



## WOOL

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**WOOL** (Pers. *pašm*), the fiber that was the earliest to be used for the making of textiles in Persia. Archeological finds have shown that sheep wool and goat hair were already woven around 6500 BCE, although some doubt this data. Spinning whorls and warp weights dating from 5000 BCE have also been found. From the end of the 4th or early in the 3rd millennium BCE, signs of tablet weaving were recovered by the French Mission at Susa. Furthermore, a seal tablet belonging to the second half of the 4th millennium BCE shows a weaving loom, which, together with artifacts from subsequent centuries, show that weaving was a normal activity (*Survey of Persian Art* V, pp. 2175, 3511; Ghirshman, p. 29; Amiet, p. 48; Zeder and Hesse, pp. 2254-57; Wapnish, p. 105; Zeuner, p. 344; Rubinson, pp. 49-61; Böhmer and Thompson, pp. 30-36).

Wool is a general term for the animal fibers produced by a number of hairy mammals, which in the case of Iran are sheep, goats, and camels. Sheep (*gusfand*) had already been domesticated in the Neolithic age. Available chromosomal and archeological evidence indicates that the domestic sheep is descended from a mouflon-like animal and that domestication occurred about 10,000-11,000 years ago in the eastern Mediterranean region (Nadler, pp. 109-25). Hammurabi's (r. ca. 1792–50 BCE) Babylonia was known as the 'land of wool' and had two types of sheep, one for wool production and the other for meat (Wulff, p. 177). But in addition to sheep's wool there also was and still is goat hair (*kork*, *taftik*), and third, camel wool (*pašm-e šotor*). Goat (*boz*) domestication has been documented in the highlands of the Ganj Dareh Tepe (Kermanshah) archaeological site (see [ECBATANA](#)), from around 8500 BCE,



and then expanded some 500 to 1,000 years later to arid lowland regions well outside the natural homeland of wild goats (Zeder and Hesse, pp. 2254-57). The camel was domesticated between 2900 and 1900 BCE. The earliest evidence that Bactrian camels were domesticated has been found in šahr-e Suḳta (eastern Iran), namely a jar filled with camel's dung and fragments of camel's hair, dating back to about 2500 BCE (Bulliet, p. 56; Zeuner, p. 344; Wapnish, p. 105).

Wool was produced everywhere in Persia by the considerable flocks of sheep, goats, and camels owned by nomadic tribes and villagers. According to Olivier, at the end of the 1790s, wool was the most important fiber in Persia after silk. There was no country in the world where wool was so abundant, he opined (Olivier V, pp. 327-28). Each type of wool was used to make different kinds of final consumer products, although there also was overlap. Wool played an important role in the economy of Iran throughout its history. Its use was universal in the making of carpets, rugs, felts, headgear, clothes, bedding, animal and floor coverings, wrapping materials, saddlebags, nosebags, ropes, and tenting. Throughout history various woolen items are mentioned in medieval texts such as clothing, felts, and carpets (for example, Spuler, *Iran*, p. 395; *Mongolen4*, p. 362, and above all Qari 1980). In the 17th century, inhabitants of Lār wore felt hats produced at Kerman and Yazd, while these two towns also produced felt and woolen garments (Tavernier, pp. 319- 20). Nothing is known about the wool trade prior to the 17th century, and then only of trade in goat hair.

*Sheep wool (pašm)*. Sheep wool was the most important wool commodity, because of its range (nationwide), volume (huge) and economic importance (everybody needed it). Persian wool, however, is coarse, which makes it well-suited for carpet weaving, but less so for export demands. Traders distinguished between various differences in quality of sheep wool, depending on the region, season, and purity of the wool. In the mid-19th century, wool supplied by sheep from Shiraz and Qom was considered to be the best, according to Polak, while wool of sheep from Khorasan was also considered to be of good quality. The difference in quality and color as well as the destined end-use resulted in different prices for wool offered in the market. It was also clear that the grades used by the collectors of wool were often different than those used by the exporters, although some of them may have overlapped (Government of Great Britain, 1875, p. 206). In fact, when buying wool the agents hardly took quality considerations into account. Often, they had a

preference for the place of origin, because at some places wool was better and less dishonestly processed than at others (Government of Great Britain, *DCR* 3499, pp. 6-7).

The main clip took place in spring, at the time when the animals were about to start their grazing. The second and less important clip occurred in autumn, just before the animals moved to their winter-quarters. The yield of this second clip was lower and also of inferior quality. The shearing (*pašm boridan, šidan*) of the sheep was a family and/or communal activity (Fraser 1838, II, p. 198). One sheep yielded about 750g of wool. In many parts of Persia, the sheep were first combed and washed with soap before shearing to get rid of dirt and burs. In other parts, the shorn fleece were collected and washed in a haphazard fashion. Then, it was cleaned by hand to remove foreign substances. Thereafter the wool was washed once again in cold water, followed by drying in the open air. Women did the washing and cleaning. Olmer commented that he never saw wool being combed as was the practice in Europe. The carding of wool was similar to that of cotton (Wulff, p. 179; Olmer, p. 34).

