

Silk, *n.* [A. S. *seole*; Dan. and Sw. *silke*; Russ. *schilk*; Lat. *sericum* (passing into *selicum*), silk; Gr. *serikon*; from *ser*, *seros*, pl. *seres*, the *Seres*, a Chinese people, from whom the ancients got the first silk; *ser*, also, the silk-worm; Fr. *soie*.] A well-known species of glossy thread, spun by the caterpillar of various species of the *Phalæna* genus, of which *Phalæna bombyx* is that which is more commonly employed for this purpose, and to

which is more especially applied the name of silk-worm. The threads as spun by the silk-worm, and wound up in its cocoon, are all double, in consequence of the twin erifer in the nose of the insect through which they are projected. These two threads are laid parallel, and are glued together by a sort of varnish which envelopes them, and constitutes 25 per cent. of the weight of the silk. The thickness of the double thread is about the one-thousandth part of an inch. It is much the strongest of all textile fibres, a thread of it of a certain diameter being nearly three times as strong as a thread of flax, and twice as strong as a thread of hemp. The color of raw silk is generally bright yellow, but in some varieties it is nearly white. — *Rau silk* is produced by the operation of winding off, at the same time, several of the bolls or cocoons (which are immersed in hot water, to soften the natural gum of the filament) on a common reel, thereby forming one smooth even thread. When the skein is dry, it is taken from the reel and made up into bunks; but before it is fit for weaving, and in order to enable it to undergo the process of dyeing, without furring up or separating the fibres, it is converted into one of three forms — viz., *singles*, *trams*, or *organisee*. — *Singles* (a collective noun) is formed of one of the reeled threads, being twisted, in order to give it strength and firmness. — *Tram* is formed of two or more threads twisted together. In this state it is commonly used in weaving, as the *albat* or *wef*. — *Throssen silk* is formed of two, three, or more singles, according to the substance required, being twisted together in a contrary direction to that in which the singles of which it is composed are twisted. This process is termed *organising*; and the silk so twisted, *organisee*. — The art of making the fibrous substance of the cocoon available for textile purposes seems to have originated with the Chinese, and to have been practised by them from a very early period. According to the written records of this nation, the art seems to have been known and practised by them 2,700 years before the Christian era. Until the reign of the Emperor Justinian, the silk-worm was only cultivated in China; but the raw material was purchased and manufactured for a long time before by the inhabitants of Persia, Tyre, and other places. Until the reign of Augustus, however, silk was very little used in Europe. In the 6th century, two monks brought some eggs of the silk-worm from China and India to Constantinople, and the Emperor Justinian encouraged them to breed the insect and cultivate its cocoons. Within a short period afterwards, silk manufactures were established at Athens, Thebes, and Corinth, not only for rearing the worm upon mulberry-leaves, but for unwinding its cocoons, twisting their filaments into stronger threads, and then weaving them into cloth. At that time, and for a long period afterwards, the Venetians became the only channel through which the silk produce of the Greek empire was transferred to the West; and they derived great wealth from the trade. The silk manufacture remained in this state for six centuries; but in 1146, Roger I., King of Sicily, in his conquest of Greece, took many of the people engaged in this branch of industry, and compelled them to continue their associations in Palermo and Calabria. From those places the silk industry spread throughout Italy, and ultimately reached Spain, from which country it was introduced into France during the reign of Francis I. The cultivation of the silk-worm was not commenced in France till 1564. The mulberry plantations for their propagation were greatly encouraged by Henry IV., and since that period they have been the source of most beneficial employment to the French people. James I. was very anxious to introduce the breeding of silk-worms into England; but it would appear that that country is not well adapted for this species of husbandry, as account of the cold east winds which are so prevalent in April and May, a time when the silk-worm requires a plentiful supply of mulberry-leaves. The manufacture of silk goods, however, made great progress during that king's peaceful reign, and the revocation of the Edict of Nantes, in 1685, contributed in a remarkable manner to the increase of the English silk trade, by the influx of a large colony of skilful French weavers who settled in Spitalfields. But the great European mart for silk manufacture is still, up to the present day, the French city of Lyons, whose exportations were in 1856 \$14,972,238 in value, of which the U. S. took \$34,217,277; and in 1858 \$14,811,766, of which this country, as a consequence of the increase in our tariff on importations, took only \$16,682,866—while England, which in 1856 received only \$46,518,351, bought from Lyons in 1858 manufactured goods to the value of \$62,275,429, a consequence of the free trade between France and England. The growth of the silk industry of the U. States has been very slow as compared with that of the leading nations of Europe, though the large annual consumption here of numerous silk fabrics should have elevated it to a position among the leading interests of the country. The cultivation and production of silk was commenced in this country at a very early period. In 1606, at a council of the London Company, Sir Thomas Gates testified that "the colony of Virginia so abounded in mulberry-trees that, with a favorable climate, he believed it would produce silk equal to Italy." In 1623 all settlers there were ordered to plant trees for the silk-worm, and Charles II., at his coronation in 1661, wore a robe and hose made from Virginia silk. S. Carolina commenced to cultivate it in 1693, through the efforts of Sir Nathaniel Johnson, at a plantation in the parish of St. Thomas, which place 100 years later still bore the name of "Silk Hope." The cultivation of silk in the Carolines before the Revolution was a fashionable occupation; and the raw material was sent to

