soap bath used in scouring wool should never exceed 110deg. of heat, if all the valuable properties of the fibre, especially the lustre, are to be preserved. Now, it is known to be a fact that the temperature is more often than not used in excess of this.

The essential qualities of the wool fibre to the manufacturer are its softness, strength, lustre, and elasticity. All these are really detrimentally affected to a greater or less extent by the use of caustic potash or soda, or any alkaline solution, though the injury may not be perceptible. On the

other hand, they are not affected, but preserved by the hydro-carbon, or volatile liquid process, which also leaves the fibre unimpaired as to its felting properties, simply because its physical structure is not changed. The difficulty, heretofore experienced, in the practical working of any plan for the utilisation of hydro-carbons for cleaning wool, has been because of mechanical inefficiency of method. It is a well-known fact, however, that wool cleansed by hydro-carbons, works with considerably less waste, and can be spun into finer counts than when cleansed with soap and water. Quite a number of inventions have appeared in recent years for overcoming the difficulties attending the use of volatile liquids for cleansing wool, but none of them have proved successful to our knowledge, unless it be the one to which we shall specially refer, as the invention of **John T. Morse**. Even in the late publication of Knecht, Rawson, and Lowenthal, reference is made to the numerous attempts towards the cleansing of wool by a volatile solvent. These, although theoretically giving good results, not only with regard to the washing, but also to the complete recovery of the by-products, have been found to answer well only on a small scale. "On a larger scale, practical difficulties have always shown themselves, in consequence of which none of the methods has hitherto been able to hold its own against the old process of washing with soap." From our personal investigation of the **Morse** process, we have no hesitation in saying that the main difficulties in the use of volatile solvents have been overcome to a sufficient extent to make it commercially successful for the cleansing of wool, and for the separation of the by-products for economical utilisation. The great drawback in the use of the solvent process, heretofore, has been the danger from fire or explosion. This danger has been removed, and the process is the cheapest and the best that can possibly be devised, so far as chemistry has enabled us to see.

In the **Morse** process, if properly carried out, this danger has been, we are satisfied, wholly eliminated. We desire to impress upon our readers that by the use of the hydro-carbon, or solvent process, no deleterious effect on the fibre need be feared. The fibre cannot, by any conceivable means, become impaired through any carelessness on the part of the ignorant workmen, and the manufacturer, therefore, has his wool given to him in a condition as perfect as the nature of the fibre will permit. With these conditions, it is readily seen that a fabric can be produced that is susceptible of a finish with all the natural characteristics of the wool preserved. The manufacturer will obtain, by using wool that is thus cleaned, less waste, greater fineness and strength of yarn, no loss in the natural lustre of the fibre, greater purity of colours, greater suppleness, or, in other words, a more perfect production. All the advantages above referred to in the use of hydro-carbons for cleaning wool we believe are secured in the process for treating wool which we have been privileged to carefully examine in practical operation, as carried out by the **Morse** Wool Treating Company, of Norton (Mass.). By this process wool can be treated in the open state, or in the original package, as may be most desired. So thoroughly and cheaply is this done for manufacturers, that it is a question whether the latter can find it to their advantage to cleanse their wool themselves. By the **Morse** process, the wool is conducted into what is termed a treating cylinder, into which is introduced a refined hydro-carbon solvent, filling the cylinder, after a vacuum has been created, thoroughly penetrating the mass of wool, and extracting all its wool grease. The removal of the air from the cylinder eliminates all possible danger of fire or explosion. The vacuum also enables the solvent to perform its functions more effectively. While in the cylinder, the solvent is subjected to a cold expansion process of great efficiency, for the purpose of permeating every part of the wool mass, no matter how compact it may be, whether baled in the original package

or otherwise. After the solvent has performed its functions, it is drawn from the cylinder, carrying with it the wool grease to separating stills, where it is vapourised and afterwards condensed, and delivered back to its original starting point. All foreign matter, including wool grease, obtained from the wool, is collected and separated, and the grease barrelled for shipment, to be afterwards manipulated for pharmaceutical and other purposes. After the wool has been treated with the solvent, it is removed from the cylinder and passed through a deodorising process, where it is subjected to a treatment of steam combined with air, blown through it sufficiently to break the steam. This leaves the wool in a remarkably sweet condition, and in this shape it can be shipped to the manufacturer who sent it, to be afterwards washed; or the Morse Wool Treating Company will perform all this operation, if desired. If the wool, however, has been treated in the original package, and it is expected to be returned in that form, the deodorising process will have to be done at the mill where the wool is used. This process can be effected with inexpensive machinery, that hardly need be taken into consideration, so far as its cost is concerned, by the manufacturer.—*Textile Recorder*.

TECHNICAL TERMS USED IN FELLMONGERY.

FELLMONGER.—One who deals in skins.

WOOL-PULLER.—A man who takes the wool off the sheep skins, after they have been sweated or limed.

STATION SKINS.—Are the skins taken off sheep on stations, and afterwards dried, in which state they are sent to the market.

GREEN SKINS.—The skins of sheep which have been recently slaughtered, or fresh skins.

PELT.—A name given to the skin after the wool has been pulled, or taken off.

