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THE CANADIAN TEXTILE DIRECTORY

A Handbook of all the Cotton, Woolen and other Textile manufactures of Canada, with lists of manufacturers' agents and the wholesale and retail dry goods and kindred trades of the Dominion, to which is appended a vast amount of valuable statistics relating to these trades. Third edition 487 pages, price \$3 00.

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HOW TO DISTINGUISH TEXTILE FIBRES.

It is customary to mix, spin, and weave fibres in various proportions, and as it is important to know the quantities of different fibres contained in goods to be imitated, researches have established a number of tests for this purpose, with which every manufacturer and manager should be thoroughly conversant.

In a fabric composed of linen and cotton, a strong potash solution will color the linen fibre a deep yellow, while the cotton will be only slightly tinged with the color; a mixed yarn or fabric will, therefore, assume a spotted or striped appearance in the liquid. If a sample of the linen to be tested is dipped into olive or rape seed oil, the fabric will quickly absorb it. When the excess of oil has been removed and the fabric appears striped, it is not pure linen, but mixed, and further, the linen thread becomes transparent and the cotton thread opaque; while, if the linen saturated with oil is laid upon a dark substance, the linen threads will appear much darker than the cotton on account of this transparency. In order to destroy or dissolve cotton by a process similar to carbonization, the fabric to be tested is laid in a mixture of three parts sulphuric acid and two parts saltpetre for eight or ten minutes, then washed, dried, and finally treated with ether containing alcohol. The woolen and linen fibres have remained uninjured, while the cotton has been dissolved.

In order to distinguish animal from vegetable fibres, says *Textile Industries*, they may be boiled in caustic potash lye. Both wool and silk will be dis-

solved thereby, but not linen or cotton. If a sample of woolen goods is to be examined to see if it contains cotton, place it in a concentrated sulphide of sodium solution; by this the wool is dissolved and can be entirely washed out in hot water. The residue will be vegetable fibre, and, if the sample was at first weighed exactly, the actual percentage of wool can be ascertained by weighing the remaining vegetable fibres. Such a fabric can be analyzed with still greater facility in an undyed condition. Wool and silk, when plunged into picric acid, are dyed a fairly fast yellow, while both linen and cotton remain white.

A silken thread, when exposed to a flame, ignites, evolving a smell of burning feathers, but continues to burn only as long as it remains in contact with the flame, and is extinguished when taken away, the burnt end forming a black, charred substance, thicker than the thread. Wool behaves similarly, but the odor is more repugnant.

The surest and best test, however, is the microscope, which gives unerringly the component fibres of the fabric under examination. For this purpose several threads must be drawn out of the fabric in question (an operation best performed under water) and subjected to an examination with a power of from 200 to 300 diameters.

The linen fibres appear as cylindrical formations, with nodular swellings; the former sometimes split into thinner fibres, especially in the case of linen which has been used.

Cotton fibres, however, will show themselves as flat ribbons, and are very thin as seen where the edge is shown. With mixtures of linen and cotton the examination of the fibres can be conducted with still greater facility, by opening a small strip of the material to be investigated, introducing it into a dilute alcoholic solution of aniline red (fuchsine), but only for a very short time, after which it is well washed, and then immersed in caustic ammonia for two hours. In this operation the linen fibres are dyed rose red, while the cotton fibres take no trace of color, and their examination is thereby rendered much more easy.

The fibres of wool appear under the microscope as cylinders covered with scales, and their delicate structure is rendered still more visible by treatment with sulphuric acid, which dissolves the yolk that fastens these scales to the fibres, but the different qualities