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The Aboriginal Loom
and
Its Use Among the Penoles Mixtecs

Margaret H. Daly
1970

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0. Many forms of activity have been given the designation of weaving. In this paper "weaving" will refer not to finger weaving which includes plaiting or braiding, or to looping or coiling as used in basketry, but to

...the process of interlacing objects, long, slender and flexible (most commonly vegetal or animal fibers), to make a single fabric. It is a process begun by birds in their nest building and continued by primitive man in his rude clothing and basketry. It was adapted to the simple hand loom by people of rudimentary civilization, and finally in our modern era, to the power loom. Weaving spans human history from beginning to end.

Amsden 1949:1

1. Archeological evidence indicates that the Peruvian textile industry was developed as early as 2500 B.C.

The earliest textiles appear with the first agriculture, before pottery, and are all of cotton or vegetable fiber. Most are twined or looped, but some are woven.

King 1965:1

Examples of Peruvian textiles found in dry coastal areas show that the Peruvian techniques were in some ways technologically superior to modern textiles.

In terms of modern technology the old Peruvian fabrics are outstanding for several reasons. Almost every technique of modern weaving was used as well as a number which are either impossible or impractical for mechanical looms. The spinning ranks among the finest known in the world and the large range of colors is evidence of exceptional skill in dyeing.

Bennett and Bird
1964:193

Some archeologists interested in textiles have expressed doubts that that Mexican Mayas ever attained the skill of the Peruvian weavers. Although the Mayas might not have achieved the high degree of technical perfection of the Peruvians, the fragments of textiles that have been recovered from the Sacred Cenote at Chichen Itzá show that they were not novices in the art. All of these fragments are made of cotton and show

...a dozen combinations of spinning direction, doubling, pairing, etc., of warps and wefts for the base fabric.

In the case of supplementary yarns, as in brocades and embroideries, these yarns usually differ from the base cloth. If present, the heading cords may also differ from the base fabric, and usually warps along the side selvege are the same as the rest. There is great variety in the quality of spinning, and in the desired compactness of the weave.

Except for four types of twills, all fabrics are technically plain weaves.

Within the plain weave category it has been possible to detect warp stripes, weft stripes, plaids, embroidery, brocade, gauze, openwork, weft pile, warp floats, and tapestry, mostly kilim.

Mahler 1965:592

It is unlikely that many examples of textiles will be recovered from the damp, tropical areas of Central America; but Mayan stone stelae as well as painted and sculptured pottery show many examples of the lavish accoutrements of the pre-Colombian peoples. Referring to the Codex Mendocino or to the tribute rolls of Moctezuma, one can see that the subjugated nations paid the Aztec empire an annual tribute of over a million pieces of cloth during the 14th century. Specific patterns from the separate regions, many of which still survive, are shown in these early picture documents. (Kelemen 1965:2)

As more archaeological work is being carried out in Middle America, further evidence of the antiquity of the aboriginal textile industry is being found. It has been established by archaeological work in the Southwest of the United States that the art of weaving cotton was known by as early as 700 A.D. and perhaps several centuries earlier than that in southern Arizona. (Kent 1961:5)

On the flaring rim of a large, deep, Early Chimu vessel (dating from the period between 200-500 A.D.), painted figures show that weaving was already a well-developed art. (See Figure 1.)

An Early Chimu cloth-factory is here displayed. The personage in charge of the work appears on the right, seated under a rustic canopy and elaborately clad.... we come next to five humble-looking persons each of whom is working at a loom. They, too, are sheltered by a rustic roof. Each of them is provided with a bit of cloth from which to copy, and with a jug, probably containing liquid refreshments of some kind...

This scene is replete then, with documentary evidence of the high stage of material culture to which the people who produced it had attained. Because of it we are justified in saying that the textile arts had reached a high development in Early Chimu

times.

