

treat the yarn in hanks, those that treat the cloth, and those that are adapted for either. There are many forms of these machines in which yarn or cloth are treated in the lye, then, if desired, stretched as in a stretching machine with adjoining means of washing. By treating with acids it is further possible to imitate the seroop or viscous hardness supposed to be an essential mark of true silk, but which in reality in the case of silk is due to an artificial process also. Consult Paul Gardner, *Die Mercerization der Baumwolle und die Appretur du Mercerisierten Gewebe* (2d ed., Berlin, 1912), and Murphy, *The Textile Industries*, vol. vii (London, 1912).

MERCERIZED COTTON. Cotton that has been treated by a chemical process which imparts a permanent silky lustre to the fabric, yarn, or thread. In 1844 John Mercer, an English chemist, discovered that caustic soda or caustic potash had a remarkable effect upon the cellulose structure of the cotton fibre, changing its physical and chemical nature, causing it to shrink and become thicker and softer, and increasing its affinity for dyes. Mercer took out patents in 1850, but no practical use was made of the discovery because the process shrunk the material so badly. In 1889 Lowe in Great Britain, and later in 1895 Thomas and Prevost, discovered that by treating the cloth under tension the shrinking was obviated and the material assumed, after being washed, a glossy appearance, like silk; but the former's patent was allowed to lapse, while that of the latter inventors was annulled. The lustring effect is, of course, now the most important object in the process. This effect is due to the changed structure of the fibres, which, under the action of the mercerizing treatment while under tension, become straight translucent tubes with a small round central opening instead of the spiral collapsed and flattened tube of the cotton fibre. The lustre is due to the fact that the surface becomes smooth and reflects light like the silk fibre. Mercerizing is now effected by machine processes. There are machines which