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H. S. Wilgus, Jr.

Commercial Cleaning of Feathers

Cleansing or scouring of feathers is generally done in a lukewarm (100-120°F.) weak solution of soap to which alkalies, such as ammonia, ammonium carbonate, sodium carbonate or borax have been added. Sometimes cleaning is done in cold water containing a little soda ash and some powdered starch. The solution should not be too hot or too strongly alkaline because these conditions tend to impair the quality of the feathers.

Soap and pearl-ash for cleaning are not often used for white feathers because this combination tends to induce yellowing of the flues (soft feathery portion). If the feathers are somewhat bloodstained they can be soaked in a warm bath containing sufficient ammonia to soften the blood clots.

An ammonia carbonate solution is probably the most effective method. A weak olive oil soap solution containing a little ammonia has proved to be excellent from the standpoint of scouring out dirt and natural greases. If a small amount of solvent detergent is used in conjunction with the last-named method, distinctly superior results are obtained.

The feathers used for stuffing cushions, upholstery, etc., are best scoured in coarse hessian bags for the sake of easy handling during processing. About 2 pounds of feathers should be filled into each bag; crowding of the contents should be avoided since free circulation of the scouring liquor will be hindered. After immersion of the bags they are well pounded in the warm scouring liquor, and the material is then left to steep for 15 minutes.

After scouring, the feathers should be well rinsed in warm water so that none of the cleansing agents are retained by the feathers. Any soap residue would cause trouble in subsequent dyeing operations.

Bleaching feathers

Methods employed for bleaching feathers are varied, but the more important processes employ oxidizing agents rather than reduction agents. Hydrogen peroxide solutions are used, either alone or in conjunction with metallic salt catalyzers which act as oxygen liberators.

Feathers to be bleached are placed in bags which are plunged into the bath of bleaching liquor and allowed to remain until the feathers are satisfactorily decolorized. For the peroxide bleach the bath is prepared with one pint hydrogen peroxide 12 vols. per 10 pounds of feathers. After the bath has been made feebly alkaline with ammonia, the stock is entered and well pounded for a few minutes. The bath is then heated during one-half hour to about 120°F., after which the steam is turned off and the feathers left to steep in the cooling bath for 8 to 10 hours. The bags are then plunged into a rinsing bath containing cold water.

If the feathers are to be bleached with bisulfite of soda, the bath is set with  $1\frac{1}{2}$  pints of bisulfite of soda 70-80° Tw. and 1 fluid ounce of sulfuric acid per 10 pounds of feathers. Then the stock is allowed to steep in the cold, freshly prepared bleaching bath for 1 to 2 hours after which it is rinsed in clean cold water. The bisulfite bleach is a cheaper process to carry out than the hydrogen peroxide bleach but the white is not so lasting as in the other instance, the feathers gradually assuming a yellowish hue. After the feathers have been cleaned and bleached, they are drained and dried.