Means 1931:73

This scene shows seated figures weaving on what appear to be fixed-warp type looms similar to the Salish. (For further

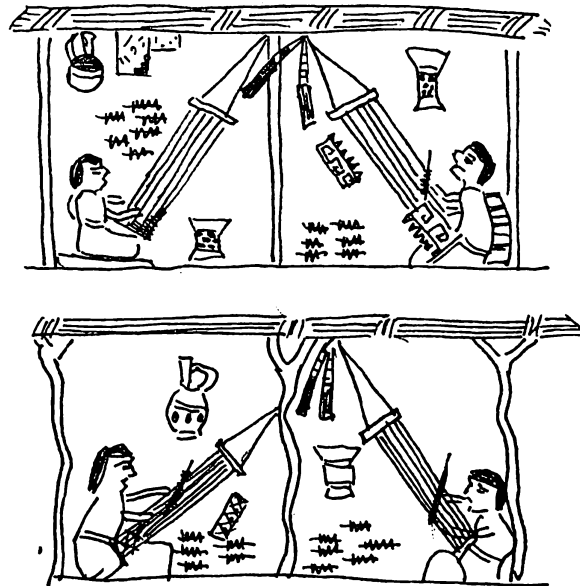


Figure 1.

information on looms of different types, see Chapter II of Amsden 1949:15-30.) In one hand they hold bobbins of weft which were worked into the warp. A long slender needle formed the sheds, or openings, through which the bobbin was passed.

At first glance this type of weaving frame doesn't appear to be any great advance toward the true loom since the needle is not only a very common instrument, but also a very ancient one. The Peruvian needle, however, under deft manipulation was capable of lifting a number of alternate warp threads, thus forming a shed for the passage of the weft on a bobbin. Before this Early Chimú vessel was discovered, there had been no inkling of a means of handling more than one string of warp at a time. (Amsden 1949:20)

No fixed dates have been found for the introduction of the heddle which marks the advent of the true loom, but a number of indicators show its probable existence in the Southwest as well as in Peru in pre-Colombian times. According to Amsden (1949:65),

True loom weaving had its principal if not its sole origin in Middle America or Peru, with the Pueblo Southwest marking the northern (or perhaps more conservatively, the north-western) limit of its distribution.

In the Pueblo regions of the American Southwest mechanical appliances for weaving were in existence long before the arrival of the Spanish conquerors, for examples of textiles of excellent quality have been found in the ancient ruins and cave dwellings. (Mason 1901:504) In fact,

Examples of fabric showing a knowledge of twilled weaving in prehistoric time are not uncommon, some even dating as far back as the twelfth century. This fragment [shown in Mera as Plate XVI, a fragment found at Aztec Ruin] not only exhibits a herringbone pattern...but a diamond twill as well.... All this plainly proves that the diamond twill is not the result of white man's influences as many have supposed.

Mera 1943:52

Textile fragments such as that just described also indicate the existence of the true loom, for without the use of four heddles the diamond twill weave cannot be readily achieved.

Standard works on textiles describe many of the perfectly preserved Peruvian textiles found in thousands of pre-Incan graves in the dry nitrous sand of the Peruvian coast. According to Mead (1942:38),

Many of these webs are as strong and their colors as bright as they were when taken from the primitive looms... Furthermore, textile manufacturers and experts are astonished at the perfect spinning of the yarns, the great variety of techniques, and the unusual skill of the weavers.

All of the techniques used by modern weavers were employed by the early Peruvians.

There is scarcely a known technique which does not occur in ancient Peru.... Although it is impossible to list all the techniques known to Peruvian craftsmen, a list of some of the main categories is as follows: plain weave, tapestry, double-cloth, triple-cloth, warp and weft patterning, warp and weft interlocking, gauze, twill weft-pile, brocading, embroidery,

appliqué, featherwork, twining, wrapping, looping, spräng, braiding, and knotted netting.

King 1965:2

The earliest fabrics are all cotton. Later Peruvians also used the wool from three members of the camel family in their weaving. Today Peruvian weavers distinguish by name six naturally colored varieties of cotton, ranging from light tan to reddish brown and grey. (Bennett and Bird 1964:194) The wool of the vicuña, which has a fine, silky appearance, was used only for the finest garments. Alpaca wool was used quite commonly, but the wool from the llama was considered coarse and therefore used only by the poorest people. Another fiber which was used by both Meso American and Peruvian weavers (and is still used today) was the fiber from the maguey cactus. This is used for making net bags or carrying cloths and rope.

There were three types of looms used by the Peruvians: the backstrap or belt loom, a staked-out horizontal loom, and a vertical frame loom. The backstrap loom was probably the most commonly used.

