

WEAVING IN THE STATE OF
GUANAJUATO, MEXICO

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WEAVING IN THE STATE OF
GUANAJUATO, MEXICO

THESIS

Presented to the Graduate Council of the North
Texas State Teachers College in Partial
Fulfillment of the Requirements

For the Degree of

MASTER OF SCIENCE

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Oklahoma City, Oklahoma

August, 1946

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CHAPTER I

INTRODUCTION

Statement of Problem

Reason for Selection.--During a summer spent with the North Texas State Teacher's College field school in Guanajuato, many opportunities for the study of native crafts presented themselves. Of all the crafts, that of weaving was chosen as one which is a vital part of the everyday life of the people and one which reflects the cultures of different groups which have occupied this territory.

The Indians of various tribes had made cloth and baskets for centuries, using the materials which were available, and gradually adding to their knowledge through experience, passing on from generation to generation the secrets that had been learned. With the Spanish Conquest came a change in the habits of the people, beginning with their religion, and extending gradually into even the most humble of their tasks.

Guanajuato is a state which might be called typical of all Mexico in its production of woven materials and objects, both in quantity and in quality. Although the name of Guanajuato is not so well known in connection with weaving as others, such as Oaxaca, or the Saltillo of earlier times, its looms produce articles beautiful in color and texture which record changes which have taken place in weaving techniques through the years. With the Conquest new machines and new materials were

introduced, and the natives quickly adapted them to their needs. As they gradually accepted new ways, they developed other needs for textiles than those known before.

It is with these changes that this thesis deals. What were the changes? How were they brought about? These have been studied as they present themselves today in the state of Guanajuato, Mexico.

Scope of the Problem.--In this study the weaving of today is considered both as a craft and as an industry which plays an important part in the everyday life of the natives of Guanajuato. Chapter I describes the state of Guanajuato in regard to its location, the early tribes occupying the territory, and its present population. Chapter II presents a discussion of the place of weaving in the cultural pattern from before the Conquest until the present day. Chapter III is a description of the animal and vegetable sources of fibers and dyes used in Guanajuato--the ingredients from which a woven article is made. The spinning techniques from pre-Conquest to present times are discussed in Chapter IV. Chapter V describes the looms on which cloth and woven articles are made. In Chapter VI the different types of organization for the production of weaving and the articles produced by each are explained. Chapter VII deals with plaiting, a craft closely related to that of weaving, and one which is used by the natives in the making of many useful as well as beautiful objects. In Chapter VIII a summary of the study is given and conclusions are presented.

Sources of Material.--Extensive research in the libraries of

North Texas State Teacher's College, El Universidad de Guanajuato, Central State College (Oklahoma), the University of Oklahoma, Oklahoma City University, and the Oklahoma City branch of the Carnegie Library made possible a presentation of historical information concerning the State of Guanajuato and the tribes of Indians which occupied it before the Spanish Conquest. The techniques of spinning and weaving, the sources of material, and the machines in use today were studied through observation and by conversation with natives of the state. The description of woven articles was made after examining those produced in different sections of the state, and by watching the creation of many of these.

The information and illustrations present in a concise form the data gathered from reference sources and first-hand observation, with photographs, drawings, and diagrams to clarify the descriptions.

Location of Guanajuato

The State of Guanajuato, in the south-central part of the Republic of Mexico, is bounded on the north by Zacatecas and San Luis Potosi, on the east by Querétaro, on the south by Michoacan, and on the west by Jalisco. The state lies wholly within the limits of the great central plateau of Mexico and has an average elevation of about 6,000 ft. The surface of its northern half is broken by the Sierra Gorda and Sierra de Guanajuato but its southern half is covered by fertile plains largely devoted to agriculture. It is drained by Rio Grande de Lerma and its tributaries, which in places flow through deeply eroded valleys. The



Fig. 1.--Map of the state of Guanajuato

climate is semi-tropical and healthful, and rainfall is sufficient to insure good results in agriculture and stock-raising. The capital of the state, the city of Guanajuato, is about 180 miles north-west of Mexico City (see Fig. 1).

Prehistoric Indian Tribes Occupying Guanajuato

Until recent years comparatively little was known about the prehistoric tribes in Mexico, but archaeologists are gradually adding to our knowledge of these peoples. Among the tribes occupying this region either consecutively or at the same time were the Otomies, Toltecs, Chichimecs, Aztecs, and Tarascans. According to a publication of the Pan American Union, one of the most important of the long-settled tribes was the Otomí group.

The Otomies are found occupying in the seventh century an extensive region in Central Mexico, coinciding with the present States of San Luis Potosí, Guanajuato, Michoacán, Mexico, Querétaro, Morelos, Tlaxcala, Puebla, part of Veracruz and Hidalgo. Their civilization was of the most primitive description. Their descendants are numerous to this day in the states mentioned, and in the more remote districts,¹ the Otomí tongue is used by them to the exclusion of Spanish.

There is some disagreement regarding whether the Otomies migrated from the north before the Toltecs;² or whether they were an autochthonous people "whose earlier possession of the central plateau region had been successfully combated by the Wauhatlan predecessors of the Aztecs [Toltecs]."³

¹Pan American Union, Mexico, A General Sketch, p. 37.

²C. Reginald Enock, Mexico, p. 24.

³Herbert Ingram Priestley, The Mexican Nation, A History, p. 17.

Whichever may be the case, the same territory that had been occupied by the Otomies was overrun by the Toltecs (Toltecas), a much more advanced race than the Otomies. The Toltecs established their capital at Tollan, identified with the present town of Tula, and ruled until they were overthrown.

The annals of the Toltecs have furnished a starting point for the ancient history of Mexico. Their wanderings as recorded in their codices are summarized in Mexico:

They [Toltecs] composed a semi-civilized nation inhabiting a country called Huehuatlappallan, toward the north of the continent, where they built cities and temples and were versed in agriculture, the arts and the computation of time. Owing to civil disturbances, the Toltecs, with a number of the neighbors, were expelled about the middle of the sixth century from their country and began their wanderings southward, founding cities on the way. One hundred and more years later they reached the site of Tula . . . where they laid the foundation for their powerful kingdom.⁴

The Toltecs derived their name from Tula or Tollan, which was only one of several cities that were prominent during the Toltecan period. It is not definitely known now whether all these cities were ever bonded into a political whole. Thompson believes the Toltecs may have been a federation of tribes with two capitals--Tula, the civil capital; and Teotihuacan, the religious capital.⁵

Lehmann tells us Sahagun in his Historia de los Reynos de Colhuacan y de Mexico dates the destruction of the Toltec realm at about 600 A. D. Their most prosperous period would have been some time before

⁴Pan American Union, op. cit., p. 37.

⁵J. Eric Thompson, Mexico Before Cortez, p. 22.

this. According to Sahagun, the commencement of the reign of the Toltecs should be placed at 429 A. D. Both archaeological and linguistic facts support this chronology.⁶ Spinden places the Toltecan culture at a much later period, giving 895 A. D. as the date when they moved their government to Tula, and the year 1064 as the date of the destruction of that city.⁷ This difference of opinion in regard to chronology results from different interpretations of dates recorded in the Toltec calendar.

About 1064 A. D. the Toltecs were overcome by invaders from the North. Although history relates that the invaders were almost barbarians, modern opinion grants them a fair degree of culture. Thompson says:

With the destruction of the Toltec federation, the component peoples relapsed into independence. The remnants of the Nahuatl-speaking Toltecs appear to have gathered at Cholula and in the territory of Tlaxcala with other settlements in the direction of the east side of Lake Texcoco, probably amalgamating with the original inhabitants. If the Toltecs were, indeed, Otomi-speaking, the change to the Nahuatl language probably took place at this time in the south, while in the general direction of Tula they would seem to have retained their own language.

These invaders were known as Chichimecs. The term "Chichimecs" is a collective one for a number of tribes and was applied by the more civilized tribes of the Mexican highlands to those nomads who dressed in skins and hunted with bow and arrow. Linguistically the Chichimecs

⁶Walter Lehmann, The History of Ancient Mexican Art, Vol. VIII of Orbis Pictus, the Universal Library of Art, p. 15.

⁷Herbert Joseph Spinden, Ancient Civilizations of Mexico and Central America, p. 155.

⁸Thompson, op. cit., p. 22.

were divided, some speaking Nahuatl dialects, while others spoke Otomi. According to Lehmann all the Mexicans who migrated into the country from the northern districts were called Chichimecs.⁹

Spinden describes the rise and fall of the Toltec Empire as a political rather than a military change:

Possibly through having been reduced in war certain of these wandering groups [Chichimecas] were drawn into civilization and when the Toltec cities began to decline, they advanced to considerable power and prestige. In fact, the Aztecs may be considered as originally Chichimecan, although several other tribes got an earlier start. In later times, these city-broken nomads looked back with considerable pride on their lowly origin.

.....
 We have already seen how the splendid culture of the Toltec cities broke down under the weight of decadence and civil war during the twelfth and thirteenth centuries A. D. . . . But the sturdy Chichimecas made rapid progress. Texcoco became their most prominent city only to be eclipsed by Tenochtitlan, the island capital of the Aztecs.¹⁰

The Aztec, or Mexican tribe, whose annals claim the greatest interest in the history of Mexico, was the last of seven original tribes of the Nahuatl family to reach the valley. The relation of the Aztecs to the Toltecs has been compared with that of the Romans to the Greeks. They were great copyists, and soon took up the culture which was already established.

Teja Zabre says of the Aztecs: "The influence of some great leader (Tenoch); their language, the rise of priestly and warrior castes; a united front in the face of danger and need; military discipline and an

⁹Lehmann, op. cit., p. 13.

¹⁰Spinden, op. cit., p. 183.

organization that began by division of labor and tasks, all this was so to speak, the foundation of their nationality."¹¹

From the beginning of the tenth to the beginning of the thirteenth centuries A. D. the Aztecs wandered southward.¹² They had to make their way through other tribes, ever seeking favorable climates, trails, fording-places at rivers, and points of least resistance as regards other tribes that had preceded them. They had to stop on their way to procure food by fishing or by letting themselves out as soldiers to other tribes.¹³

After several years of wandering they established their capital at Tenochtitlan, and at the time the Spaniards arrived, were in control of nearly all of Mexico, except for Tlascala on the western slope of the Eastern Sierra Madre and eastern part of the plateau of Anahuac, and the Tarascan territory in and around Michoacan.

The Tarascan capital was located on the shore of Lake Patzcuaro at Tzintzuntzan, which means "Place of the Humming Birds"; and their territory extended over nearly all of what is now Michoacan, and into Guerrero, Jalisco, and Guanajuato. They were completely surrounded by Nahuas and Otomies, and are often spoken of as a branch of the early Nahuas peoples, left behind in the legendary migrations of the stocks which ultimately settled in the lake region of the Plateau of Anahuac. They are by Friestley considered to have been earlier comers than the Nahuas, and perhaps to have transmitted their culture to the latter.¹⁴

¹¹Alfonso Teja Zabre, Guide to the History of Mexico, p. 73.

¹²Snook, op. cit., p. 27.

¹³Teja Zabre, op. cit., p. 72.

¹⁴Friestley, op. cit., p. 18.

The ancient history of the Tarascans is little known. They spoke a very singular agglutinating language. They were one of the few tribes who did not sacrifice human beings in their religious rites. Archaeologically, the style of their ceramics shows connections with primitive Otomí types.¹⁵

These, then, were the tribes that had occupied the territory of the present state of Guanajuato: the Otomies with their own language and primitive customs; the Toltecs, whose culture has become the measuring rod for all Mexican civilizations; the Chichimecas, who overpowered the Toltecs; the Aztecs, who were the Romans of the western hemisphere; and the Tarascans, a tribe with their own language and religion.

Present Population of Guanajuato

The first Spaniards who penetrated the state were the conquerors of Acámbaro; among the conquerors was the cacique of Jilotepec, Nicolás Montañez de San Luis, a near relative of Montezuma. In 1526 the adventurers apportioned out among themselves the districts of Acámbaro, Jerécuaro, and Coronéo. In 1531 Nuño de Guzman passed through Pénjamo to the vicinity of the site of Guanajuato and added the territory to his conquests.¹⁶

The natives soon became dissatisfied with their new masters, and they carried on a long and relentless war against them. It was not

¹⁵Lehmann, *op. cit.*, p. 11.

¹⁶Hubert Howe Bancroft, History of Mexico, Vol. IV, from The Works of Hubert Howe Bancroft, Vol. XII, p. 130.

until 1593 that peace was finally established between the Spanish and the Chichimecs. It was Rodrigo del Río, who, in the name of the King of Spain, "promised to supply the Indians with food and clothing on the conditions that they should tender allegiance and keep in subjection to the refractory. At the same time the viceroy caused to settle there some Tlascaltecs and Aztecs, who instructed the Chichimecs in agricultural and mechanical industries, all under the guidance of missionaries."¹⁷

After the discovery of silver in 1557 the state rapidly increased in population. The capital city, for instance, grew from 4000 in 1600 to 16,000 in 1700, and nearly 100,000 in 1741, when it became a city.

Concerning the present-day Mexican, Mason says:

The Mexican of to-day has the blood of more races in his veins than any other American. Iberian, Semite, Hamite, Goth and Vandal, Roman and Celt, mingled their blood in that stream of brave and adventurous men who first set eyes on Yucatan in 1517, and who conquered Mexico in 1522. Like Spain from the remotest time, Mexico soon became the meeting-ground of races, of peoples, of languages, and of religion. Within the area of its original territory there were more families of native languages than in all the Western Hemisphere besides; and, to complete the chain, there were more kinds and grades of culture there.¹⁸

Although statistics on the racial types of Guanajuato are not available, those for the country as a whole may be taken as fairly indicative of the proportion of White to Indian in that state. The statistics most commonly quoted are 10 per cent Spanish, 60 per cent Indian, and 30 per cent mixed.¹⁹ Terry, however, gives a different grouping:

¹⁷ ibid.

¹⁸ T. Phillip Terry, Terry's Mexico, p. lxi, quoting Otis T. Mason, Mexico.

¹⁹ Sydney Greenbie, Next-Door Neighbor, Mexico, p. 48.

"Of the total population 20 per cent are of Spanish (or other white or near white) extraction, 43 per cent are mixed, and 38 per cent are of pronounced Indian lineage."²⁰ It is in the cities that one finds the haughty aristocratic Spaniard and in the country the graceful Indian. Many groups of these Indians have held to their own group names, languages, and customs, excellent examples of these being the Tarascans and the Otomies. Between these lies the great group of mixed blood, the Mestizos. Betty Kirk describes the mestizo in this way:

He is the spinal cord which unites the intellectual Spanish head with the powerful Indian body, the nerve center from which vibrates the intensive, dynamic activity of his land. All of the best and worst in Mexico is found in the Mestizo.