England to be manufactured. Georgia first commenced sending raw silk to England in 1734; and it became so popular there that Parliament passed an act admitting it free of duty. In Connecticut silk culture was the subject of legislation in 1732, and Governor Law, in 1747, had the honor of wearing the first coat and silk stockings made of New England silk, while his daughter, in 1759 wore the first silk dress of domestic material. A large mulberry orchard was planted at Mansfield, and another at New Haven, about 1760. The Revolution terminated silk culture in all the colonies, but it was partially revived after the peace by several persons. In New Haven fifty families were engaged in raising cocoons in 1790, and the town of Ipswich, Mass., made 40,000 yards of silk lace the same year. The raising of silk was early commenced in New York, New Jersey, and Pennsylvania, a factory having been opened in Philadelphia under the patronage of Dr. Franklin. The success of these early attempts leaves no doubt of the practicability of producing silk at a moderate cost. Taking into consideration the amount of our importations, exceeding most other articles, it may be asked whether the business has not fallen into unmerited neglect. It is only half a century since the first mill in America for making sewing silks was erected in Mansfield, Connecticut, and the first silk made by machinery was also turned out there in 1829. During the succeeding five years, twelve manufactories were erected, chiefly in New England, with a view to encouraging domestic culture. A National Silk Society was established in 1838, during the extraordinary furor pervading the country in regard to the Chinese exotic, the mulberry tree, by the raising of which every one expected to realize a speedy fortune. In 1860 the value of silk goods manufactured in the U. States was reported to be \$20,000,000, and to aid in producing this amount there was imported \$6,000,000 worth of raw silk. There are many manufactories, the principal centre being at Paterson, N. J., where 75,000 spindles are in operation, employing about 3,500 hands. In the city of Philadelphia there are about twenty factories, including the smaller establishments, employing about 1,800 women and girls; and the capital invested in the business is estimated at \$1,500,000. There are a number of factories also in New York, Connecticut, and Mass., employing several thousand operatives, and with an aggregate capital of about \$5,000,000. The most extensive of these is at Hartford, Connecticut. The propagation of the worm in California was commenced in 1833, by a Frenchman named Prevost, who lived in the beautiful Santa Clara Valley. He imported first some mulberry seeds, and when the trees were of fair size, arrangements were made to import the silk-worm eggs from China. They arrived dead. Another trial was made the following year, which resulted like the first. Not discouraged by these failures, another effort was made to procure eggs, this time sending an order to France; they hatched well after arriving. Specimens of California cocoons were sent to Europe in 1830, where they attracted much attention from the best silk weavers and merchants, all of whom certified to their excellence. Here the matter rested, the general opinion being that the high price of labor was the greatest obstacle, until 1845, when a company was formed in San Francisco to prosecute the interest on a large scale. In the counties of Los Angeles, Santa Clara, and Santa Barbara principally, preparations were made on a large scale in 1860-70, and the cultivation of silk promises to be very remunerative. Considering the prolonged period of leaf growth, and the freedom from damping, checks so injurious to the silk-worm, it seems that there is no climate equal or that can compare with California. The constant emigration of the Chinese, allured to this country by the reports of golden riches, which penetrate the most remote portions of the Celestial kingdom, is another important influence working to advance this new industry. They eagerly embrace the opportunity to engage in an occupation unlured to them by home associations, and are able to furnish much precious information regarding the breeding of the silk-worm. — The time will soon arrive when the culture of the silk-worm shall command in this country the consideration to which its importance entitles it, and the capital necessary for its complete development. Before another generation has passed away, it would not be surprising if America not only manufactured her own silks, but produced enough of the raw staple to supply the deficiency in the Old World caused by the frequent failure of the crop there. The cheap labor of foreign countries is more than counterbalanced by the natural advantages of our own land. See SILK-WORM, and also the SUPPLEMENT.