It consisted of two sticks or loom bars to which the warp, made by winding a continuous yarn back and forth, was attached. One loom bar was tied to a tree, pole, or similar fixed object, and the other was fastened to a backstrap which passed around the weaver's waist or hips. A shed rod or roll was inserted in the warps to produce the first shed, and one or more heddles were used to control the other shed or sheds. A batten or sword, which served both to hold the shed open for the passage of the weft, and to beat down the weft after it was inserted, completed the equipment.

King 1965:2

II. The Peruvian backstrap loom described above is almost identical to the loom used extensively through the New World in primitive culture areas today. Judging by pieces of what appear to be parts of an aboriginal loom and fragments of textiles found in Southwestern caves, the loom itself and weaving techniques have not changed appreciably in more than a thousand years.

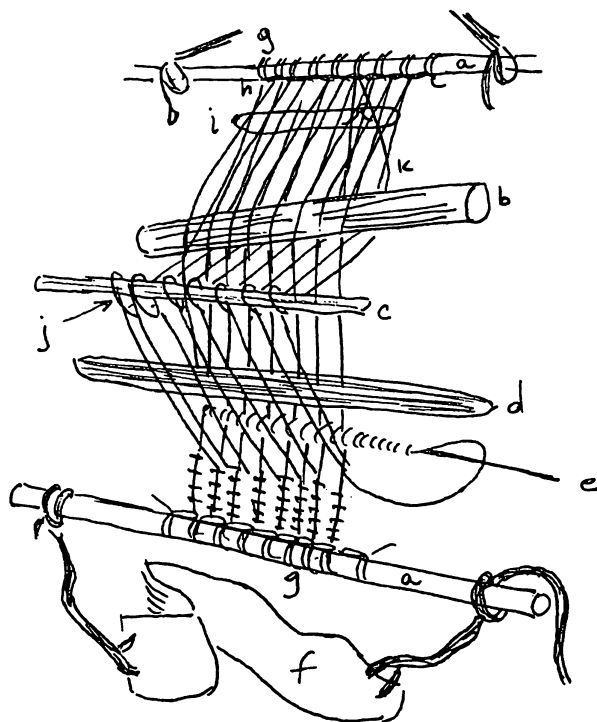


Figure 2.

The Peruvian loom

a. loom bars; b. shed rod; c. heddle rod;
 d. batten or sword; e. bobbin; f. backstrap;
 g. warp lashing; h. heading string; i. lease
 cord; j. leash cord; k. warp; l. weft

Bennett and Bird
 1964:201

The following description of the use of the aboriginal loom and attendant features of the weaving complex are as found in Santa María Peñoles, a Mixtec Indian village of Mexico in the District of Etla, Oaxaca.

Figure 3 shows the Mixtec loom with the parts named both in English and Mixtec. Note the differences between the parts named by Bennett and Bird for the Peruvian loom. Note also that the Mixtec women have been more careful to name even the tenter which does not appear in the diagram because it is on the back side of the cloth, but has a very important role in keeping the piece being woven all the same width.

