Technical studyona piece of Cashmere textile attributed to late Qajar era

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The present study is a report of laboratory studies for technological purposes a piece of Cashmere textileknown as Reza Torki Termeh, attributed to late Qajar era, a Cashmere of Yazd, with a brown or black field, cotton fiber, with a repeated paisley motif (botte-jeqqe) and framing pattern and with worktoptexture is known, which includes to answer some questions regarding to the nature of the fibers, twisting of the fibers, type of weaving, and method of production. In this regard, library, laboratory, and field studies were used; interviews and correspondence with professors, many trips to observe the examples of this type of cashmere.The results of the systematic model studies were used to understand the quality of information about Terme Reza Turki; The object of this study is similar to the rest of the Reza Turkish Terme with a cotton leaf and worktoptexture. The yarn twists used in this Termeh fabric are a combination of *s* and *z*; both Termeh and lining cloths are woven in worktoptexture; fabric density of the lining is more than that of the Termeh; and also the lining is more acidic than the Termeh fabric and For both lining and Termeh Textile, neither shrinkage nor fastness to wash has been observed.

Key words: textile, Cashmere, Termeh, Qajar, technical studies

I. INTRODUCTION OF THE CASE STUDY

The object of this study is a Cashmere cloth sample depicted from a private collection. According to the owner, it belongs to the Pahlavid era, and according to experts belonging to the late Qajar or early Pahlavi. Preliminary observations, the sample is a rectangular-square with a dimension of 75 (minimum) × 79 (max) cm and has 2 layers. The patterned upper layer, with the Dark blue background and the plot of Boteh and the Strips that are repeated on the sidelines and background‹the workpiece is sewn with sewing machines, and the Liners is a simple red in two pieces. According to its owner, it is a Bath bag that in its corners it has been cracked. (probably due to the pin for closing it). This cashmere is one of the type "Reza Torki Yazd". In the early thirteenth century, in the direction of further development and efficiency, some changes did in the cashmere context, the most important person in this field is a person named REZA TORK. He abrogated Weaving with fingers, because in addition to little production, it made a lot of effort for the weaver, and he did cashmere with mako. And he used more tools such as: Maku, Daftin, and a pattern that drawn up by two people, one master of the work and the other with an earrings sketcher, which carried out the work of the earrings sketcher later, Jacquard machine. The cashmere woven in this way was called Terme "Reza Turki" (Ramezankhani, 2008, p. 195).

Reza Torki's cashmere, attributed to Yazd, it Woven in dark blue or black background in TAR; and Pood in red, green, orange, black and sometimes white. The type of cotton lining, with its framing and its usual role, is also the texture of this type of worktop.

Fig. 1.left: From the object before the restoration,Right: from behind the object before restoration (Source: Writer)

II. IDENTIFICATION OF FIBERS

If we Twisting a Yarn in the opposite direction, until it open, we see that it has a lot of very delicate strands. These strings are called fibers (Amiri, 2006, p. 3). Given the fact that textile fibers have a variety of natural and artificial materials, it is necessary to use methods to identify them: Identification by flame method, microscopic identification and chemical identification (ibid., P. 108) For the case study, using the two methods of flame and microscopy of the fibers used, so it did not need the chemical testing.

A. Identification of the fiber by burning it with a flame

One of the methods for detecting fibers is the burning test. The purpose of this test is to identify the class in which the fiber is located (natural, synthetic, animal or vegetable) (Amiri, 2006, p. 108).

To identify the fibers, first, close the prepared sample to the flame, then get it away slowly, to observe the reaction of the fibers, according to the reaction of the yarn to the flame and light, comparing the smell of the well-known smelt of other fibers and observing the remaining residual or residual ashes under the microscope or with magnifier (ibid., 109), the results of these behaviors (Table 1) helped identify the fibers.

Table 1. Identification of the fiber by burning method

Because fiber burn test does not make it possible to distinguish between the fibers of a group and distinguish them from each other. For example, cotton and linen burn like each other, so another diagnostic test, such as a microscopic test, should be used to diagnose them.

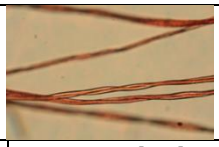
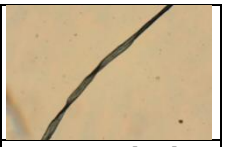
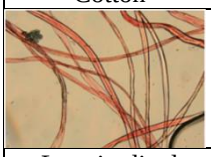
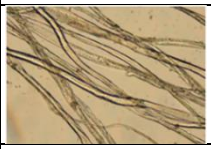
B. Microscopic evaluation.