*Export of Wool.* Despite significant domestic demand, there was still export of surplus wool to the Ottoman Empire (Baghdad, Aleppo, Izmir, Istanbul) in the 18th century (Olivier V, pp. 327-28). Jaubert, referring to the situation around 1805, mentioned wool among the products exported by Persia to India and Turkey. However, [first name] Milburn in his list of possible export commodities from the Gulf did not mention wool at all (Jaubert, p. 253; Dupré I, p. 443, II, pp. 374-75; Milburn I, pp. 132-42). Around 1820, the production of wool was only of importance for three provinces, namely Kerman, ‘*Erāq-e ‘Ajam*, and Azarbaijan (Fraser 1826, pp. 354-57, 359, 363; Kinneir, pp. 36-40). In the 1840s, Abbott observed that at Isfahan there had not been a regular demand for the export of wool. He was therefore unable to determine to what extent sheep or goat wool might be purchased at Isfahan. At that time, Isfahan imported wool from Qušān in Khorasan and from Nā’in and Yazd. The Baktiāris, Qašqā’is, Garrus, and other tribes also had wool, and if there would have been a regular demand, Abbott believed they probably could have supplied it as well. The wool of the sheep and goats was all required for the use of the tribes (Amanat, pp. 100, 115, 193). By 1850, wool was little and irregularly exploited, partly because of the low market price, partly because of its quality which permitted it to be used only for coarse fabrics (Binning II, p. 298; Polak II, p. 101). The main production areas for sheep wool in the 1850s



were 'Erāq-e 'Ajam, [Golpāyegān](#), Khorasan, Kermanshah, Nehāvand, Lorestān and in particular Kurdistan and Kerman. In addition to the wool from the normal two clips, there was also the wool from killed and dead sheep, though it concerned smaller quantities (Blau, p. 71).

The export of sheep wool was of no importance until the 1860s when it acquired some importance, mostly being exported via the Persian Gulf. Export to the Ottoman empire continued, but we are not informed about its volume. Exports to Russia only began in the 1880s in substantial quantities, and as of 1890 wool became an important export commodity (Schneider, pp. 190-95). There was a shift, however, from export via the Persian Gulf to Russia, while exports to Baghdad also increased significantly. The wool trade was organized by urban merchant capital, as in previous centuries, through pre-clip sales, cash advances, and barter, and/or a combination of these methods. Whereas in the Gulf area the wool trade was entirely carried out by Persian merchants, in northern Persia it was almost entirely in the hands of Russian Armenians. Sabzevār was its center of trade. Some of these merchants tried to improve the quality of the product by washing and the use of presses, but, in general, nomads and traders ignored market signals to improve the quality of the product. The two main production zones (Kermanshah and Khorasan) continued to mainly supply the export market; Khorasan proving to be the most important export zone. The other provinces mostly supplied the national market for the expanding demand of wool for the manufacturing of carpets and cloaks, and other local traditional needs. In 1895, the total wool output of Khorasan was estimated at 20 million lbs. Of this, some 6-7 million lbs. were exported to Russia, which only took 200,000 to 300,000 lbs., the remainder being forwarded to Marseilles (Government of Great Britain, *DCR* 1800, p. 19). Khorasan's wool production was in fact much smaller. The available annual quantity wool for export was about 60-70,000 *puds* (*pud*, a Russian unit of weight: 1 *pud* = 16.38 kg), only about one-third was really from Khorasan, the rest was from Afghanistan (Government of Great Britain, *DCR* 3724, p. 12). By the 1890s, wool had become one of the most important products of Kermanshah, because of the vast flocks of the Lurs and Kurds. After deduction of the wool used for the domestic market, some one million lbs. were left for export via Baghdad (Government of Great Britain, *DCR* 2260, p. 16). Due to internal political and security problems, the volume of the wool trade decreased, but more so in Kermanshah than in Khorasan, where Russian troops after 1912 controlled much of the province. Nevertheless, it would seem that the market was stabilizing itself at the one million *mann* level rather than

growing. The trade in wool and woolen fabrics amounted to almost 34 million *qerāns* in 1913 or 6.25% of the total trade (In 1912, about *qerāns* equaled 100 French Francs). Exported were 14.8 million *qerāns* or 2,25% of the total exports (Government of France, pp. 78, 80).

*Table 1.* Quantity of wool exported and main destinations (selected years, 1908-56).