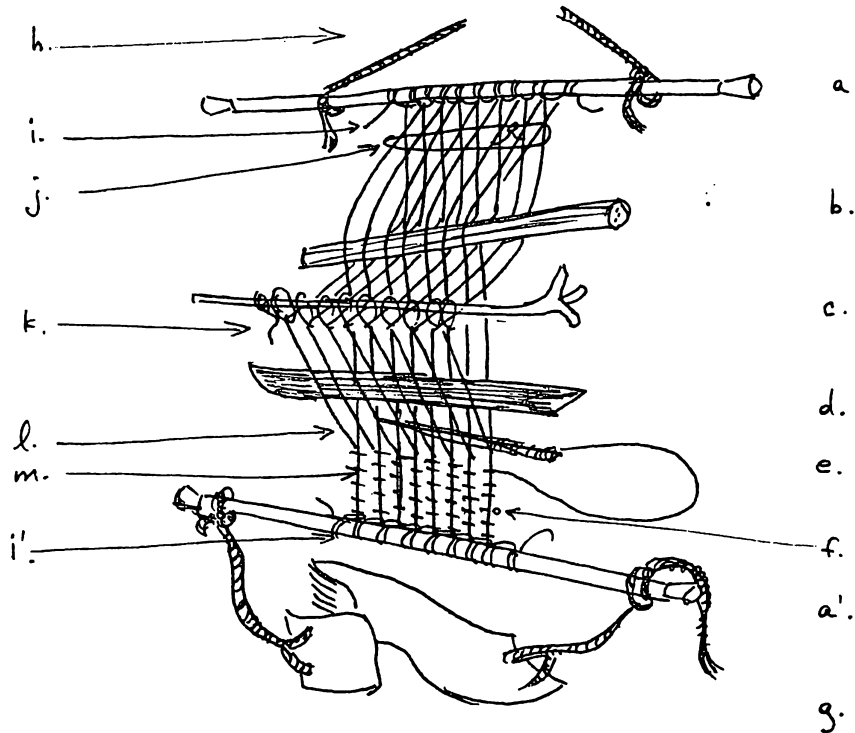


Figure 3.

The Mixtec loom

- a. loom bar (tnu ida); b. shed rod (tnu caní);
 c. heddle rod (mbuú); d. sword or batten (díťú);
 e. bobbin (yutnu ndacú dihó); f. tenter (míní);
 a'. breast beam (tnu ida); g. backstrap (ñíí
 tísátá); h. rope for attaching loom bar to a fixed
 object (yoho idá); i. warp lashing (yoho data);
 j. lease cord (yúhá chihó); k. leash cord (yúhá
 quííⁿ); l. warp (idá); m. weft (ndacú dihó);
 i'. warp lashing (yoho data)

One important innovation which the Spaniards introduced in Middle America was the use of wool in weaving. Although wool from three members of the camel family as well as several varieties of cotton were used by the Peruvians, prior to the Conquest only cotton appears to have been used north of the Panamanian Isthmus. It is possible that weaving with wild silk was a part of the Mesoamerican weaving complex, but true sericulture was introduced by the Spaniards who transported silkworms to the New World at the same time as they brought other animals. (Borah 1943:8)

Peñoles Mixtec women used to use homespun silk to make belts or carrying bags for tortillas, but widespread spraying for malaria control in the early 1950's killed most of the silkworms and even seems to have affected the mulberry trees. According to

Borah (1943:67-68), Peñoles was one of the silk-raising centers in the sixteenth century (quoted in Cordry 1958: 282). Most of the silk industry was located at altitudes between 1,500 and 2,300 meters, and the outlying ranches of Peñoles cover these altitudes. There are still a few mulberry trees near the small rivers which run through the area, but nothing like the hundreds of trees there must have been in ancient times when all the women raised silkworms and worked the silk.

Today most weaving is done with wool (from sheep introduced by the Spaniards) and the finished articles are blankets and skirts. The woolen skirt is the most distinguishing feature of dress in the area. One can readily identify that a woman is from Peñoles because she is wearing a brown and white wool skirt, woven in such a way as to give a tweed-like effect, whereas the woman wearing an almost black patternless skirt is from neighboring Santiago Tlazoyaltepec.

Every male regardless of age uses the typical serape, especially on cool evenings. Although the women also weave the blankets for their men, the herringbone or striped patterns do not indicate a man's town, but merely reflect the skill of the weaver.

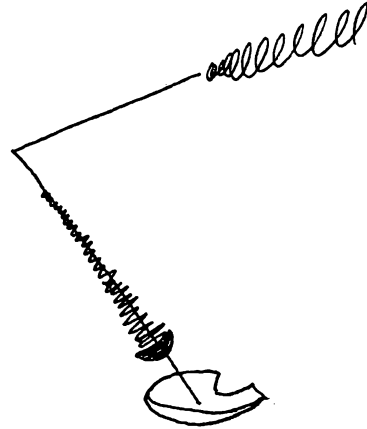
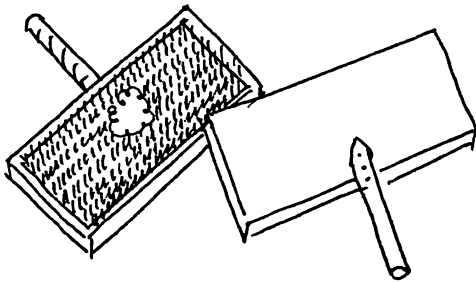
Before the actual job of weaving can begin, several steps are necessary to prepare the wool. First the sheep are shorn in the spring when the wool is longer and before the rains begin. It is cut again in the fall after the rains are over but before cold weather sets in. Bits of leaves and dirt are first loosened by beating the wool against a rock, then the wool is washed with a certain root which cleans and softens the wool.