. . . At his best he possesses both the cultivation of the aristocrat and the philosophy of the Indian. At his worst he possesses neither. He is the great middle class, created since 1910, the strongest bourgeoisie and the most important political group found anywhere in Latin America.²¹

Living conditions among the common people of Mexico are very different from those of the average family in the United States. Someone has said that the American home is full of light and laughter, and the Mexican home is dark and silent. It is truly dark, built of adobe with few or no windows. West gives this description of a typical Mexican home:

Despite their protests, Señora Morales started frying corn cakes. She cooked them over a charcoal fire because her kitchen had no chimney. There were only two rooms in the house. Both of these had earth floors. The only furniture was a few hand-made chairs and a bed. The latter was really a woven straw mat. This was stretched between four posts driven into the floor and was covered with several good thick blankets.

²⁰Terry, op. cit., p. lx.

²¹Betty Kirk, Covering the Mexican Front. pp. 17, 18.

"But we have electricity," said Marina shyly as she saw the visitors looking at these things. And she pointed to a light bulb which dangled on a wire from the ceiling.²²

Greenbie tells us: "Two thirds of the people live on the land, with their burros, chickens, goats, and pigs, in houses which they have built themselves."²³ In the cities one finds some very good homes built on the Spanish style with open patios and gardens. In these, too, charcoal is used for cooking; electricity and running water are found in all the larger towns and cities. The poorer city-dwellers live in tenement-like houses built around a large patio which is used by all; or in small, dark, adobe houses at the edge of town.

The Mexican of today, whether Indian, Spaniard, or Mestizo, is a combination of many ways of life. The customs of early tribes are mixed with those of Europe in a strange way, along with new habits unknown to either source a few years ago. This mixture of cultures is evident in woven articles made and worn by the people just as it is in all other aspects of their society.

²²Wallace West, Our Good Neighbors in Latin America, pp. 358, 359.

²³Greenbie, op. cit., p. 70.

CHAPTER II

WEAVING IN THE CULTURAL PATTERN

Prehistoric Weaving

Weaving in Mexico is one of the oldest of the craft arts, having been produced by some tribes as far back as records of their culture go. We are able to learn something of early Mexican weaving in the Guanajuato region from the codices of the Toltecs and the Aztecs. These pictographic writings recorded not only the history, laws, and principles of mythology, but the transactions of daily life, the accountings of merchants, and the purchase and ownership of land. There were considerable quantities of this literature until the first Archbishop of Mexico--Zumarraga--had most of them collected and burned as scribblings

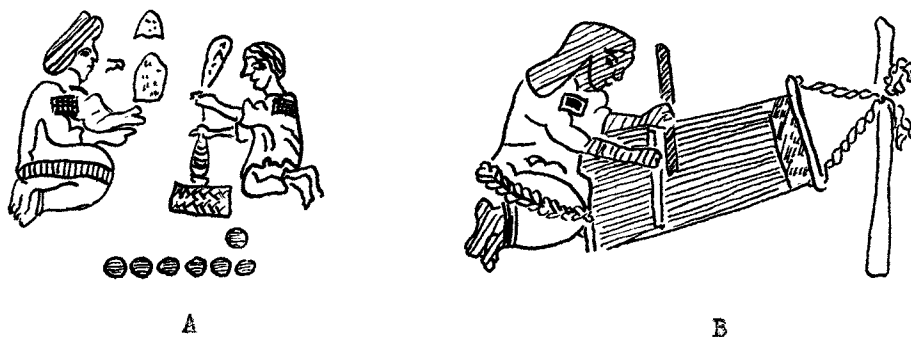


Fig. 2.--Spinning and weaving as recorded in the codices. (A) Girl learning to spin, age 7 years; daily ration a loaf and a half. (B) Woman weaving, from Mendoza MS., Oxford.¹

¹Thomas Athol Joyce, Mexican Archaeology, pp. 161, 148.

of the devil. Those in existence today have been named from their discoverers, from their present location, or from some historical fact connected with them. Figure 2 shows methods of spinning and weaving as recorded in the codices.

At the time of the Conquest the art of weaving was highly developed. The Mexican women could spin both with the fingers without mechanical help, and by means of spindles.² Joyce says:

Good polychrome weaving was performed by the Otomí in maguey fibre, and the Tarascan and Huastec ranked high as textile artists. The Tarascan women were said to prepare food for a couple of days before starting to weave, so that they might not be disturbed at their tasks. Weaving and embroidery were under the especial patronage of the goddess Kochiquetzal. Mat- and basket-making was also an important industry, though of these arts also specimens are lacking. However, the use of mat seats was a privilege of rank, though perhaps less so than in the Maya region, and the mat-makers paid reverence to a special patron-deity, Xapatecutli, one of the Tlaloque.

.....

The following garments were considered more or less characteristic of certain peoples; white cloaks with figures of scorpions in blue of the Toltec; striped textiles of the Otomí; duck-feather cloaks of the Tarascans. . .³

In describing the people who greeted the conquistadors, Terry says in regard to their woven articles:

The tilmantli, or cloak, thrown over the shoulders and tied around the neck, made of cotton of different degrees of fineness, according to the condition of the wearer, and the ample sash around the loins, were often wrought in rich and elegant figures and edged with a deep fringe or tassel. As the weather grew cool, mantles of fur or of the gorgeous feather-work were sometimes substituted. The latter combined the advantages of great warmth and beauty. The Mexicans had also the art of spinning a fine thread of the hair of the

²Pan American Union, op. cit., p. 26.

³Joyce, op. cit., pp. 149, 150.

rabbit and other animals, which they wove into a delicate web that took a permanent dye.

The women wore several skirts or petticoats of different lengths, with highly ornamented borders, and sometimes over them loose, flowing robes, which reached to the ankles. These, also were made of cotton, for the wealthier classes, of a fine texture, prettily embroidered.⁴

From these descriptions we know that prehistoric, or pre-Conquest, weaving was a highly developed art, although the mechanical appliances used to produce it were not so elaborate as those in Europe.

Effect of the Conquest on Weaving Techniques

Although weaving was not affected as greatly by the Conquest as were some of the other arts, definite changes did take place. These changes might be classified under three headings: (1) new machines, (2) new materials, and (3) the need for new types of weaving which were due mainly to the change in religion.

At the time of the Conquest the natives were spinning and weaving much as they had been doing for thousands of years. "Twining, twisting, spinning, yarn-making . . . were begun in savagery by rolling a small bundle of fibres or a narrow strip of bast between the palm of the hand and the thigh, after the fashion in which the cobbler untwists his thread to break it."⁵ Later, the spindle was adopted and it was the principal method of spinning in use at the time of the Conquest.

The method of spinning which the conquistadors introduced was on the Jersey wheel, a machine which had been invented early in the fourteenth century. The popularity of this new method of spinning in

⁴Terry, op. cit., p. clxv.

⁵Ibid., p. clxv.

Mexico has increased through the years, until today there are only a few places where the old spindles are used to produce yarn.

The loom of pre-Conquest times was a very simple affair of sticks and strings. One end was fastened to a tree or post and the other to a belt about the weaver's waist. Although the cloth produced on these was very fine, its production took a great deal of time and skill. It was impossible, too, to produce a very wide piece of cloth with this loom. The loom which the Spanish introduced is referred to by a number of names, the most common of which is the upright loom. It was a two-heddle hand loom which was operated by foot power. This loom is now used in nearly all sections of Guanajuato, and on it are produced the well-known sarapes,⁶ a few of the rebozos,⁷ and hand-made cloth.

The second change brought about by the Conquest was the change in materials. The natives were using cotton, henequen, and maguey fibers in their weaving as well as many kinds of reeds, rushes, and palm leaves for mat- and basket-making. They used feathers a great deal, and to a very small extent they spun and wove the wool of rabbits. Sheep, however, were unknown in America until they were brought by the Spanish. Today wool is one of the most important of the textile fibers in all parts of Mexico. It has been adapted to use on the native loom as well as on the upright loom. The Spaniards also introduced a few dyes, although they in return learned of many which had not formerly been known in Europe.

⁶For description of the sarape see Pages 18 and 56-60.

⁷For description of the rebozo see Pages 18 and 61-63.

The third change was in the style of the articles which were woven. This was perhaps the most far-reaching of all the changes in weaving, and it increased the changes in machines and materials. Today the two most common articles in Mexico are the sarape and the rebozo, both of which had their beginning after the Conquest. The sarape was derived from a combination of the Aztec tilma, a cloak fastened at the neck by a knot, and the Spanish-Arabian manta or travel blanket.⁸ This sarape, which is the main article of clothing for the man, is a woven blanket with a slit in the center so that it may be worn over the shoulders. By day it is an overcoat or raincoat, by night a blanket. If the day is too warm for the sarape to be worn, it is folded and carried over the shoulder as an ornament.

The rebozo, a shawl which is as important to the Mexican woman as the sarape is to the man, apparently had no counterpart before the Conquest. The Spaniards seem to have introduced it because of the necessity that a woman cover her head with something soft in the Christian churches. No Mexican woman of any class ever wears a hat in church.⁹ Rebozos were woven on the upright loom until machine-made cottons came into common use, and many of those made today are still woven in this way.

Place of Weaving in the Contemporary Cultural Pattern

Traditional ways of doing things sometimes prevent changes. Mexico is fast becoming modernized, but the people still make with their own

⁸Museum of Modern Art, Twenty Centuries of Mexican Art, p. 109.

⁹Frances Toor, Mexican Popular Arts, p. 36.

hands most of the things they need. Some of the most beautiful pieces of weaving are those which are made at home for home consumption--not to be sold. Today, as in years past, weaving is one of the most important mediums of self-expression, providing the Mexican with an opportunity to make something which is useful as well as beautiful. In many homes the loom is considered as necessary as it was in America during the time of the Pilgrims. Children learn at an early age to card and spin wool, and to weave. Even those articles of clothing such as sarapes, if they are purchased from the weaver, are made by hand. Each section of the country has a different type of weaving, but even in the same town, or the same shop, no two pieces are ever exactly alike. Each article is a creation--whether good or bad. Fine embroidery, drawn work, lace, etc. are made and appreciated by the women of all classes.

As a means of creative expression, weaving is as important today as it was in the earliest times. With the Conquest came changes in the weaving techniques and the articles produced, but these changes did not affect the importance of weaving as one of the craft arts.

CHAPTER III

ANIMAL AND VEGETABLE SOURCES OF MATERIAL FOR WEAVING

The supplies or materials with which the weaver works are of two kinds--the strands or fibers of which the woven article is made, and the dyes with which these fibers are colored. Nearly all the vegetable fibers in use in Mexico today are native to that country. Vegetable and animal dyes are also indigenous to the country. Many of them were in use long before the Conquest and were better than those being used in Europe at that time.

Cotton

The manufacture of cotton goods is among the first industries of Mexico, both in point of time, and in importance. There are many traditions as to the ancient use of cotton by the Toltecs and Aztecs, including a notation in the annals of the latter when they adopted cotton garments in place of those of skin. The Aztecs also collected cotton seeds as tribute from the inhabitants of the lowlands, who had no gold or precious stones. "As to the Toltecs, it was entered in their sacred book that Quetzalcoatl, god of the air, grew cotton of all colors in his gardens, and taught them its many uses."¹ Quilted armor of cotton was so effective as protection against the arrows of the Indians that the Spaniards adopted it for themselves.

¹Terry, op. cit., p. 102, quoting F. A. Ober, Travels in Mexico.

Cotton has never been grown in Guanajuato, although it has always been used extensively by the native weavers. In prehistoric times as at the present it had to be imported. Most of the cotton used here now comes from Durango in the "Laguna" region, where cotton is perennial and does not have to be planted oftener than once in ten years. This region, which includes the states of Chihuahua, Coahuila, Nuevo Leon, Tamaulipas, Zacatecas and San Luis Potosi, as well as Durango, produces 90 per cent of the cotton grown in the Republic.²

The Pan American Union gives the following description of the cotton of the "Laguna" region:

The fiber is of good length and strength; thinner than that of American cotton, less silky and not so clean. The plant suffers from certain pests, of which the conchuela is perhaps the most common, and the "boll weevil," the principal pest of cotton-growing countries. The "boll weevil" came originally from Mexico and crossed thence into Texas, but the Laguna District, being high and dry, and depending largely upon irrigation for water, has hitherto been encouragingly free from it. Information on methods of pest extermination is freely given by the Government to cotton growers.

.....
 Cotton is baled under pressure of 3,000 to 4,000 pounds (1,360 to 1,847 kilos.), square bales of about 500 pounds (226.79 kilos.) each resulting. As in the United States, buckles are used in baling, so that methods in the two republics are similar. Planting takes place in March (in the Laguna district, at least), and picking begins normally toward September.³

Cotton is shipped into Guanajuato by rail or by bus. Large quantities are used in the mills located in the state.

²Pan American Union, op. cit., p. 95.

³Ibid., pp. 95-97.

Wool

Wool is the youngest of the more important textile fibers in Mexico, being unknown until sheep were brought to America by the conquistadors. At the time of the Conquest, Spain was the leading wool-producing country of the world. The Merino, one of the most important breeds of sheep, was developed there:

About 200 B. C. the Romans bred Tarentine sheep known for their fine, long staple wool. Columella, in de Re Rustica, states that his uncle, who was a farmer in Spain, experimented in the crossing of Tarentine ewes with African rams. The Tarentine sheep were either black or dark brown, and the African rams were white. The cross resulted finally in a sheep of snowy coat, whose wool was finer than any that had yet been known. These sheep, known as Spanish Merino, were bred all through the Middle ages and were imported into France by Louis XIV.⁴

In 1541 Merino sheep were brought to America, and the Indians were encouraged to make cloth from their fleece. At the present time there are probably not fewer than 5,000,000 sheep in Mexico. It has been found from experience that sheep thrive best on the great central plateau, where they are practically free from disease and from predatory animals. Every year numbers of Merino rams are imported to help maintain the stock. The wool produced is somewhat coarse, not equal to the best elsewhere, and it could be improved, as farmers are endeavoring to do.⁵

Guanajuato contains a great deal of good pasture, very suitable for sheep. Bancroft says: "In the territory lying within and without

⁴"Textiles" Standard American Encyclopedia, Vol. XIII

⁵Pan American Union, op. cit., p. 123.

the plateau, from an elevation of 5,000 feet above sea level, most of the pasture is of the kind known as *tiernos*, or tender, that is to say, small grass which sprouts, grows, dies, and deposits its seed within the year. Stock thrives upon it, for it is extremely nutritious. . ."⁶

Lying in the mountains as it does, Guanajusto offers the advantage of spring pasture through the summer by simply driving the herd higher as the grass is eaten, or grows more tough. In the fall the sheep are brought down into the valleys. Very small herds are sometimes kept in towns and driven out every day to graze on the nearby hills. Often one shepherd will watch a flock which is made up of sheep belonging to many different owners. In the evening, each sheep is returned to its owner for the night.