The export of wool dropped after World War I, because of the Russian revolution. Exports in 1920-21 amounted to only 2.5 million *qerāns*, but, as the table shows, exports were back at the pre-war level in 1926. Russia remained the main market, and Soviet import policy therefore had considerable impact on wool exports that fluctuated. In 1926, the Soviets even forbade all imports, except for cotton, but after the October 1927 Russo- Persian Agreement wool was exported again (Wilson, p. 85). The trend, however, was an upward one, although wool exports in relative terms declined in importance declining from 2% of total imports in 1924 to 1.2% in 1928. Thereafter, the figure fluctuated between 1.5-2% in the 1930s (Temple, p. 13; Hadow, p. 15; Lingeman, p. 44; Simmonds, p. 45; Gray, p. 55). In November 1935, the Iranian government granted a trade monopoly to a state-owned company, but it was discontinued in September 1938. A negative result was the loss of the transit trade that could not wait for the cumbersome rules of the wool monopoly. Much of Iranian wool was not cleaned; the grease and waste represented about 50% of weight. Cleaning would lower transport cost and higher prices (Agah, p. 96-97).

In 1947, it was estimated that domestic consumption of wool was about 8,800 metric tons, of which 3,500 tons were used by the carpet industry, 2,700 tons by industrial factories for blankets and suitings, and 2,600 tons in home weaving. An unknown amount was produced by the tribes and used for their own requirements. Raw wool production was sufficient to meet domestic demand and to leave 25% for export. Woolen fabrics, therefore, were imported (some 1,100 tons in 1326 š./1947-48). There was little or no grading of wool, making it less suitable for suitings etc. Much wool yarn was used in cotton spinning and weaving establishments for the manufacturing of combination fabrics such as heavy blankets, using a cotton warp and a wool weft. “All of the 3,500 tons for carpets is spun by hand. Thus the fine fibers needed for suitings are thus wasted and the carpet yarns thus are not uniform or of good quality” (Overseas Consultants IV, pp. 145).

Wool production remained stable at about 35,000 tons per year between 1950



and 1971 (Aresvik, p. 252, table A.8). Thereafter, there seems to have been a fall in output, for only 18,000 tons per year were produced. However, the latter figure refers to clean wool, while the earlier figures refer to dirty wool (Echo of Iran 1977, p. 193). Iran still is a producer of wool, although a minor one. Between 1987 and 1993, its annual output was 14,000 tons of clean wool, or less than 1% of the total world output. Iranian wool is of a coarse nature, however, and is entirely used in carpet weaving. There are presently 102 commercial wool-spinning mills in Iran that produce 24,000 tons of wool yarn each year, whereas Iran's cottage industry produces an equal amount (Petrie).

*Goat hair (kork, taftik, moḳayyar)*. Goat hair was produced in the same areas as sheep wool. There were two kinds: (i) fine down (*kork*) produced by Kerman goats, which in the West is known as mohair (*moḳayyar*), and (ii) *taftik* or the straighter and coarser outer coat or so-called guard hair (Stolze and Andreas, p. 22; Dupré II, p. 86). Its use to make woven materials dates to around 6500 BCE (*Survey of Persian Art V*, p. 2175). *Kork* was the most sought after Persian wool. Fine, soft goat's wool, referred to in Persian as *kurk*, *kork*, *kulk* or *kulk*, is the down undercoat underneath the rough outer hair of the goats. This fleece of the finest hairs on the under-belly serves to protect the goats against the cold winters and is shed during spring. It is produced by the Rā'in goat, a variety of the *capraibex*, a Central Asian species. The Persians distinguished four different types of *kork*, according to an 18th-century Dutch report, to wit: *kork-e šang-e duzi*, *kork-e kermāni*, *kork-e safid* and *kork-e nabāti* (Floor 1999, p. 356). The bulk of de-haired down hair from Iranian and Afghan goats is 17.0/20.0 microns. The length is generally quite short but varies from lot to lot and can be anything from 20mm to 50mm making it suitable for spinning on either woolen or worsted systems. The term *kork* is also used to denote the very finest quality wool obtained from the shoulder and flanks of shearling lambs.

*Kork* was produced not only in Kerman, but also in Yazd province, but there were quality differences between the various production locations. The production area of *kork* seems to have been concentrated in the area stretching from Rāvar, 70 miles northwest of Kerman, to Sirjān, a town at equal distance towards the southwest of the city; to Rā'in in the northeast and Orzuya in the southeast. The [English East India Company](#) (EIC) reported that *kork* also was imported from as far as Herat in the 17th century (Matthee, n. 34-36, 39). Kerman goats produced an average fleece weight of 0.5-0.75 kg in the 1960s, yielding between 25-400g of *kork* annually. The herders combed the

down from the goats during evening camp. During the period between 1658 and 1769, there was considerable European interest and trade in *kork*. Of the various colors, the Dutch [East India Company](#), VOC, only wanted the red variety. The EIC, likewise, preferred the red type, but also bought the other types of *kork*. For example, in June 1736, the EIC wanted all four colors, namely, red, yellow, pearly and purple (Floor 1999, p. 357). *Kork* was one of the major products of Armenian trade with the Netherlands (Du Mans, pp. 187, 349, 367). In Iran itself, *kork* was used to weave shawl, while *taftik* was used for making tents, ropes, *gelim*, *patu*, [felt](#) and were used as edges, warps, and foundations for [carpets](#).