This method is aimed at identifying the physical structure of the fiber (longitudinal surface and cross-sectional area) (Amiri, 1385, p. 110).

[1]. longitudinal surface of the fiber

Open the fibers by twisting, then place some of them on the lamella and Fix them with a drop of water or glycerin, then place the lamella on it, and place it under an appropriate magnification microscope (10, 20 or 40 Equal) and watch the longitudinal surface of the fiber. (Table 2).

Table 2. Identification of the fiber by microscopicmethod

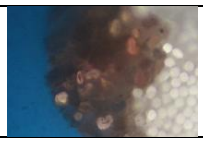
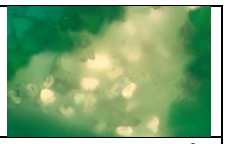
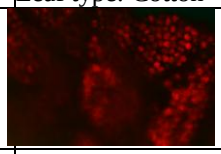
		
Longitudinal section of the fabric of cashmere in pink color ×250 Leaf type: Cotton	Longitudinal section of the fabric of lining in red color ×250 Leaf type: Cotton	Longitudinal section of the fabric of cashmere in white color ×250 Leaf type: Cotton
		
Longitudinal section of the fabric of Sewingon cashmere fabric in pink color ×250 Leaf type: Nylon	Longitudinal section of the fabric of Sewing behind the lining in white color ×250 Leaf type: Nylon	Longitudinal section of the fabric of cashmere in dark blue color ×250 Leaf type: Cotton

Source: Writer

[2]. cross-sectional fiber

To prepare cross sections of the fiber, use a sharp thin blade and with the help of some tools such as coated wire, make thin layers of fiber cross-section, Then, observe them under the optical microscope, the Sairan company, PM-240 model (Table 3).

Table 3. Identification of the fiber by microscopicmethod

		
Cross-sectionof the fabric of cashmere in pink color ×250 Leaf type: Cotton	Cross-section of the fabric of lining in red color ×250 Leaf type: Cotton	Cross-section of the fabric of cashmere in white color ×250 Leaf type: Cotton
		

The name of the leaf	Image	Close flame	In contact with the flame	After leaving the fire	Smell	Ash	The name of the leaf	Leaf type detection
White leaf, related to cashmere		Do not fry and do not flared away	It quickly flare and burn without melting	No melting continuously burned	The smell of burned paper	Soft and black ash	White leaf, related to cashmere	natural (Probably cotton)
The red leaf is related to the lining fabric		Do not fry and do not flared away	It quickly flare and burn without melting	No melting continuously burned	The smell of burned paper	Soft and black ash	The red leaf is related to the lining fabric	natural (Probably cotton)
Pink leaf, related to cashmere		Do not fry and do not flared away	It quickly flare and burn without melting	No melting continuously burned	The smell of burned paper	Soft and black ash	Pink leaf, related to cashmere	natural (Probably cotton)
Dark blue leaf, related to cashmere		Do not fry and do not flared away	It quickly flare and burn without melting	No melting continuously burned	The smell of burned paper	Soft and black ash	Dark blue leaf, related to cashmere	natural (Probably cotton)
White leaf, related toSewing behind the lining		Melted and flared away	Slowly burnt and melted	Shut down a little later	The smell of chemicals	Hard bullet, Circular and gray	White leaf, related toSewing behind the lining	Synthetic (Nylon)
Pink leaf, related toSewingon cashmere fabric		Melted and flared away	Slowly burnt and melted	Shut down a little later	The smell of chemicals	Hard bullet, Circular and gray	The name of the leaf	Synthetic (Nylon)

Cross-section of the fabric of Sewingon cashmere fabric in pink color ×250 Leaf type: Nylon	Cross-section of the fabric of Sewing behind the lining in white color ×250 Leaf type: Nylon	Cross-section of the fabric of cashmere in dark blue color×250 Leaf type: Cotton

Source: Writer

III. IDENTIFYING THE DIRECTION OF TWISTING IN THE YARN

Twist ,is a special twisting of a yarn.doing the experiment to determine the direction of this twinkling follows a few goals: Identify the warp and The other is in the restoration operation, if its possible Use the same yarn as the adjacent yarns.The method of obtaining the direction of the warp is that: holds one thread and together open the other thread with the other hand.If the thread was opened to the outside,Threading is Z or RIGHT. And if, open to inside,the direction is S or Left (Fig. 5) (Table 4) (Taleb Poor, 1382, p. 48).