It is possible that pre-Colombian spinners only straightened fibers with their fingers before spinning, but the hundreds of combs found in workbaskets in women's graves would indicate their probable use for combing cotton and wool as well as hair. The carding of wool cleans the fibers as well as straightening them and aligns the staples to lie all in one direction.

Towcards for carding were probably introduced by the Spaniards. Peñoles women are careful to separate the wool by colors or to

combine several shades of the darker wool as they card, estimating the amount of wool needed to complete a garment so as to card and spin the wool for it all at one time. Less skilled weavers often have to complete a garment with wool that was carded at different times and the result is that the garment will have variations of color. When a weaver wishes to have a grey yarn for a blanket, she will take a small wad of dark wool and another of white and card them together, adding more dark or more white wool as she works so that the resulting lap she is carding will match those she has already finished. (Compare this with the Navaho technique as described by Reichard 1936:16.)

Carding is accomplished by holding on towcard in the left hand, with the towcard handle away from the body and teeth upward; the other towcard is held in the right hand with the handle toward the body and teeth downward. A small wad of wool is placed on the lower towcard and the teeth of the upper towcard are drawn through the teeth of the lower towcard in such a way as to comb the tangles from the wool. (See Figure 4.) In the



Figures 4. and 5.

second step, the wad of wool is lifted from the lefthand towcard by the teeth of the righthand towcard, placed on the surface of the lefthand towcard, and step one is repeated. These two steps are repeated as many times as necessary to clean and straighten the wool. Unlike the wool from Navaho sheep, the black wool of Mixtec sheep is not particularly curlier than white wool and does not require more carding. A Mixtec spinner considers that the

wool has been carded sufficiently when it completely covers the entire square of the towcard with a fluffy mat approximately 1/4 inch thick. At this point the Mixtec woman makes one more motion with her towcards, rolling the carded wool into an oblong roll approximately 2 inches in diameter, which eliminates the first spinning of the Navahos. This motion is called "European" by Reichard (1936:206) and is another indication of the Spanish influence in the introduction of the use of the towcards.

The next step in the preparation of the wool is spinning, which Mixtec women still accomplish by the use of a weighted spindle. (See Figure 5.) Spindles are purchased from one of the coastal Mixtec towns, probably Jamiltepec, which is known as a spindle-making center. (Cordry 1968:31) To spin, the spindle is held near the top by the right hand while the base of the spindle is rested at the spinner's side in a bit of broken crockery or a small gourd. The spinner takes the carded rope from her woven palm basket and attaches it to the end of her spindle by twirling the spindle and catching a bit of the wool. Depending on the type of use to which the yarn will be put, the wool is stretched and spun either tightly or loosely.

The wool is held in the left hand between the thumb and first and second fingers, with the palm of the hand turned up. The thumb is pressed against the fingers firmly in order to pull the staple as tight as it needs to be held in a

...contest between a slightly jerking pull combined with the turn of the spindle downward and a firm stretch, as evenly distributed as possible, of the wool upward.

Reichard 1936:17

When the spindle has been filled the wool is rolled off into a ball and the process is repeated until all the wool has been spun. If the wool is to be used for the warp it will be stretched tautly in the spinning so as to have a fine, tight thread that is hard and strong. The warp threads will have to bear great strain in the weaving, so the spinner aims to make her thread resistant to breaking by tight and regular spinning. Both the warp and weft threads of Mixtec women's skirts are of finely spun.

yarn, while the weft threads for men's blankets may be of fine, medium, or loosely spun wool. The fine weft threads for a man's blanket are generally used for the herringbone or chevron patterns, while medium weft threads are used for plain weaving and figures. A soft and thicker blanket can be made by using weft thread which has been spun loosely. Mixtec women say that this type of blanket is the most difficult to weave since the thread breaks more readily.

One more step is necessary in the preparation of the wool if colors are to be used. The art of using herbs for dyeing has been lost in Peñoles, so commercial aniline dyes are used to obtain the shades of red and orange which are the preferred colors for stripes of the single line of color which is almost invariably placed one hand's width from the ends of a man's blanket. It is possible that this preference for a purply-red shade is a remnant from the days when red shades were obtained by the use of cochineal.