*Table 2.* Quantities of *kork* exported by the Dutch and English (1658-1753).

The European Companies bought *kork* through the system of *piš-foruš* (or advance sale), which obliged the owners of the goats to sell their wool to the merchant who had advanced them the money (Floor 1988, p. 39). In the 19th century, some *kork* was exported to France and Austria, as well as to India in varying quantities. Most *kork*, however, was consumed locally for shawl production (Blau, p. 71).

*Taftik* or ordinary outer goat hair also was exported. However, there is no information available on the value, volume, or other particulars of this trade. According to Du Mans, there was a lively trade in raw goat wool and goat hair from Kurdistan, Yazd, but especially from Kerman (referring to *kork*), for the hatting and fulling industry in Europe. According to a French report from the 1680s, the first quality of (goat) wool originated from Kerman, the second quality from Mashad, and the third from Tabriz (Du Mans, pp. 187, 349, 367). In the late 18th and early 19th century, the trade distinguished three qualities of *taftik*: black, red and white. The black came from Khorasan, Bukhara and Samarqand and was superior to the other two colors. The red came from northern Persia, Khorasan, Sistān, Qandahar, and Kerman. The white was from Central Persia. These three types of wool were mixed and packed in bales of 50 or 100 *oqqas*, depending on whether they were carried by a mule or camel. Jews were mostly involved in sorting the three kinds of goat hair. The British and French only bought the black hair and demanded that it be pure. Other Europeans took the mixed bag (Olivier V, pp. 328-29; Dupré II, p. 375). Goat hair was rather glossy probably because the goats ate the leaves of the *konār* tree, which was also used to wash human hair (Government of Great Britain, DCR 3951, p. 19). In the 20th century, Iran was one of the largest producers of goat hair, because of its large number of goats. In the 1970s, some



3,300 tons per year were produced (Echo of Iran 1976, p. 193). Most of the *kork* is still produced in the Kerman area, both by nomads and villagers (Dillon; Stöber, p. 84; Bradbury, pp. 60, 207). In the 1990s, Iran exported some 1,500 tons out of a total world production of about 8,000 tons. However, until recently, Iran did not have proper facilities for the processing of goat hair and so it mainly exports all the soft wool in raw form, although it now also has de-hairing facilities (separation of coarse hairs and down hairs). *Kork* is also produced in Afghanistan and much of it found its way either to Iran or India, and beyond. Plans are underway to resume export in the form of cleaned and spun *kork* (Floor 1999, pp. 378-79).

*Camel wool (pašm-e šotor)*. Camel wool is known for its length, softness, and purity, and was produced in particular in the southern and eastern provinces of Iran. The fine, soft undercoat of hair was the most sought after although the straighter and coarser outer coat or guard hair is also used. From late spring to early summer, camels naturally shed their hair. Fallen or plucked (*kandan*) clumps of hair are collected by hand. Camels may shed up to 8-10 kg of wool per year, which require de-hairing. The main staples were Tabriz, Kermanshah and Kerman. In the 19th century, there was export both to Europe (via Turkey), Russia and India. The latter trade was so important that the governor of Kerman obtained the export monopoly (Stolze and Andreas, pp. 22-23; Dupré I, p. 443). The wool of the Bactrian camel was finer than of the Arab camel (dromedary), and around 1800 was only used in Europe to make hats (Olivier V, pp. 329-30). The wool trade distinguished three qualities: black, red, and gray. Black wool was usually sold separately and its value was higher than that of the other two qualities. Gray camel wool usually was half in value of red wool (Dupré I, p. 443). Camel hair was woven by, amongst others, the women of Dašttestān district into material to make '*abā*'s or cloaks. Their price in Bušehr was 50 to 250 *qerāns* according to color and softness around the turn of the 20th century. In eastern Persia and Afghanistan, a flannel-like fabric called *barak* was woven from camel wool or goat hair and was made into winter clothing. The guard hair was used for tenting, ropes, and felt-like coats (Government of Great Britain, DCR 3951, p. 19; Floor 1999, pp. 129-30, 138, 261-62). In 1947, camel hair was used entirely by the tribes for the manufacture of coarse rugs (Overseas Consultants IV, pp. 146). There is no information available on the value, volume, or other particulars of this trade. At the moment camel wool is traded under the trade name of cashmere, a trade term that covers both goat hair and camel wool.



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