Once or twice each year the sheep are sheared. The fleece is cut in one piece from tail to head, usually by means of hand shears. The fleece is beaten to remove dust and dirt, and the burrs, leaves, and other foreign matter are removed by hand. The wool is then washed, and spread to dry in the sun, which bleaches it slightly. The prepared wool is packed in large sacks, holding about 500 pounds, and shipped to the factory or weaver to be spun, dyed, and woven. In the smaller towns the weaver quite often owns his own flock and prepares the wool himself.

Maguey

The maguey in Mexico is first mentioned in the mythology of that country, the Aztec word for it being Metl. The word probably came from

⁶Hubert Howe Bancroft, Resources and Development of Mexico, p. 211.



Fig. 3.--Young maguhey plant growing wild near the city of Guanajuato.

the same root as the name of their god, Mexitl, from whose name the word Mexico is derived. Maguhey belongs to the botanical genus Agave, of the family Amaryllidaceae, and is known as Agave americana. Common names for it are American aloe, and century plant--the latter name arising from the false idea that it flowers but once every hundred years. It matures slowly, taking from five to sixty years to flower. Figure 3

shows a young maguhey plant as it appears in a wild state. The Encyclopaedia Britannica gives this description:

The plants have a large rosette of thick fleshy leaves generally ending in a sharp point and with a spiny margin; the stout stem is usually short, the leaves apparently springing from the root. They grow slowly and flower but once in a number of years, when a tall stem or "mast" grows from the centre of the leaf-rosette and bears a large number of short, tubular flowers. After development of fruit the plant dies down, but suckers are frequently produced from the base of the stem which become new plants.

Terry says:

No vegetable product of the Mexican plains is so imposing as the maguhey, and the Greek word agave (noble) is fittingly applied to it. From the equitant leaves, juice, and roots of the different species, a variety of products are obtained: paper, vinegar, molasses, and whatnot are made from the pulp; and twine, thread, and many articles are made from the fibers. The fine fiber called pita (a name often applied to the plant) makes very serviceable rope, which, though less pliable than hemp and less impervious to water, is strong and durable enough for many purposes. Some of the most valuable Aztec manuscripts

⁷"Agave," Encyclopaedia Britannica, Vol. I, p. 343.

were written or painted on paper made from the maguey, and this parchment was long considered the equal of Egyptian papyrus. Certain of the plants attain enormous size, and from the hard, spiny, green-and-white leaves--usually tipped with sharp thorns, or espinas--the natives obtain a satisfactory needle and thread by stripping off the thorns, pulling out the attached fibers, and rolling them together.⁸

The plant thrives best at an altitude of 7000 feet, but it grows prolifically at lower altitudes, taking longer to develop. Because it is so well acclimated, and is such a hardy plant, the maguey requires practically no cultivation. It is planted in rows about 10 feet apart so that each plant will have room to grow, and left to develop in its own way.

In preparing the fiber the leaves are first cut, the larger outside leaves being the first ones removed. The fiber is removed by decortication, in which the succulent pulp which covers the filaments is removed by scraping.⁹ The work of gathering and preparing the fiber is disagreeable, and there is difficulty in obtaining labor for it. After being dried, the fiber is spun and made into rope and string, or woven into cloth. In ancient times this cloth was known as nequen, and it and the coarser kinds of cotton were the materials with which the poorer classes clothed themselves.

There are many uses for maguey fiber. Most of the market bags of Guanajuato are woven of maguey which has been dyed in bright colors. A handful of fiber is used for a washcloth or scouring pad. It is also

⁸Terry, op. cit., p. lxxxii.

⁹Herbert R. Carter, The Spinning and Twisting of Long Vegetable Fibres, p. 3.

woven into sieves. Tiny maguey baskets are sold in the markets with other small toys.

Henequen

The henequen plant is an agave which grows only in warm calcareous land. Most of it is produced in Yucatan, and it has been called the "Green Gold of Yucatan." It is one of the most important of Mexico's export products, but a great deal of it is used within the country. As in the case of maguey, the fiber used in weaving is taken from the leaf. The fiber is shipped by boat to Veracruz and from there to all parts of the Republic--usually by rail--and is woven into many useful and beautiful articles. It is a much softer fiber than the maguey, and produces a more pliable, and more closely woven fabric. It is used occasionally by weavers in Guanajuato.

Rushes and Palm Leaves

Rushes of various kinds grow in marshes, or along the edges^s of lakes



Fig. 4.--Tule, a rush used in making petates.



Fig. 5.--Articles made of rushes.

throughout the state of Guanajuato. These rushes require very little preparation to be ready for weaving. They are cut, and brought into the towns on the backs of donkeys. Sometimes they are allowed to dry, although they are quite often used while still green and pliable. Petates are made of a rush called tule which grows very tall, thus furnishing long strands for plaiting. If the rush is to be used in making baskets, it is often dyed, usually in bright greens and purples of commercial dye. Petates are nearly always made of the reed in its natural color. Figure 4 is a photograph of some tule ready to be used. In Figure 5 are a number of small articles woven of rushes.

The leaves of some palms are another source of weaving materials. These are either slit in narrow strips and woven into baskets, or the fiber is removed by a process similar to that used in preparing flax.

Other Materials

Straw and horsehair are weaving materials of minor importance. They are used for toys, small baskets, or decorations. Horsehair is also used in decorating the bands of sombreros and it is sometimes woven into sieves.

Native Dyes

At the time of the Conquest the natives of Mexico were well-advanced in the art of preparing and using dyes. Many of the dyestuffs found there were superior to European dyes in beauty of color and in

durability. These dyes were obtained from plant and animal sources, with alum and niter used as mordants.¹⁰

The most important source of red dye was the cochineal or coccus cacti, a small parasitic insect which gets its name from the fact it feeds on plants of the cactus family. Some fruits were also used to produce different reds. Nearly all blue was produced by use of indigo, a plant native to India, Java, and South America, as well as Mexico.¹¹ This made one of the most beautiful and permanent colors used. Yellow was made from ocher as well as from plant sources. Fustic, a tree commonly called "yellow wood," but known by the botanical name chlorophora tinctoria, was an important source of this color.

Bancroft says:

Among the more important [dye plants] are logwood, pale amarillo, maitle, indigo, cúrcuma, achiote or bixa orellana, orchilla, zacatlaxcala, and cártamo or carthamus. Logwood is indigenous in Mexico, the tree growing spontaneously in Campeachy, Yucatán, Tabasco, Oaxaca, Vera Cruz, and Guerrero. Achiote is abundant in Yucatán, Vera Cruz, Oaxaca, and Chiapas. There are two species, one yielding a deep red and the other a soft yellow; both are used by dyers. Indigo of several species, is frequently found in the tropical region, but the indigofera tinctoria is the only one cultivated. . . In Michoacan it is largely produced. . . Cártamo is raised in Michoacan.¹²

The dyes used by the natives were prepared in a number of ways, depending on the kind of dye and the color desired. Gladys Reichard gives the following description of how the Navajo Indians prepare their dyes. (Since the Navajos learned to use dyes from the Pueblos and

¹⁰ Mary Schenk Woolman and Ellen Beers McGowan, Textiles, A Handbook for the Student and the Consumer, p. 416.

¹¹ Charles Ernest Fellow, Dyes and Dyeing, p. 9.

¹² Bancroft, Resources and Development of Mexico, p. 203.

Mexicans, the general rules were probably about the same among the Indians of Guanajuato at the time of the Conquest):

The rule for making the dyes is quite general. If the part of the plant used is hard, it should be pounded or ground so as to break up the fibers. If it is soft, like petals, bruising is not necessary. The vegetable product thus prepared is boiled in a non-metallic vessel for a longer or shorter time depending on the amount of coloring material, the amount of wool to be dyed, and the shade desired. The concoction is then strained and the clear liquid boiled with "rock-salt", a mineral which contains aluminum. There are several ways to prepare "rock-salt". Many women heat it in a frying-pan to just the proper consistency. They call it "melting". The melting point is very high. . .

After about fifteen minutes the clean dampened wool is immersed in the dye-bath, as always in dyeing, so that it is uniformly wet. The skein of yarn is boiled until the desired shade is attained and is allowed to cool immersed in the dye-bath. When cold, it is washed in suds of the soapweed, thoroughly rinsed and dried.

There are variations on this procedure. Some plants do not require a mordant; some must not be boiled very long; wool should sometimes be dried without rinsing so as to allow for oxidation.¹³

Indigo was used generally over Mexico as a source of blue dye in prehistoric times, but there is no record of how or where the dye used in Guanajuato was made.

Of the insect dyes, the most important was the cochineal. Today this is known as a "grain color," because of the fact that the dried bodies of the insect resemble small grains. They are so small that it has been estimated there are 70,000 in one pound. The word "cocci" (from their name, coccus cacti) means "berries."¹⁴ Early peoples thought of them as berries, rather than insects. The process of gathering cochineal is described in the Standard American Encyclopedia:

¹³Gladys A. Reichard, Navajo Shepherd and Weaver, p. 37.

¹⁴Fellow, op. cit., p. 11.

The gathering of the cochineal is very tedious and is accomplished by brushing the branches of cochineal plants with the tail of a squirrel or other animal. The insects are killed by boiling water, by heating them in ovens, or by exposure to the heat of the sun. They must be speedily killed to prevent them from laying their eggs, which diminishes their value. When killed and dried they may be kept for any length of time without injury.¹⁵

Different woods provided many dyes, some of which are still used in the dyeing industry. Pellew tells us logwood is the most important of all the dyestuffs discovered in America and the only one still used on a large scale.¹⁶ Fustic was also used to produce yellow.

There were a number of ways in which these dyes were used.

Thompson says:

Designs were made by using different colored threads in both the warp and woof, and probably by the use of tie-dyeing in which sections of the cloth to be dyed are tied so tightly that the dye cannot penetrate, and the cloth has a mottled appearance. By extension several colors can be applied to every thread. It is also possible that the batik technique was also used, since a similar method was used in decorating pottery.¹⁷



Fig. 6.--Mexican woman dyeing a hank of yarn.

Commercial dyes have increased in popularity within recent years until at the present time they have very nearly replaced the older vegetable and animal dyes in Mexico. The main reason for this is the simplicity of using them.

¹⁵"Cochineal," American Standard Encyclopedia, Vol. IV.

¹⁶Pellew, op. cit., p. 18.

¹⁷Thompson, op. cit., p. 78.



Fig. 7.--Rolling dyed yarn on shuttle-bobbins.

All that is required is a package of dye, something to mix it in, and a handful of salt to be used as a mordant. The dyes can be purchased in any Mexican town, and there is an abundance of discarded oil cans which are of a good size and shape for dyeing a skein of yarn. Figure 6 shows a native woman dyeing yarn in one of these cans. She is using a commercial dye.

After the yarn has been dyed, it is allowed to dry, and is then wound on the shuttle-bobbins as shown in Figure 7. The skein is placed on a yarn-mill and the bobbins are wound by hand.

CHAPTER IV

SPINNING

An understanding of weaving would be impossible without first studying processes by which the yarn is produced. The three main steps, skutching or ginning, carding, and spinning have always been carried on by natives of Guanajuato, although through the years certain changes in technique have taken place.

Skutching is a process of stripping and cleaning the fibers. With wool, it consists of removing the dirt, leaves, etcetera from the fleece. Cotton must have the seeds removed, and maguey and henequen fibers must be removed from the leaves. If the weaver purchases the fiber in a prepared state, the skutching has already been done.

Carding is the term applied to the process of loosening and straightening out the cleansed fibers. As wool came more into use, the necessity of some means of opening the fibers arose. At first this was done entirely by hand, using the fingers to straighten the fibers. Now two large paddles are used, each covered on one side with carding cloth-- a base of leather from which many small wire prongs extend. A handful of raw wool is spread evenly on one card as shown in Figure 8, and the other is pulled across, so that the prongs of the two cards as they pass each other straighten out the fibers of wool. When the wool has been thoroughly carded it is removed from the cards in a roll or sliver and stacked on a nearby pile. Figure 9 shows the carded wool ready to be

removed from the cards (one may notice the stack of slivers at the right side of the carder and the raw wool at the left). The large factories use power-driven machinery for carding their fiber, instead of having it carded by hand.



Fig. 8.--Native spreading wool on cards.

The final step--spinning--is the most complicated and also the most important in thread making. Kissell gives this definition of spinning:

Spinning consists of binding together a number of loose filaments into one strand by means of twisting. Its object is to extend and arrange the loose fibers in a somewhat parallel order, and to bring them into close contact so as to impart greater strength and power to resist strain.¹



A



B

Fig. 9.--Carders with wool ready to be removed. (A) close view of cards. (B) Carder between raw wool and stack of finished slivers.

¹Mary Lois Kissell, Yarn and Cloth Making, p. 4.

Spindles

The first spindle was merely a straight stick which was twirled by the spinner, thus twisting the fibers into a strand. The strand was then drawn out by dropping the spindle. Finished thread was wound onto the shaft of the spindle and the operation repeated until the desired amount of thread was made.²

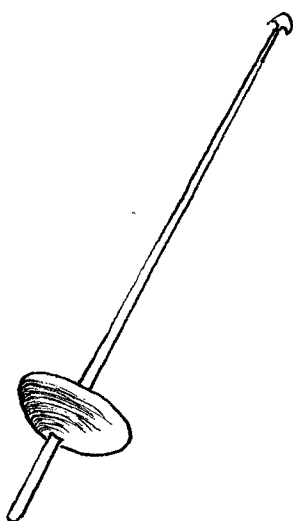


Fig. 10.--Spindle and whorl made and used in Mexico.³

The first improvement used in connection with this spindle was a whorl, or weight, attached to the lower end to steady it when dropped. Figure 10 shows the spindle and attached whorl. The earliest whorls were probably only broken pieces of pottery, or unshaped bits of clay, but later examples were molded. Many of these are very highly decorated with designs painted with slip or incised. These whorls, or malacates,⁴ as they were called, were made in a great variety of shapes and sizes, and have been found in archaeological excavations of the sites of very early tribes. These shown in Figure 11 are now on exhibition in the Museum of the State University of Guanajuato.

²Helen A. Bray, Textile Fibers, Yarns, and Fabrics, p. 56.

³Luther Hooper, "The Loom and Spindle: Past, Present and Future." Annual Report of the Board of Regents of the Smithsonian Institution, 1914, illus. from Plate 2, facing p. 633.

⁴Toor, op. cit., p. 24.