Extant copies of the Mixtec Codices show elaborately and colorfully garbed individuals in former times.

Men wore breechcloth, shoulder cape, and the henequen or cotton mantle. There were marked differences in dress depending on individual rank. Rulers, priests, and the nobility wore the more elaborate and richly appointed garb. On ceremonial occasions the apparel of the aristocracy was brilliant with all manner of feather work, brightly colored embroidery and tapestries, gold and precious-stone earrings. Parts of a ceremonial costume were still in the possession of the cacique of Yanhuítlán in 1544-45 and were worn on festive occasions after the Conquest.

Spores 1967:8

The next step before the actual weaving can begin is the preparation of the loom itself. The length of a finished piece is pre-determined by the length of the warp. A man's blanket will rarely measure as much as five feet, whereas a woman's skirt is generally at least eight feet long. Measurements are approximate since a woman measures so many times from the point of her elbow to the end of her middle finger, usually four times for a man's blanket and seven or eight times for a skirt. Garments for children are proportionately smaller.

The warp is wound with a figure-eight motion around five stakes set in the ground. The figure-eight motion automatically creates two sheds and facilitates the rest of the preparatory work. Any skirt or blanket (except for those of smaller children) will require that two identical pieces be woven and then sewn together, as this loom is designed for use by a seated weaver who will stretch out her arms on either side to insert the bobbin holding the weft, thus limiting the width of each piece to about 28 to 30 inches. Usually only one warp is prepared at a time.

The warp is held in place on the upper and lower loom bars by means of two strands of two- or four-ply twining thread which are twisted in and out around each warp thread. Uniform width of the entire piece is maintained by a small rod of cane which is fastened to the warp lashing next to the breast beam and moved periodically as the piece is rolled onto the lower loom bar.

Mixtec women will set up their looms with only two sheds to make either a skirt or an unpatterned blanket. These two articles when completed present a very different appearance, however. For a skirt a woman uses two colors in her warp, brown and white. The weft is all brown, and the completed garment has the appearance of a tweed. The warp color of an unpatterned man's blanket will have the same color as that of the background or the warp may be of white wool and the weft of a dark brown or a grey. A stripe of color may be added by using a bobbin of a different color or figures may be produced by the use of bobbins with different colors of yarn. Differing from women's skirts, the warp color generally does not show except in the fringe at the ends of the blanket. Unpatterned blankets are generally made of more loosely spun yarn and are beaten down firmly with the batten after each pass of the bobbin and change of heddle.

A more skillful weaver will set up her loom for more sheds by the use of as many as three heddles and three shed rods. By arranging the heddles in different manners she is able to achieve plain twill and diamond twill effects. Peñoles Mixtec women do not make double cloth.

To take the wool from the back of the sheep and place it

on the back of man requires approximately three to four months of a woman's spare time. For this reason many of the younger women no longer use the woolen skirt but have bought simple cotton dresses in the Oaxaca market. Those who have done so do not present the attractive and graceful appearance of the women who still wear the old-style enredo. (See pictures of the Peñoles Mixtec native dress in Cordry 1968:283-87. Note that the name of the village is given incorrectly in Cordry. The ladies pictured are personal friends of mine. Doña Alberta is not wearing "modern Mixtec dress" but rather the Zapotec costume from the Valley village where she lives with her daughter who married a Mexican.) Since men's blankets are used as a covering at night as well as by day, they are still in general use.

Many younger women are not learning the art of weaving. Some older widows in the village earn their livelihood by spinning or weaving for others and the younger women evidently expect to buy any woven goods either from them or in the market in Oaxaca. It is possible that the art of spinning will last longer than that of weaving, for some of the younger girls are learning to knit and may still find use for the homespun yarn.

At present the Peñoles Mixtec women have no commercial outlet for their weaving. Weaving is widely practiced in the entire state of Oaxaca, and many garishly colored and patterned blankets glut the tourist market. The subdued natural colors of Mixtec blankets do not attract the eye so quickly, but they would be easier to live with for a longer period of time and except for the one line of color near the ends of a blanket, would not fade.

Most blankets and skirts are woven for personal use. Because of the general poverty of the people, it has been impossible to interest any woman in investing either time or wool in such a speculative venture as weaving articles for the tourist trade. However, unless an outside market is found for Mixtec weaving, it may become a lost art within the next generation.

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