Wool, *n.* [A. S. *wul, wull;* O. Ger. *wolla;* Gr. *ioulos,* down.] A term used somewhat indefinitely, but more generally applied to the fleecy coat, or soft hair of the sheep. *W.* has always formed the principal material of the clothing of mankind in most temperate regions. The filaments of *W.* taken from a healthy sheep present a beautifully polished and even glittering appearance. The fibres of *W.* are either straight or crooked. The division into locks formed by the coherence of the single fibres, varies in every species of *W.*, and forms what is called the *staple.* The body of *W.* which is shorn in connection from one animal is called a *fleece.* The *W.* of the same animal differs much on the various parts of the body; that on the back and sides is the best. The great difference in the *W.* of different sheep depends in general upon their descent, the crossing of breeds, climate, food, and manner of living; and among the individual animals of the same breed, upon age, sex, and outward circumstances; the *W.* is, therefore, divided into coarse *W.*, which is long, either straight or irregularly curled, and fine wool, which is regularly curled. Eight or ten different kinds are frequently found in a single fleece. The qualities which mainly govern the classification and commercial value of *W.* are:—1. The fineness of the fibre; 2. its softness and elasticity; 3. soundness of staple; 4. color; 5. cleanness; 6. length of staple. The average diameter of the coarsest of the *W.* used in the arts is 1-450th of an inch, while that of the finer sorts of *W.* ranges from 1-1100th to 1-1300th of an inch in diameter. If a lock of *W.* be held up to the light, it will be perceived that all its fibres are twisted into corkscrew-like ringlets; and if the fibres be subjected to a powerful microscope, they will be seen to consist of central stems, from which spring circlets of tiny leaf-shaped projections. In the finer sorts of *W.* these projections present at first the appearance of minute serrations, like the teeth of a saw, but on closer inspection they resolve themselves into leaves or scales. These imbrications form an important element of the felting properties of wool. See SHEEP. See also WOOL, in the SUPPLEMENT.

(*Manuf.*) After the bags of wool are delivered at the manufactory, they are first *sorted,* or divided into various qualities, generally called *primes, seconds,* and *thirds.* The wool is then scoured or washed, to get rid of the animal grease. This is done at the dye-house, with stale urine, heated to about 120°, and which is afterwards washed out in running water. The wool is now fit for dyeing, or it may be deferred until the cloth is woven: in the one case, the cloth is said to be *wool-dyed;* in the other, *piece-dyed.* After the wool is dyed, it is passed through the *twilly-devil,* or *tucker,* which consists of a large wooden cylinder, having strong iron spikes, about three inches long, projecting from it, in a spiral direction, round its circumference. The wool, passing between feeding-rollers, is exposed to the action of the spiked cylinder, which, revolving with great rapidity, tears apart the fibres of the wool, and allows any dust or dirt to fall through a grating beneath. After this, the wool is picked over, in order to remove seeds, pieces of string, or other substances. This process is now generally performed by what is called the *burring-machine.* After the wool has been picked, it is oiled, previous to passing through the *scribbler* and *carder,* which is very similar in principle to the carding-machine used in the cotton manufacture. The rovings produced by the carder are the first commencement of the thread; but in order to obtain strength, they require to be twisted, and for this purpose are submitted to the action of the *stubbing-billy.* The threads are now ready for weaving into cloth. The first operation which the cloth undergoes after it is woven is *braying,* the object of which is to get rid of the oil used preparatory to spinning. The cloth is then *milled, i. e.,* the fibres of the cloth are felted together, and the whole surface of it covered with a thick, fulled face, by means of being submitted to the action of soap and water. After this process comes that of *teazling,* by which the cloth is roughed both ways by the prickly flower-heads of the teazle. The filaments drawn out by teazling are of unequal length, and require to be shorn to make them level. The next of the finishing processes is to arrange the cloth in regular folds, and submit it to the action of an hydrostatic press.

(*Statistics.*) At the end of 1869 the entire number of sheep in the U. States were 40,853,000. During the fiscal year ending June 30, 1870, the value of importation of wool and woollens into the U. States were: Raw and fleece, $6,743,350; cloths, cassimeres, shawls, blankets, carpets, dress goods and other manufactures, $34,490,632; total of importation, $41,233,984. During the same year our exportation consisted only in 152,892 pounds wool, valued, $54,928; and manufactured wool valued, $124,159; total of exportation, $179,087.