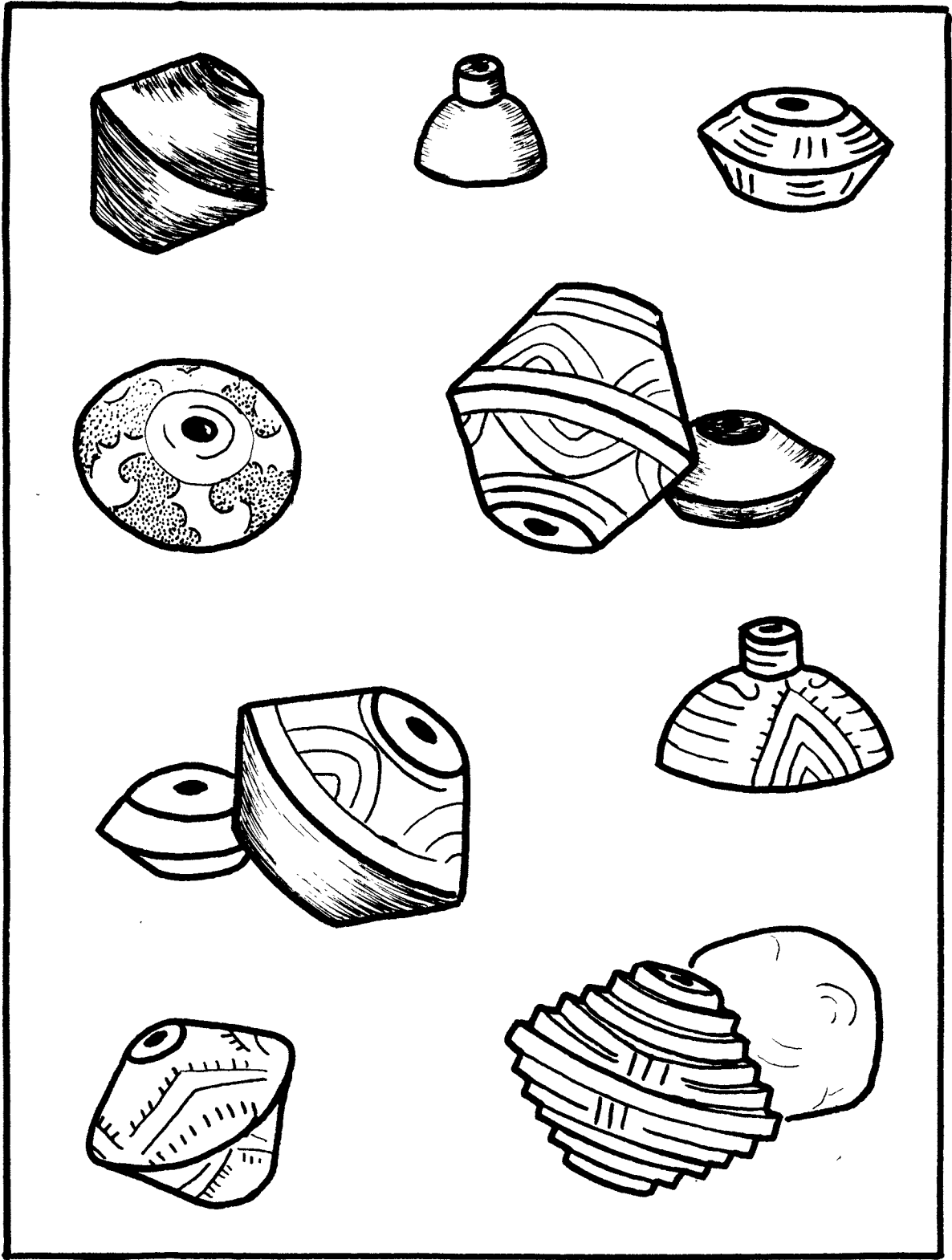


Fig. 11.--Spindle Whorls

From this suspended spindle the natives had developed a supported spindle by the time of the Conquest. The supported spindle stood erect on the ground, in a shell or cup. There was no attenuating device--the left hand was used for drafting while the spindle was rotated with the right hand. After a length of yarn was spun, it was wound on the spindle-shaft with both hands. This alternating twisting and winding is known as intermittent spinning.⁵

This method of spinning is more highly developed than that used by many tribes. Even the present day Navajo weavers draw out their rove and attach it to the spindle before twisting, while with the spindle described above, the two processes are accomplished simultaneously. The crude yarn thus produced is generally respun for the finished product. If a very fine yarn is desired, it is spun yet again; or two single yarns may be doubled for a two-ply thread.⁶

It was on these spindles that the native fibers from the cotton, palm, and maguey plants were spun--some very fine, and others into coarse thread, depending on the size of the malacate and the kind of fiber. This type of spindle is still used in many parts of Guanajuato, although the natives are gradually adopting the spinning wheel of the Spanish, as they have already adopted their material--wool.

Spinning Wheel

The spinning wheel introduced by the Spaniards consists of a standard on three legs, with a large wheel at the back; and in front,

⁵Kissell, op. cit., p. 24.

⁶Ibid., p. 25.

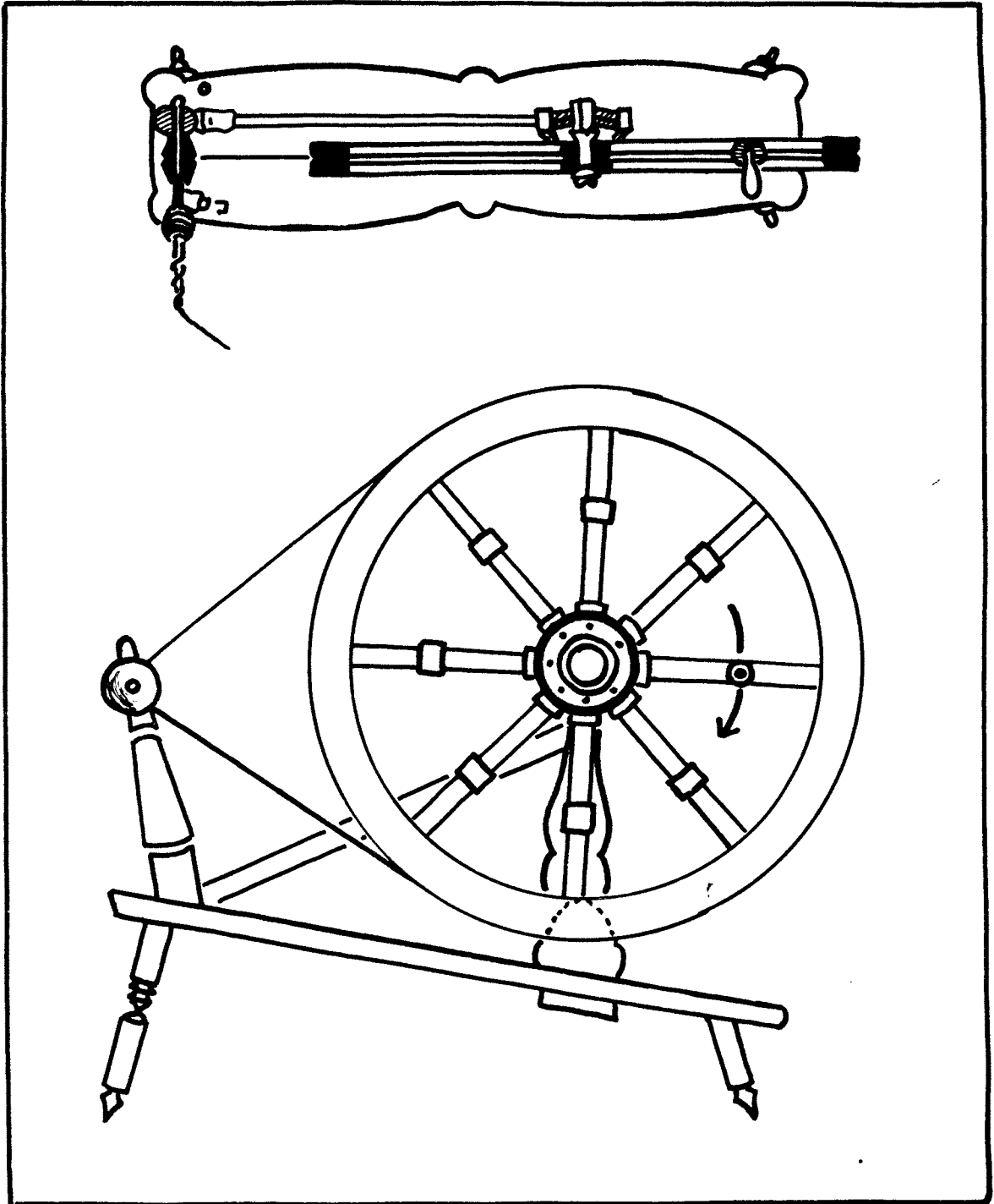


Fig. 12.--Jersey Spinning Wheel⁷

⁷Kissell, op. cit., p. 37.



A



B

Fig. 13.--Jersey spinning wheel. (A) side view. (B) detail showing small wheel and spindle.

on an upright, a small wheel and a spindle. The large wheel is connected with the small wheel by a cord or pulley, while the small wheel is connected directly with the spindle.⁷ This is illustrated in the diagram in Figure 12. The large wheel is usually turned by hand with



Fig. 14.--Winding spun wool on the spindle of a Jersey wheel.

⁷Bray, op. cit., p. 57.

a crank or a loose stick, although some spinning wheels are equipped with a treadle to utilize foot-power. Figure 13 shows two views of a spinning wheel seen in Silao. The mechanism is the same as that shown in Figure 12, although the wheel is more crudely made. In View A, several slivers of unspun wool are lying on the stand of the wheel. View B shows the small wheel and spindle as seen from the end of the wheel.

Throughout the process of spinning the left hand controls the yarn. A roll of carding is attached to the spindle and is continuously fed to it by the left hand, which holds the carding in line with the spindle point. The sliver is stretched and twisted simultaneously. When a length of rove has been twisted, it is brought at a right angle to the spindle and wound on as the hand moves toward the spindle (see Fig. 14). This process is repeated until a sufficient amount of yarn has been spun. As each roll of carding is used, another is fastened to it so that a continuous yarn is produced. This first spinning may be respun to produce a harder twist, or doubled for a two-ply yarn.⁹

There are several advantages in the use of the wheel over that of the malacate. The mounted spindle gives steady spinning, while the drive wheel and endless band assure constant spindle rotations. The large-sized wheel propelling the smaller wheel utilizes a multiplying power for greater speed. Yarn can be produced more quickly on the wheel than on the malacate.

⁹ Kissell, op. cit., pp. 36-40.

After being spun, the wool is ready for the dyeing process. In Figure 15 are several spindles of yarn as it looks after being removed from the wheel. Below the spindles is a hank of yarn ready to be dyed.



Fig. 15.--Spun wool before it is dyed.

There are many steps between a maguey leaf, a boll of cotton, or a handful of wool and finished yarn; yet weaving could not exist if these steps had not been taken. Through the years spinning techniques in Guanajuato have changed, sometimes very slowly; and sometimes, such as soon after the Conquest, quite rapidly. They are changing today in the great mills of the state where newer and faster ways of spinning are ever being sought. In spite of these changes, it is possible to find those who are still clinging to the very old means of producing yarn; so it is possible to see weaving processes going on on different cultural levels simultaneously.

CHAPTER V

LOOMS

A loom is any frame or machine on which weaving is produced.

Kissell has defined weaving in this way: "Weaving is a process which unites a series of parallel strands, or warps, by a crossing strand, or weft, which may interlace, wrap, or twine as it moves back and forth across the warp strands to form an expanded surface."¹

The development of weaving has called forth and still requires a high order of mechanical ability. Marvelous results in fineness of cloth and beauty of design were attained in it even when it was in its infancy with few devices to aid the hand, and when the creation of one article required untold labor. Even modern machinery cannot outdo the handwoven materials.²

Pre-Conquest Looms

The fine textiles which so amazed Cortez and his men were produced on a very simple loom called telar de abate, which consisted merely of a couple of sticks and some string fastened to a post or tree and tied by a band around the waist of the weaver. Apparently only one heddle was employed and the weaving of elaborate patterns necessitated great skill on the part of the operator, who was

¹Kissell, op. cit., p. 81.

²Woolman and McGowan, op. cit., p. 20.

compelled to apply as much concentration on the design as any expert tapestry maker.³

The warp threads were first fastened around the two rods, which might be compared to the beams of a modern loom. A lease, or cross, was formed by weaving two thin sticks or heavy cords across the warp, the first going over the odd-numbered threads and under the even-numbered ones, the second going under the odd threads and over the even, or vice versa. The heddle was in reality merely a heald rod. This was applied in the following manner: A cord was woven in the same way as the second lease stick. Then, in each space between threads, a loop was formed as in E, Figure 16; this loop was then twisted (F) and the rod was run through (G). Figure 17 shows the effect when the rod is attached. It will be seen that only alternate threads are affected by this heald rod. A shed is formed by raising the heald as shown in Figure 18. The other shed is made by using a flat stick woven over the threads attached to the heald and under the threads not attached. This stick can then be turned on edge to form the shed as illustrated in Figure 19; or if left flat and pushed back, it will not interfere with the operation of the threads attached to the heald.⁴

Kissell describes the processes of shedding, picking, and battening on this loom as follows:

1. Shed-rod holds open first shed; batten entered flatwise and turned edgewise in first shed; weft inserted through first shed; batten turned flatwise, beats up first line of weft.

³Thomas Athol Joyce, Maya and Mexican Art, p. 162.

⁴Thomas Woodhouse, The Handicraft Art of Weaving, pp. 33-37.

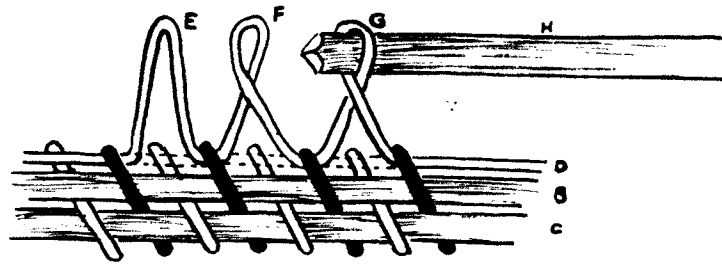


Fig. 16.--Diagram showing how heald-rod is attached to warp ⁵

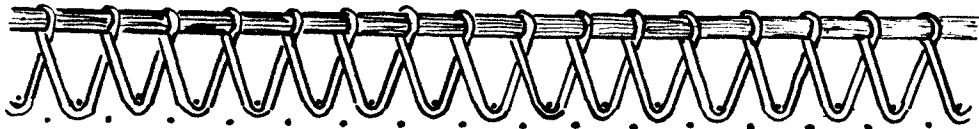


Fig. 17.--Heald-rod attached to raise alternate threads ⁶

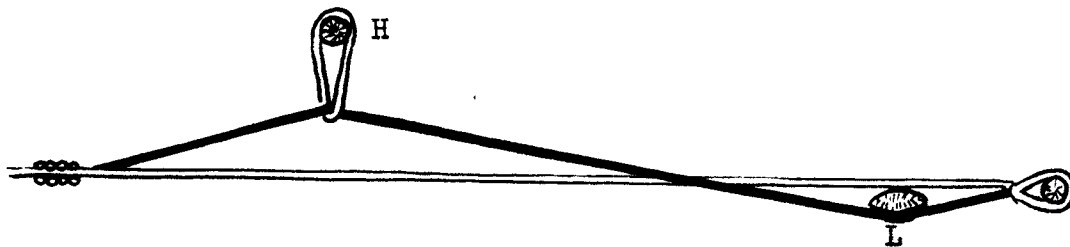


Fig. 18.--Shed formed by raising heald-rod, H ⁷



Fig. 19.--Second shed formed by turning flat stick, L, on its side ⁸

⁵ Woodhouse, op. cit., p. 34.