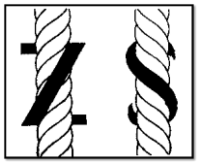


Fig.5.Direction of Z and S in the yarn, Source: Talebpour, 1382, p. 48

Table 4. Identifying the direction of twisting in the yarn

		
Pink leaf, related to cashmereSwing Type: (z)	White leaf, related to cashmere Swing Type: (z)	Dark blue leaf, related to cashmere Swing Type: (s)
		
Pink leaf, related to Sewing on cashmere fabric Swing Type: (s)	White leaf, related toSewing behind the lining Swing Type: (s)	The red leaf is related to the lining fabric Swing Type: (s)

Source: Writer

IV. DETERMINE THE TEXTURE OF THE FABRIC

Basically, the fabric is created by joining yarns that have a right angle, and different patterns of fabric are due to the type of texture and how the threads are joined together. (Yavari, 2008, p. 59).By adjoining a number of threads, repetitive tissue is formed. (Seyyed Sadr, 1393, p. 141).

The purpose of determining the texture of the fabric is to become more familiar with the technique of producing the effect, which can also help with its adaptation to historical examples, given that the Reza Torki's cashmere have a sorje texture (Alavi Dehkordi, 1395, p. 13), Determining the texture of this work can be used to identify the type of cashmere.

Table 5. Determine the texture of the fabric

Lining fabric	Cashmere fabric	Type of fabric
		Texture image
worktop	worktop	Type of texture

Source: Writer

V. DETERMINE TEXTURE DENSITY

Means of the density of the tissue is the number of threads in a square centimeter (Table 6), since the tissue of texture effects on: weight, strength, wrinkles, airflow and cladding, and determines it in order to better understand the effect of the study, to provide an appropriate response to the effect.

Table 6. Determine texture density

	Cashmere fabric	Lining fabric
Tar	47	73
Pood	36	71

Source: Writer

VI. COLOR SHIFT TEST

The color shift test is conducted to observe the reaction of separated fibers from cloth and tarpaulin due to water contact, so that if the test is positive during the protection and restoration stages, it will prevent water from reaching the studied effect.Care should be taken to remove the selected lips from a clean, non-stained part to avoid any error in the test.Because it is possible to damage the fabric when we remove the fibers, then there should be a sample from areas such as the edges of the abandoned fibers or behind the work piece.The method is that

according to the standard, put a lint on a drying paper and drop a few drops of water.After that, drying the paper on the lips, then, to prevent water evaporation, place the melimex water so that it completely penetrates the fiber. After 15 minutes, check the drying paper if the color of the fiber is sensitive to water, along with the paper absorbed by the water. And colored paper (CCI Notes 13/14);no colored displacement happened on the cloth and tarpaulins.

VII. CHANGE THE LENGTH OF THE FIBERS TEST

The purpose of this test is to evaluate the longitudinal variations of the fibers used relative to the moisture content. For this purpose, the size of the original fiber length was taken in a dry state and then exposed to humidity for 20 minutes. If the fibers are short, a detergent cleaning method can not be used, otherwise the use of this method can be avoided. In the studied study, no change in length of cashmere yarn and linen was observed.

IX. DETERMINE PH

The pH is measured with the aim of choosing a suitable method for treating the effect and choosing the location of the storage location until the treatment. The pH is measured at three different points and three times each time; placed below the point of the drying agent and the melisson; place a few droplets of water; place the device's sensor on the desired point; and record the number (CCI) Notes, 2007, p9). The average calculated values indicate acidity and alkalinity (Table 7), which, according to the average obtained from the numbers, is a more acidic cloth than a cashmere cloth.

Table 7.Determine pH

Points reviewed	The name of the textile		Water
	Cashmere fabric	Lining fabric	
PH value at point 1	5.80	5.82	6.70
PH value at point 2	5.58	5.63	
PH value at point 3	5.69	5.83	
average	5.69	5.76	

Source: Writer

X. Conclusion

The study was titled Reza Torki Yazd's cashmere attributed to the late Qajar and early Pahlavi periods, with the characteristics derived from laboratory studies, the fibers used in the study were made of cotton and sewing fibers on synthetic material, thread twill In combination with s and z, the texture of the fabric and the lining of both eyelashes, the texture of the cloth in the lining fabric is more than the fabric of cashmere, as well as the lining fabric is more acidic than the fabric of cashmere, and in none of the cloth fibers Cashmere and overstock No change of color and displacement occurred.

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