⁶ Ibid., p. 34.

⁷ Ibid., p. 35.

⁸ Ibid., p. 35.

2. Rod-heddle lifted to open second shed; batten entered flatwise and turned edgewise in second shed; weft inserted through second shed; batten beats up second line of weft.

3. Process is then repeated.⁹

The matter of adjusting the warp was a very simple thing on this type of loom. To lessen the tension, the weaver had only to lean forward; or for greater tension, she could lean back. If the warp threads went entirely around the beams, as they usually did, the unwoven portion could be shifted over the bars--the woven cloth would move under the frame until all of the warp had been woven.

Another way in which this loom was warped was by using slender stakes, wrapping the warp about them in a figure 8 so that the lease was formed as the warp was measured. The warp was then placed over the two free bars--one attached to a post, and the other to be attached to the weaver's waist--all the while the lease was carefully preserved. By warping and beaming in this way there would be only one thickness, instead of the two formed when the warp is wrapped entirely around the beams. To keep the weaving near the worker, the cloth beam or bar was rolled and fastened.

Two types of weaving were possible on a frameless two-bar loom. In one the warp threads were held very taut, and were entirely covered by the weft. The weft was packed down very tightly so that the threads expanded over each warp thread until they touched the thread in the second row back which was woven over and under the same warps. The second type

⁹Kissell, op. cit., p. 133.

was woven with the warp threads looser and the weft threads pulled tight so that they lay straight and parallel to each other. The diagram in Figure 18 shows the first type, while Figure 19 shows the second.

With this type of loom almost any length of warp was possible, depending on the distance between the weaver and the post or tree to which the loom was fastened. The presence of shedding, picking, and battening devices made possible faster weaving, and a very close web could be obtained. When not in use, the weaving and loom were very conveniently rolled up and put away without using very much space. It was, however, difficult to weave wide pieces of material on such a loom. It was, and still is, used almost entirely for belts, sashes, and other narrow woven bands.

Wider pieces of weaving were done on a loom which was nearly the same in mechanism, except that one beam was placed horizontally between trees or poles, and the other, weighted, hung down near the ground. This put the weaving in a vertical rather than a horizontal position. After the introduction of the upright loom the vertical loom decreased in its importance until at the present time it is not used at all in Guanajuato.

Upright Loom

To these looms the Spaniards added their own. The adoption of Spanish ways did not take place rapidly, especially in the popular arts, because the conquistadors did not consider the crafts as important as those arts which showed the religion of the natives. Even today there are many places where the Indian prefers his own way of doing things though it may be crude and slow. Gradually, however, the

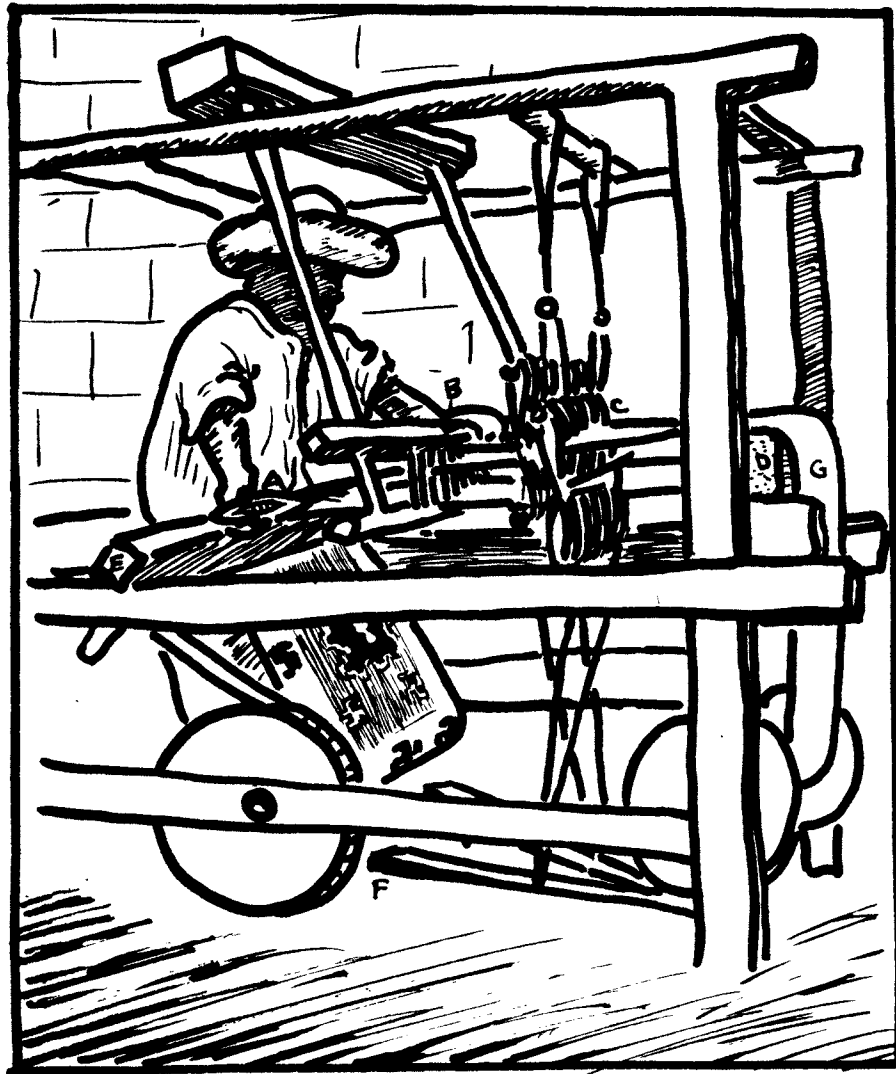


Fig. 20.--Colonial loom. (A) shuttle, (B) reed-batten, (C) heddles, (D) warp beam, (E) cloth beam, (F) treadles, (G) warp threads.



Fig. 21.--Warp beam and roller.



Fig. 22.--Detail from a four-heddle loom.

natives were taught the use of the upright loom and came to accept it. Today most of the weaving in Mexico is done on this colonial hand loom, with the exception of belts and sashes. The women still weave these on the telar de otate, otate being the cloth from which the belt is made.¹⁰

The colonial loom (Fig. 20) consists of a framework with a large beam (D), called the warp beam, at the back and another (E), the cloth beam, at the front. These beams get their names from the fact that the unwoven warp (G) is wound on one, while the finished cloth is wound on the other. Figure 21 shows the warp beam and roller. At the lower left corner of the photograph is visible the brake which keeps the beam from rolling. In the center of the loom, and higher, is a third beam from which two or more harness frames containing heddles (Fig. 20, C) are suspended by cords. These frames are in turn fastened to treadles (F). Most of the looms in Guanajuato are the two-heddle looms, although there are a few such as that shown in Figure 22, with four heddles. Heddles are usually made of wire or heavy

¹⁰Toor, op. cit., p. 24.

twine with two knots tied near the center so that there is an eye formed by the space between the knots. All the heddle eyes are on the same level. Between the heddles and the cloth beam is the reed-batten (Fig. 20, B), which is a frame suspended from above the loom and into which are fitted slats or bars. The threads of the warp are then threaded between the slats, and after each row of weft is woven, the batten is pulled up against the cloth, pushing the weft tightly against the other rows. This was the first weaving implement with its entire mechanism united within the frame and working in unison.¹¹



Fig. 23.--Sarape-weaver at work on an upright loom.

The shuttle most often used is a boat-shuttle (Fig. 20, A) with a removable bobbin. In weaving a sarape, the worker has within reach bobbins containing all the different colored threads which he will use. In Figure 23 these are visible behind the weaver. When it is necessary

¹¹Kissell, op. cit., p. 168.

to change threads, he merely changes the bobbin and continues his weaving.

The warp threads are measured off in equal lengths and crossed to form two leases. The warp ends are then fastened to the warp beam and the strands wound on, the leases being carefully preserved. The other ends of the warp strands are threaded through the heddle eyes--odd-numbered threads through those on one harness, and even-numbered threads through those on the other. The ends of all strands are then entered in regular order through the reed-batten and attached to the cloth beam, stretching the warp between the two beams.

After adjusting the tension, the weaver is ready to begin the actual weaving. Mary Lois Kissell has given this description of the process of wefting:

1. Foot presses down first treadle which draws down first heddle with the first series of alternate warp strands threaded through it, and simultaneously raises second heddle with the second series of alternate strands threaded through it, thus opening the first shed.
2. Hand shuttle thrown by hand through open shed; . . . the shuttle leaves behind a line of weft between the divided warp.
3. Stick-batten is run into shed to beat up weft, or lathe reed-batten is forcefully swung against the line of weft just put in.
4. Depression of the second treadle reverses the order of heddles opening the second shed. . .
5. Shuttle deposits another line of weft.
6. Batten beats up second line of weft.
7. Process is then repeated.¹²

When some distance of web has been woven, the wefting is stopped; and fresh warp is "let off" from the warp beam and the woven material

¹²Ibid., p. 173.

"taken up" on the cloth beam. The use of revolving beams makes possible longer warp and eliminates the necessity of restringing the loom as often as would otherwise be necessary. A more uniform texture is obtained from the smooth-running mechanism; perfectly stretched warp is naturally more parallel; and the refined shedding, picking and battening devices make the weft more even than that on the earlier types of looms.

Power-Driven Looms

Machine-made goods are becoming more and more prevalent in Mexico today. Most yard-goods, as well as rebozos and a few other articles, which were formerly woven by hand are now produced in the great wool and cotton mills of the state.

Weaving is an ever-changing craft. From the days when the Indian woman produced all the textile articles on the telar de abate—which was stretched from her waist to a nearby tree—to the present time, weaving has kept pace with other changes. Yet in spite of the addition of new ways of weaving, the old ways have not disappeared. Indian women still weave their belts and sashes on the primitive looms, and men still produce beautiful sarapes on the hand loom of the sixteenth century, while a number of people prefer to purchase their woven articles in the towns, uninterested in how they were produced.

CHAPTER VI

TYPES OF ORGANIZATION FOR CARRYING ON WEAVING
AND ARTICLES PRODUCED

Factory

Mexico is not a manufacturing country. There are, however, some large factories, the most important of which are textile mills.

Regarding cotton mills, the Pan American Union gives this information:

The manufacture of cotton by machinery in Mexico dates back about seventy-five years. Among the earliest mills still in operation are those of Cocolapam (Veracruz), founded in 1840. The industry increased but slowly until 1894 when there was a boom and many mills were started, but they confined themselves to coarse goods; since 1899 a few of the larger and better managed mills have manufactured goods of medium high grade, and these have, as a rule, made money. Nevertheless, the importation into Mexico of the higher grades of cotton goods is steadily increasing, as the demand from the wealthier classes improves.

.....
The machinery used in most Mexican cotton mills is practically all English, and some of them are well equipped for making white goods and printed muslins. Besides cloth and prints--the manta of the people--rebosos (shawls and scarfs for women), blankets and coarse napkins are made. Knitted garments are also manufactured, but only in small amounts, as this industry is in its infancy.¹

The same source gives this information regarding woolen mills:

Woolen blankets are made by machinery, and also those of a mixture of wool and cotton, which, although they have not the body and fineness of texture of those of Europe, have good resistance and are cheap.²

In 1926 the Mexican government published a statistical report on spinning and weaving factories in that country, listing the information

¹Pan American Union, op. cit., pp. 146-148.

²Ibid., p. 150.

according to the various states. The following information from that report shows the standing of factories in Guanajuato. In studying the statistics, it must be remembered that in the Spanish language the same word is used to apply to factories using power-driven machinery and to the larger shops which hire a number of craftsmen to produce handmade goods.

There were at that time four factories for spinning and weaving cotton in Guanajuato, three of which were active, and one retired. The capital invested in the machinery and buildings of these factories amounted to 1,215,158.44 pesos. The 795 H. P. of motive strength employed in the movement of these factories was divided as follows: hydraulic--360 H. P.; hydroelectric--355 H. P.; and steam--80 H. P. There were 35 carding machines, 8 warping mills, 8,264 spindles, and 370 looms. Two of the active factories worked a total of 6,463 hours from November, 1925, to April, 1926. The 412 men employed received an average of 2.22 pesos as the salary for an eight-hour working day, and the 168 women were paid 1.17 pesos per day. Guanajuato was one of the few states in which no children were employed in the factories. During this time 255,467 kgm. of cotton were consumed, and 214,373 kgm. were produced--10,626 kgm. in yarn spools for the market and 203,747 kgm. of cloth. The market realized from these amounted to 633,928.12 pesos. The state produced 895,250 linear meters of crude blanket material; 269,000 meters of cloth with colored threads; and 1,250,208 meters of various other types. By weight, this amounted to 82,928 kgm. of crude blankets;

15,720 kgm. of colored weavings, and 105,099 kgm. of various other kinds of weavings, or a total of 203,747 kgm.³

According to the same report there were in Guanajuato nine factories for spinning and weaving wool, seven of which were active and two retired. These had a total capital of 2,155,869.66 pesos invested in the buildings and machinery. The motive power consisted of 30 H. P. by hydraulic machinery, 394 H. P. hydroelectric, and 20 H. P. steam, or a total of 444 H. P. The factories had: 69 simple and 2 double carding machines, 17 hand and 2 machine warping mills, 1 regenerator, 11,759 spindles, 302 hand and 128 machine looms.⁴ These are the last official statistics available.

Cotton factories now operating in Guanajuato are located at Salvatierra, León, Celaya, Comonfort, Salamanca, Santa Cruz, and Loria. Some wool is woven in nearly every town in the state, but San Miguel de Allende and Celaya are important centers for the production of woollen yardage to be sold in the cities.

Shop

By far the greatest amount of weaving in Guanajuato is done in the shop-type factory, which does not use power looms. These weaving shops vary in size from those which employ the members of one family to establishments, listed in Mexico as factories, in which a number of hired weavers work.

³Mexico, Secretaria de Hacienda y Credito Publico, Departamento de impuestos especiales, 1926.

⁴Ibid.

Like all crafts, the art of weaving is a family occupation, passed on from father to son. The entire family helps in the weaving, the tasks usually being understood by all members of the group. Even very young children are able to card the wool, and they learn to spin at a surprisingly early age. Especially in the making of sarapes, the weaving itself is considered a man's job. The women do most of the dyeing. These activities take place in the home, the patio being the center of activity.

One of the shops of this type in a home in Silao will serve as an example. As one enters the home, one notices a large bag of wool just inside the room. A door just opposite opens into a patio in which one of the looms is located. The loom is in a corner made by two walls of the house, and is protected by a roof. The rest of the enclosed patio is open to the sky. To the right of the walk the family wash is boiling in a tub beside the kitchen door, and on the other side the family hog is sleeping in the mud. One passes through another opening into a second patio. On two opposite sides the house roof extends a short distance over the patio, protecting the looms and spinning wheels. A young man is weaving a woollen sarape on one of these looms; beside him are several sacks containing more wool. One of the younger boys is busy carding, stacking the slivers of carded wool in a neat pile. A turkey and a few chickens have been penned off in a little spot, and there are several plants growing at one side of the patio. On the opposite side the mother of the family is busy dyeing spun wool. She boils her dye in a square tin five-gallon oil can which has had the top removed and the upper edges

out fairly smooth. The wet yarn is hung on a line which extends across the center of the patio. Across from the young weaver is another loom, one of the few four-heddle looms one sees. Beside it a child of eight or ten is busy rolling bobbins for the shuttles from a skein of yarn which has been dyed. Here, too, are the spinning wheels, one of which has a bicycle wheel with a handle attached for turning. This mixture of old and new is part of the Mexican culture of today. The finished weaving, when removed from the looms, is folded and stacked in the house, ready for the final touches. These consist of sewing the two pieces of the sarape together in the center, and tying the fringe. At train time, the father will take several sarapes to the railroad station, where he peddles his wares. Since Silao is a junction point, this necessitates several trips a day to and from the depot.

Home and work are one in this kind of shop. When the sons marry, they will either set up their own shops, or work with their father and take over his business at his death.

Hand work of the same type as that done in the homes is also produced in the larger shops where a number of men are hired to do the work. These put out more work, but mass production is impossible with hand weaving. A good potter might make fifty or sixty bowls in an hour, but it takes hours or even days to produce one sarape.

Individual Work for Pleasure

One nearly always notices that the woven articles for sale in the markets are never as beautiful or as well made as some worn by Indians

on the street. The reboxos, sashes, belts and sarapes worn by these individuals were probably made by them or for them, and for that reason, more care was put into producing beautiful articles. For their apparel and other cloth articles of everyday use, the Indians make handsome embroideries and textiles.⁵ Drawn work is executed with incredible delicacy, and very fine lace is made by hand, both by the well-to-do girls in the convent schools and by Indian women sitting beside their wares in the market.

Sarapes

There is more variety in sarapes than in nearly any other article of clothing which is used in all parts of Mexico. Teer says:

The large ones [sarapes] are about the size and shape of an ordinary blanket, sometimes of one but usually of two pieces, sewed together in the middle with wool of the same color so that it is not noticeable. There is an opening in the center sufficiently large to slip over the head, called a bocamanga, which name also extends to the diamond-shaped design around it.

There are small sarapes that are worn over the shoulders, reaching to or below the waist, called setones or tilmas. Some of them are of cotton and some of cotton and wool, white background with colored stripes. There are also medium-sized ones of wool, called jerongas.⁶

Another type of sarape used throughout Mexico for bed covers is the frazada or cobija. This is made of soft weave, with little or no design.

There are in Guanaajuato, as in other parts of Mexico, many sarapes

⁵Museum of Modern Art, op. cit., p. 109.

⁶Teer, op. cit., pp. 27-28.



Fig. 24.--Indian wearing a sarape of good design in the market.

of poor design and garish colors, but many others are works of art, triumphing over bad taste. Some of these are done in the tradition of those which were sold in the nineteenth century at the famous Saltillo Fair--but which were made in all parts of the Republic. There are innumerable styles of sarapes of beautiful texture and simple design that are scarcely ever seen except on the backs of Indians--

sarapes made only for home consumption. One of these is shown in Figure 24.

As with all of the craft arts, various sections of the country produce characteristic types. It is possible to recognize an Indian's town by the color, weave, and design of his sarape.⁷ However, even in sarape-weaving villages that supply markets and stores, where many weavers use the same colors and designs, no two are exactly alike. Every weaver expresses his own personality in his work.

Because all of Guanajuato is in a region with a very cool climate, most of the sarapes are made entirely of wool. These are of heavy, coarse, hand-spun material made in both the natural wool colors and the brighter, though sometimes not so beautiful, dyed colors.

⁷Earl Parker Hanson, editor-in-chief, The New World Guides to Latin American Republics. Vol. I, p. 44.

There are several interesting details in the designs of sarapes woven in the city of Guanajuato. One of these is obtained by the use of a single thread woven in the midst of a contrasting color, so that it makes a dotted line across the sarape. Another, based on the same principle, is a small area of narrow vertical stripes acquired by weaving two contrasting colors in alternate rows. One color goes over the odd-numbered warp threads and under the even-numbered ones; the other color goes under the odd-numbered and over the even-numbered threads. The stripes are so narrow that at a short distance they appear to blend together. An area of these stripes, such as a wide horizontal stripe made of them, is used as a unit in the design of some Guanajuato sarapes. Figure 25 shows the way in which these stripes are used in a sarape which was woven of natural brown and white wool. Still another characteristic of the sarapes woven in the capital city of the state is the manner in which horizontal stripes of contrasting colors are connected: a stripe of color A is woven, then a narrow line of color B; followed by a corresponding line of color A, then the stripe of color B. The bocananga designs--the diamond-shaped designs around the center opening of a sarape--are not of as much importance in Guanajuato as they are in many sections of Mexico.

In Silao an interesting texture is worked into the design of the sarape along with the contrasting color. This is obtained by pulling the weft threads up in little loops with the fingers before beating down the row of weft with the reed. This texture has the appearance of a greatly magnified Terry-cloth. By using it in certain areas only, it forms a surface pattern.

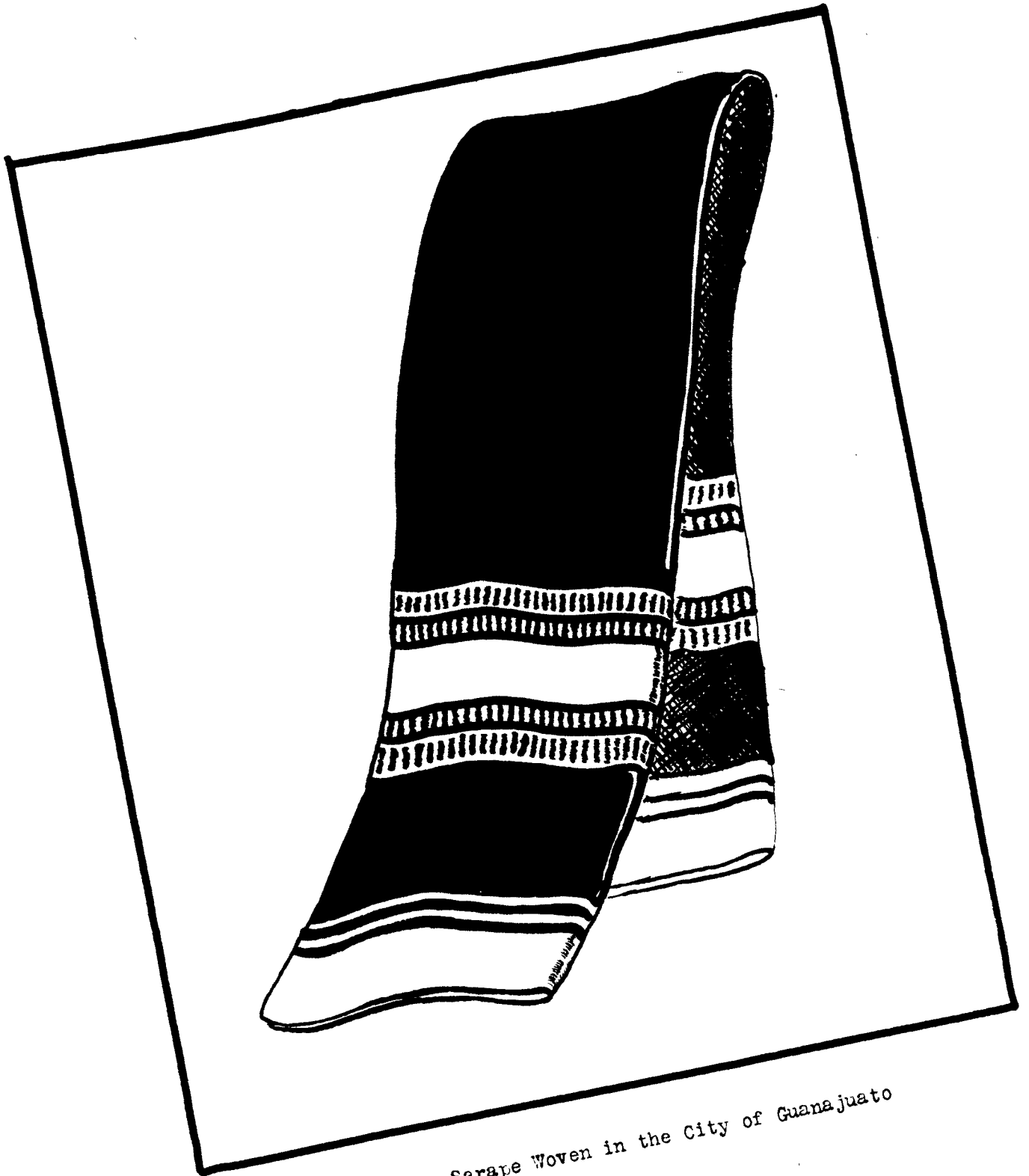


Fig. 25.--Sarape Woven in the City of Guanajuato

In San Miguel de Allende where sarapes were once made that competed with the fine old ones of Saltillo, the weavers still produce good heavy ones of natural wool colors, but mostly for home consumption. Although heavy, the wool is soft, and after the sarape is woven, it is brushed with a stiff brush so that the texture of weaving is hidden, leaving only the design and color on the blanket-like surface.

Dolores Hidalgo sarapes, of the same coarse wool as those made in the city of Guanajuato, are distinguished by narrow designs woven into the border. The best of these are woven of the natural wool in two or three values. The border designs are sometimes quite intricate, and are probably woven on four-heddle looms.

In Guanajuato the sarapes are usually woven by men, and are nearly all made on the colonial foot-power loom. Very few of these looms are wide enough for the large sarapes, so each sarape is woven in two pieces which are exactly alike in color, design, and size. After the weaving is completed, the two are fastened together in such a way that the seam does not show. This is done by taking small stitches alternately between the two halves of the sarape. The stitch is taken directly on the edge where the weft turns, and one thread of weft is taken with each stitch. When the thread is pulled tight it acts as one of the warp threads, and the weft threads of the two pieces fit together like the interlocking wefts of tapestry patterns.

Sarapes are produced in the shops, described on pages 53-55, and in the homes of many of the Indians. They are among the woven articles which have not yet been produced on power looms and which continue to be a means of creative expression for the individual.



Fig. 26.--Mexican women wearing rebozos.

Rebozos

The rebozo, which is a shawl, is worn around the shoulders for warmth, twisted about the head as a protection from the sun, used as a cradle for the baby on its mother's back, substituted for a market basket, and in a thousand different ways is an article to be used as well as worn. Rebozos for adults are about a yard wide by two and a half long, including the fringe. Smaller ones are made for children. Figure 26 shows three Mexican women in their rebozos. Since rebozos are generally made for the poor, they are nearly always made of ordinary cotton thread in conservative colors--dark blues, greys, and browns. Some, however, are woven of silk or rayon in brighter colors. These are usually kept for use on holidays and special occasions. In years gone by, laws governed their color. The peons could wear only brown and white or blue and white or dark green and white, but they evaded this law by

weaving into their rebozos threads of silver and gold. These were so fine they could not be detected by the naked eye.⁸

Most rebozos are decorated with fine white pin-point all-over designs. These designs are achieved through warp dyeing and require great skill. The weavers take balls of white cotton thread and form skeins with the help of a wheel. They then tie the warp thread at certain points so that it does not take the dye, thus forming the pattern when the cloth is woven. The differences in regional designs are very subtle in these rebozos, with the exception of those of Michoacan and that part of Guanajuato which borders it. There, rebozos have a plain blue background with narrow white stripes running lengthwise through the material at equal intervals.

The most beautiful of all rebozos, however, are of such fine thread that they can be pulled through a ring. These have the usual pin-point designs and are called rebozos de bolita. They are seldom made now, but there are still many old ones in existence.⁹ During the seventeenth and eighteenth centuries rebozos for the wealthier classes were made with inscriptions and designs woven in gold and silver thread.¹⁰

Many rebozos are still woven on the horizontal foot-power looms by both men and women. The intricate knotted fringe is usually made by the women. At the present time, however, the factories have taken over

⁸Catherine Oglesby, Modern Primitive Arts of Mexico, Guatemala, and the Southwest, p. 170.

⁹Toor, op. cit., p. 38.

¹⁰Museum of Modern Art, op. cit., p. 109.

most of the work of weaving rebozos, furnishing nearly all those for sale in the stores and markets. Hand-woven rebozos are made for home consumption and are now rarely sold.

Ayates

Ayates are carrying cloths which are used just as they were by the prehistoric Indians of Mexico. The ayate consists of a strip of cloth with which the burden is fastened to the back of the person who is carrying it. The ends of the ayate are tied in front of the carrier so that most of the weight is across the shoulders. These carrying cloths are woven and used to a great extent by the Otomies. They may be made of any one of a variety of materials, although those of maguey fiber are the most common. Some are very coarsely woven and others are so fine "they could be used for curtains."¹¹ Ayates are often embroidered with bright colored wool threads, and the finer ones are used for altar cloths.

Catherine Oglesby describes the part played by the ayate in the marriage ceremony among Otomies:

When a young couple state their determination to marry, work begins. The bride's family makes one half of the ayate, a strip about three-fourths of a yard wide, about one and one half yards long, and the groom's family makes the other half. The ceremony consists of sewing together the two halves.

When the groom comes to claim his bride he bears his part of the ayate filled with fruit, sweets and flowers for the wedding feast. When the couple go to their home, they carry their presents in it. But this is not the end of that ayate's usefulness, for it then begins its practical life as a carrying cloth. Thereafter, the man may carry his tools or the woman her baby in it. It may serve as a wrap for a cool morning or for carrying candles when

¹¹ loc. cit., p. 45.

they go on their annual pilgrimage to the Shrine of the Señor de Chalma.¹²

Belts and Sashes

Sashes, called fajas or ceñidores in Spanish, are woven of cotton or wool, and vary in width from one-half to six inches. These are made in a variety of designs and in all imaginable colors.¹³ They are woven and worn by both men and women, but mostly by the latter. Sashes are woven on the pre-Conquest type of loom, much as they were long before the arrival of Cortez. Some are woven in solid colors, others are decorated with inwoven designs of birds or animals. Words are also woven into the sashes as decoration, Mexico being the most common.

In some remote regions of the state the Indian women still wear the enagua, or skirt, consisting of many yards of handwoven wool cloth, laid in plaits around the waist and held on by one or more sashes. The sash is the article which has probably changed less than any other through the centuries.

Handwoven Cloth

The making of handwoven fabrics was an Aztec art which still exists both in the pure and in a modified form.¹⁴ Mason says of pre-Conquest textiles:

¹²Oglesby, op. cit., p. 171.

¹³Gerrardo Murillo (Dr. Atl), Las Artes Populares en Mexico, Vol. II.

¹⁴Hansen, op. cit., I, 44.

The finer kinds of cloth in Mexico were made of cotton, of rabbit hair, and of the two mixed, or of cotton mixed with feathers. The rabbit-hair fabrics were pronounced equal in finish and texture to silk, and cotton cloths were also fine and white. The cloth in the manufacture of which feathers were employed often served for carpets, tapestry, and bed coverings. Maguey fibre and that of coarse palm leaf--*icxotl* and *izhuatl* were woven into coarse cloths. . . All the work of spinning and weaving was performed by women.¹⁵

It was not until the end of the nineteenth century, after the establishment of the first large textile mills in Mexico, that the Indians began to use machine-made cottons. They still weave practically all the woolen material and much of the cotton cloth that they use. At the present time handwoven cloth is not in very great demand by those who purchase their materials in the stores or markets, yet there are good wool and cotton homespuns made by men and women everywhere on both the horizontal and upright looms.

Celaya is an important weaving center for tablecloths and napkins, but they are mostly for regional consumption. León and San Miguel de Allende both produce woolen cloth in plain, striped or checked designs for city stores and markets. Some very good handwoven cottons with plain, striped, and plaid designs are woven in Salamanca. In almost every village Indians weave cloth for their own use which is of better quality than that found in the stores.

Wool Bags

Wool bags (bolsas or morrales in Spanish) are not used so commonly as those made of fibre. Some very beautiful ones, however, are produced

¹⁵Otis Tufton Mason, Woman's Share in Primitive Culture, p. 62.

at San Miguel de Allende, decorated with inwoven designs of stylized birds and animals. Most of the fiber bags are woven of bright colors in vertical striped designs. Some henequen bags are made of the natural-colored fiber with one or two other colors woven in narrow stripes at the sides and top of the bag.

The one characteristic of all Mexican hand-woven articles is the individuality of the designs. Whether it is a large sarape produced in one of the shops by a hired weaver and made with the purpose of being sold at the market, or a belt half an inch wide which will be worn by the weaver, each article has its own design worked out in the mind of its creator. Another characteristic of all weaving in Mexico is the way in which new techniques are added to the old without replacing them. Evolution, rather than revolution, describes the changes that have taken place through the centuries in the weaving craft in Guanajuato as well as in most other weaving centers in Mexico.

CHAPTER VII

PLAITING

Plaiting, a different process from weaving, has been much used in Mexico since prehistoric times. Kissell defines plaiting and shows the difference between it and weaving as follows:

Plaiting is begun by placing loose rushes or other long strands on the ground in parallel position and crossing them by others with an interlacing, and then adding more strands to the left, the right, the near and the far sides. This possible progression in four directions distinguishes plaiting from weaving, which progresses in one direction only by the introduction of a weft strand which crosses a parallel series of warp strands. In plaiting there is no distinct warp, or weft, as the strands plait in four directions. It belongs to a large group of basketry weaving, but in none is an implement necessary to hold the strands during plaiting or weaving.¹

Petates

Perhaps the most important of all the articles produced by plaiting are the petates or mats. The petates of today are as primitive and their use is as widespread as before the Conquest. Oglesby says:

In Mexico the Indian comes into this world on a petate and goes out of it rolled in a petate. As a child he plays on it, and when he grows up he eats on it, prays on it, sleeps on it. His wedding gifts are placed on it; the dishes given to the beloved dead on the Day of the Dead, November 2, are placed on a petate. It becomes the floors and walls of his house.²

Petates are handmade--the coarse ones of a rush, called tule, and finer ones of palm.³ The rushes are cut and dried and then plaited

¹Kissell, op. cit., p. 82.

²Oglesby, op. cit., p. 172.

³Toor, op. cit., p. 40.



Fig. 27.--Petates for sale at a market.

by hand in several motifs, the most common having a twill effect. Generally, petates are the size of a double bed, but there are smaller and larger ones, and some are in strips like floor runners. They are made wherever tule and palms grow in Guanajuato, and sold everywhere at very low prices in the markets (see Fig. 27).

Petates are made by both men and women in the following way: The petate-maker sits cross-legged on the floor. In front of him is the petate on which he is working; in his hand is a flat stone with which to beat the plaiting; and within easy reach is a stack of dried tule. Each rush is bent in the center at a 45° angle, as shown in Figure 28 A. The crease in the rush aids in keeping the plaiting straight and also serves to finish the edges of two opposite sides of the petate. The plaiting is begun at the center with a few strands going in each direction (see Fig. 28 B) and is continued on all four sides. After a small area has been plaited, it is pounded with the stone so the petate will lie flat. When the plaiting reaches the crease in the tule, each strand

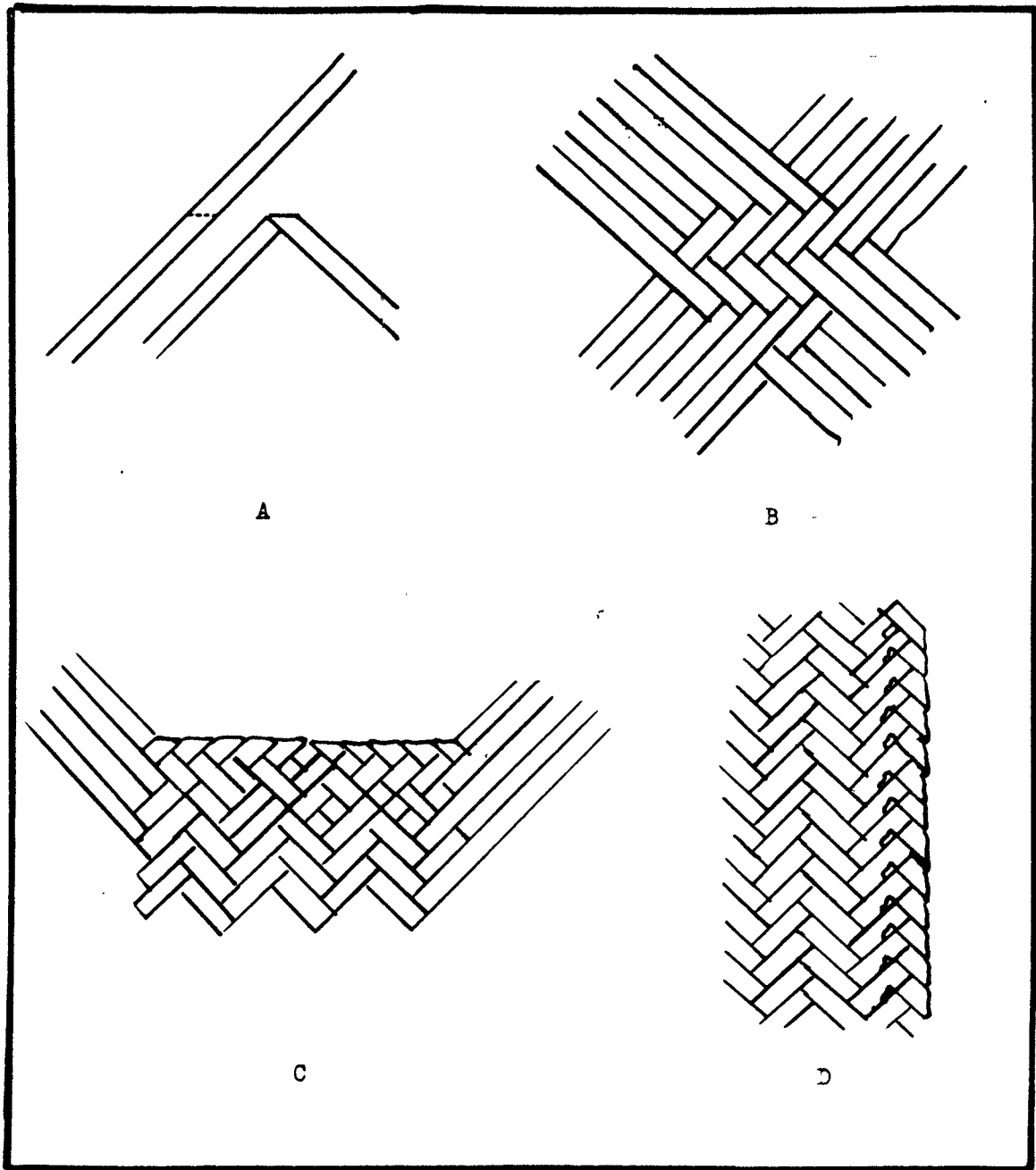


Fig. 28.--Steps in the making of a petate. (A) tule folded in the center, (B) beginning step in plaiting, (C) edge formed by the fold in the tule, (D) finished side.

is turned back and plaited as in Figure 28 C. The two sides left with the loose ends of the strands are finished by interlacing these ends in the plaiting and cutting them off close to the petate, as in Figure 28 D.

Due to the softness and flexibility of the petate, it is extensively used for packing. In Mexico it is as common to see petates, like that shown in Figure 29, wrapped around produce as it is to see burlap sacks here.

Baskets

Basket making changed very little with the Conquest, and so remained a medium of artistic expression for the natives. The shapes of baskets are based first of all on their function--they must be efficient, dependable containers. Concerning decoration, the Christian Science Monitor

Magazine says:

The ornamentation is sometimes related to purpose, sometimes it is a fanciful device of the basketmaker. The strong, geometric designs commonly seen in basketry are influenced by the technique. Checkers, zigzags, spiral, terrace pattern emerge from the process of plaiting fibers in perpendicular directions, or coiling from the center. The decoration is implicit in the making.⁴

Most of the baskets made in the city of Guanajuato are of a limber marsh grass which grows nearby. The flat rushes are plaited together very much as in the making of petates. The work begins at the center



Fig. 29.--Petate used for shipping purposes.

⁴"Tribal Art of Basketry" (no author given), Christian Science Monitor Magazine, Feb. 24, 1945, p. 6.



Fig. 30.--Basket-maker at work on a square-bottomed basket.



Fig. 31.--Basket-maker holding two partly finished rush baskets.

bottom of the basket and progresses outward and then up the sides. In Figure 30 the basketmaker has begun plaiting the sides of the basket. These baskets have a rectangular bottom, but the top is oval, the sides having no definite corners. Small handles are placed at opposite sides of the top of the basket so that it can be carried as a market bag. Some of the baskets are made of rushes which have been dyed with bright aniline dyes, usually purple and green. The colored strips are used with the undyed rushes so that the plaiting brings out a design. It is possible

to see the designs in the baskets in Figure 31. The tops of these baskets are finished in the same way as the edges of the petates (see Fig. 28 D).

At Tierra Blanca baskets are made of heavy bamboo, which is cut



Fig. 32.--Splint baskets made at Tierra Blanca.

into splints so that it will be more pliable. These baskets are very strong, firm, and durable, and are made in a variety of shapes. Large flat baskets with a diameter of as much as a yard and a half and a depth of eight inches to a foot are used to deliver bread. Some of these are made with a shape in the center similar to the crown of a hat so that they may be more easily balanced on the head of the carrier.

Another popular shape in this type of basket is one about 10 inches deep with a diameter which varies from 14 inches at the base to 18 or 20 inches at the top. This also has a strong handle and can be used for carrying heavy articles. Figure 32 shows these baskets stacked in the market to be sold.

Still another of these baskets which is used a great deal is the picnic basket, about 18-20 inches tall and with a diameter of 15 inches, having a heavy handle and a tight-fitting lid. These are used extensively at fiestas such as the Day of St. Nicholas, celebrated in Guanajuato on July 31. On that day the inhabitants of the city visit the Saint's

shrine on Mount Bufo, most of them spending the day on the mountainside, picnicking, and visiting with friends.



Fig. 33.--Small toy basket and charcoal fire fan made of straw.

Silao, noted for its toys, produces a number of small baskets. One of the most interesting and unusual of these is the straw basket shown in Figure 33. Each side, the top, and bottom are made separately and when completed are fastened together. The sides are made in this way: Two small bundles of straws are tied together in the form of a cross. These will extend diagonally from corner to corner, crossing in the center, where they are bent at an angle of about 120° . When placed with all four ends touching a common base, the lines would describe a flat pyramid. Beginning at what would be the apex of the pyramid, the basket-maker winds a straw around one arm of the cross, over the intervening space to the next, around it, across to the third, and so on until the desired area is covered. By using differently colored straws, a design of concentric squares is formed. The straws which formed the original cross are entirely covered so that only those straws parallel to the sides of the basket show. The bottom is made in the same way, but is fastened to the sides with the apex of the pyramid inside the



Fig. 34.--Small toy baskets made of various fibers.



Fig. 35.--Native making toy baskets in the market place.

basket. The sides and bottom are fastened only at the corners with needle and thread. The top is sewed on at two corners only to form a lid. The edges are decorated with braided straw of the different colors used in making the basket, and a plaited handle is added.

Also, small toy baskets are made of maguey, grass, horse-hair, and other fibers found in large quantities. These vary in size from tiny ones, about the size of a thimble, to baskets eight or ten inches in diameter (see Fig. 34). On market days one often sees the natives working on baskets in the market-places where they show their finished ware for sale (see Fig. 35).

Toys and Decorations

The Indians also make amusing and interesting figures of soldiers, horses, and other animals and figures, such as those shown in Figure 36.



Fig. 36.--Toys made of tule

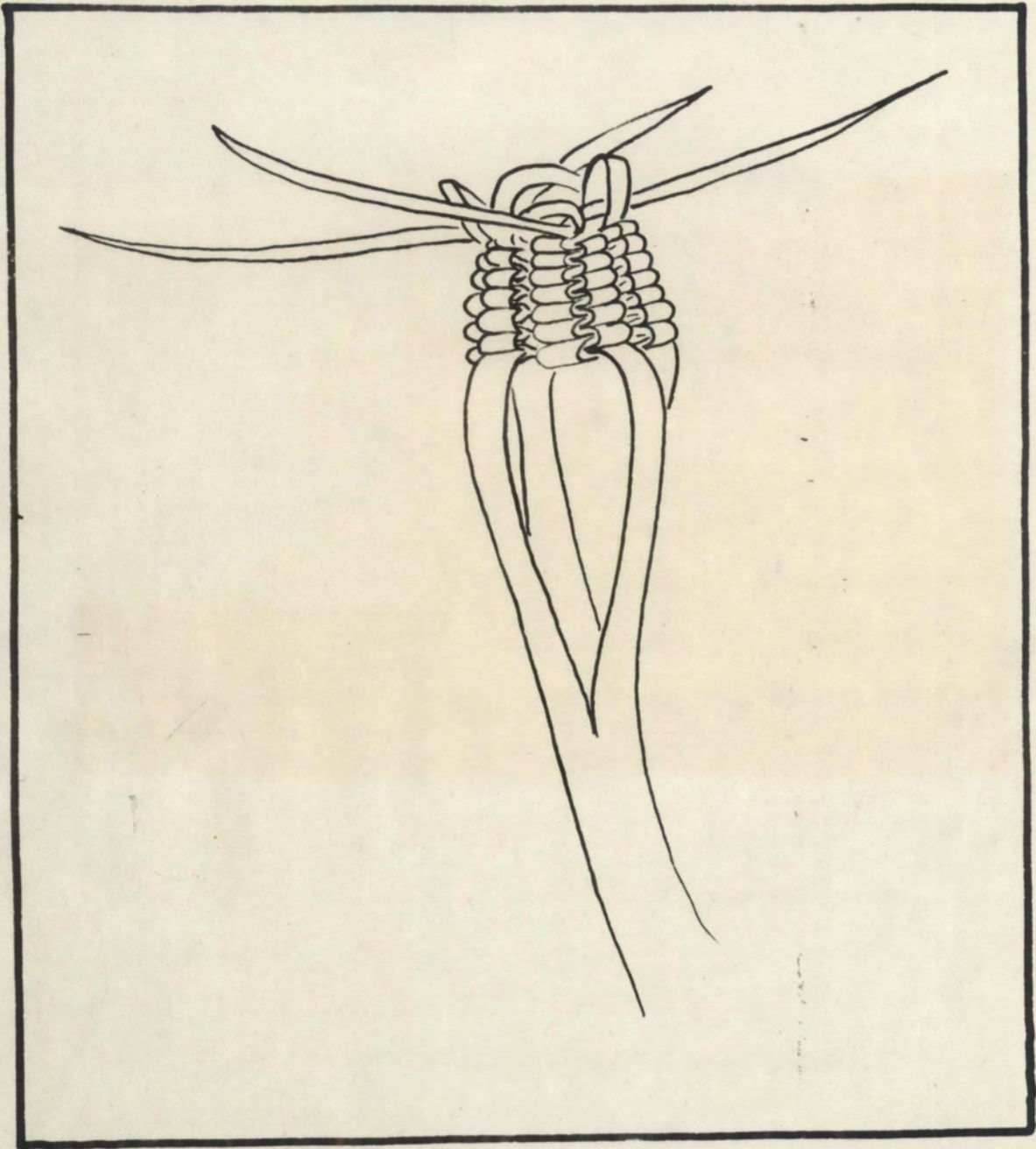


Fig. 37.--Palma, a decoration used on a Holy Day



Fig. 38.--Native wearing sombrero and thatched palm raincape.

from the tule rush. Many unusual decorations are made from the rushes and palm leaves. An interesting ornament which is used as a decoration on one of the Holy Days is the palma. This is plaited of parts of a palm leaf while the material is still green and flexible. The leaf is split into four strands which are left fastened only at the base. These are then plaited together part way up, and the ends are left long and free. Figure 37 is an actual-sized drawing of a palma.

Other Articles

Some articles of clothing are made of natural materials such as rush, palm, and grass. One such garment is the picturesque rain cape which the natives make and wear. It has the appearance of a thatched roof and is really rain-proof. The palm leaves are fastened together by means of square knotting, or in some cases, by plaiting. The many loose ends of the palm leaf are allowed to hang free on the outside of the cape (see Fig. 38), guiding the raindrops away from the wearer. Those in Figure 39 are rolled with the loose ends on the inside, making it possible to see the rows of knots which hold the leaves together.



Fig. 39.--Raincoats made of palm for sale at a market.

Sombreros have come to be a symbol of Mexico. They are hand-woven, of palm, in all textures, shapes and sizes. All Indian men wear them, and occasionally a woman will use one instead of a rebozo for protection against the sun. Sombreros are made everywhere, and in each place they are different. In Guanajuato most of the sombreros have fairly tall crowns which slant toward the back. The large brims turn up in back, and are nearly straight in front. These sombreros, made of the natural-colored fibers, are decorated with leather or horsehair bands in both natural and dyed colors. Some of the designs on these bands are quite intricate.

Many useful household articles are made of rushes and straw, among the most important of which are the fans used in starting charcoal fires. These are plaited in the same way petates are made, the ends of the rushes being pulled together and tied to form a handle. Those made of straw are lighter in weight, and are usually more highly decorated



Fig. 40.--Craft articles including charcoal fire fans and a woven sieve.

than the rush ones (see Fig. 40). The decoration is achieved through the use of different designs in the plaiting; it is not something added after the fan is finished. Also shown in Figure 40 is a sieve plaited of maguay or horsehair.

Plaiting is done more for use than nearly any other craft. With the exception of a few toys and decorations everything produced of rushes, palm, or straw is made to fit a definite and practical need. Decoration on plaited articles is very simple and is inherent in the form of the object.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

Summary

The problem undertaken in this study was an investigation and examination of the weaving of today in the state of Guanajuato, Mexico, and a comparison of the contemporary weaving with that of earlier periods. The study reveals how the craft reflects the everyday habits of the people who use it, changing as their way of life changes.

Guanajuato is in the south-central part of Mexico, lying wholly within the limits of the great central plateau. The average elevation is 6,000 ft., with a climate which is semi-tropical and very healthful.

The first people known to have occupied the region in which the state now lies were the Otomies. Their descendants continue, in remote sections of the state, to speak their own language to the exclusion of Spanish.

The Otomies were overcome by the Toltecs, a much more advanced race who had developed a written language and who were versed in the arts, agriculture, and the computation of time. They built many cities, the most prominent of which was Tollan, or Tula, from which they derived their name. The later Toltecs spoke the Nahuatl language, but there is some disagreement as to whether or not they may have originally spoken the Otomí tongue.

About 1064 A. D. the Toltecs were overcome by invaders from the

north, known as Chichimecs. Chichimeca is a collective term which was applied by the civilized tribes to those nomads who dressed in skins and hunted with bow and arrow. Linguistically the Chichimecs were divided, some speaking dialects of the Nahuatl tongue, while others spoke Otomí. The most important Chichimecan city was Texcoco.

The Aztec, or Mexican, tribe was the last of a family of seven tribes to come from the north. They wandered southward until they established their capital at Tenochtitlan, where Mexico City now stands. By the time the Spaniards arrived, the Aztecs were in control of all of Mexico, except that territory controlled by the Tlascalalan and Tarascan tribes.

The origin of the Tarascans is unknown, their language and religion being different from those of their neighbors. The Tarascan capital was located at Tzintzuntzan on the shore of Lake Patzcuaro and their territory extended over all of Michoacan and into Guerrero, Jalisco, and Guanajuato.

The first Spaniards who penetrated the state of Guanajuato were the conquerors of Acámbaro, who apportioned out the districts of Acámbaro, Jerécuaro, and Coronéo among themselves in 1526. In 1531 Nuño de Guzman added the territory between Pénjamo and the present site of the city of Guanajuato to his conquests.

The natives carried on a long and relentless war against their new masters, and it was not until 1598 that peace was established. The state rapidly advanced in population after the discovery of silver in 1557.

The racial types in Guanajuato today are about the same as in other

parts of Mexico, Indians and mestizos making up the majority, with a small percent of Spanish or other whites.

For most of the inhabitants living conditions are sub-standard in comparison with those in the United States, although they are gradually being improved. Electricity is an important factor in bringing this about.

Weaving is one of the oldest craft arts practised by the people of Guanajuato. Some of our knowledge of early weaving is gleaned from the codices, which are pictographic manuscripts written by the Toltecs and Aztecs; other information comes from descriptions of the art as observed by the Conquistadors; and observation of weaving done today in the ancient manner helps complete the picture.

The Conquest affected weaving techniques in three ways: new machines such as the spinning wheel and upright loom were introduced; materials like wool, which had been unknown in Mexico before, were brought from Europe; and the changes in religion and everyday habits brought about a need for new woven articles, the most outstanding of which was the rebozo.

Weaving today is one of the natives' most important mediums of self-expression. It is still produced in homes, as well as in shops, on the upright loom of the Spaniard and the primitive loom of pre-Conquest times.

Most of the materials of the weaver are from plant or animal sources, the vegetable fibers as well as many of the dyes being native to Mexico. The Toltecs and Aztecs both recorded the use of cotton in

some of their early annals. Quilted armor of cotton was very effective as protection against the light missiles of enemy warriors. Although cotton does not grow in Guanajuato, a great deal of it is shipped in to be manufactured there.

Wool was unknown in Mexico until the Conquistadors brought sheep with them to America. Since then, wool has grown in importance until it is now considered a necessity. The sheep raised in Mexico are the Merinos which were native to Spain. Lying in the mountains, Guanajuato offers good pasture to sheep the year around. Shearing takes place once or twice a year, and is nearly all done by hand.

The maguey is first mentioned in the mythology of Mexico. The word Mexico, itself, is probably derived from the same root as the Aztec word for maguey, metl. The fiber comes from the leaves and is removed by scraping the pulp away. It is spun and made into rope and string, or woven into cloth. In the fiber form it is used as a wash-cloth or scouring pad.

The henequen plant belongs to the same family as the maguey, and its fiber is occasionally used by weavers in Guanajuato. Rushes and palm leaves, as well as straw and horsehair, also furnish material for the weaver.

At the time of the Conquest the natives of Mexico were well versed in the use of dyes. Their most important was the cochineal, a small parasitic insect which feeds on cacti. Indigo was used for nearly all blue. Yellow dye was made from ochre as well as plant sources, fustic being an important organic source of the color. Logwood is one of the

early dyeplants which is still being used extensively. The dyes were prepared much as the Navajo Indians of today prepare their dyes, by pounding or grinding the part of the plant to be used and boiling it in a non-metallic vessel with a mordant. The material to be dyed was then wet and boiled in the concoction.

Within recent years commercial dyes have come into use, almost entirely replacing the earlier animal and vegetable dyes.

The three main steps in the production of yarn--skutching or ginning, carding, and spinning have always been carried on by the natives of Guanajuato. Changes in technique have taken place through the years.

Skutching consists of removing dirt, leaves, etc. from wool, seeds from cotton, and the fiber itself from the leaf of maguey and henequen plants.

Carding is the term applied to the loosening and straightening out of the cleansed fibers. At first this was done by hand, but now wool is combed on two large paddles, called cards.

Spinning is the process which binds the loose fibers together to form the yarn. The first spindles were merely straight sticks which were twirled by the spinner to twist the fibers into a strand, but later a weight, or whorl, was attached to the lower end of this spindle. Whorls were made of clay, and those of the later pre-Conquest period were well formed and nicely decorated. By the time of the Conquest a supported spindle had been developed which stood erect on the ground or in a shell or cup.

The Conquistadors introduced the spinning wheel, an implement which

had been invented in Europe in the early fourteenth century. This consists of a standard with three legs on which is mounted a large wheel connected by a cord or pulley to a small wheel and spindle. Both the pre-Conquest spindle and the spinning wheel are used in Guanajuato today.

A loom is any frame or machine on which weaving is produced. The fine textiles produced by the early tribes in Guanajuato were made on a very simple loom called telar de abate, one end of which was fastened to a tree and the other to a belt about the weaver's waist. At the time of the Conquest the Spaniards introduced an upright loom which was operated by footpower. Since the beginning of this century, mills using power-driven machinery have begun to take their place in the production of textiles. Most yard-goods, as well as the rebozos and a few other articles formerly produced by hand, is now made on these machines.

There are three types of organization for carrying on weaving in Guanajuato--factory, shop, and individual work for pleasure. Mexico is not a manufacturing country; however, there are some factories, the most important of which are the textile mills. In 1926 there were four factories producing cotton goods and nine factories for spinning and weaving wool in Guanajuato.

The shops in Mexico produce the greatest amount of weaving. These vary in size from small ones operated by one family in whose home it is located to those which employ a large number of hired weavers. In these all the work is done by hand, children in the family groups helping with the carding and spinning, and the women usually doing the work of dyeing.

Much weaving is done by individuals for the pleasure they derive from creating something useful; these articles are seldom sold, but are made to be used. Drawn work and fine lace are also made by hand both by the girls of the upper classes in convent schools and by the Indians.

Of the woven articles, sarapes are, perhaps, outstanding. They are made in a number of different shapes and sizes, various sections of the country producing characteristic types so that it is possible to tell an Indian's town by the color and design of his sarape. Sarapes are produced in the shop-type factories, and nearly all are woven by men.

The rebozo, a shawl used by the women, is usually made of cotton in conservative colors, although a few are woven with brightly colored silk or rayon. Most rebozos are decorated with fine pin-point designs which are achieved in the dyeing, around Michoacan the most common design being a blue rebozo with narrow white stripes. Rebozos were formerly made which were fine enough to be pulled through a ring. Most of the rebozos today are produced in the factories, a few being made by hand for home consumption.

Ayates are hand-woven carrying cloths used by the Indians. They are hung from the forehead or chest and the object to be carried is fastened to them so that it will rest on the back of the person carrying it. Among the Otomies they hold an important place in the wedding ceremony.

Belts and sashes, of cotton or wool in a variety of colors and designs, are woven on the pre-Conquest loom, usually by women.

Handwoven cloth is also produced in the state. There is less demand for it than for the factory-made yardage, but some is still sold in the

markets and stores. Many of the Indians weave practically all of their woolen clothing as well as many of the cotton textiles that they use.

Bags are produced of a number of different materials. Those of wool are usually decorated with inwoven designs of stylized birds and animals. Striped bags are made of brightly colored maguey fiber, and henequen bags are woven of the natural-colored fiber.

All handwoven articles in Guanajuato are characterized by the individuality of the designs. Each article is a creation, not a copy.

Plaiting is a process closely related to that of weaving. By it are produced a number of articles necessary in the Mexican home of today. Of all the plaited articles petates, or mats, are probably the most important. These are hand-made of rush or palm, the strands being plaited in a number of motifs. They are made by both men and women and are used in a number of ways: as floor coverings, for beds, and even as packing material for goods which will be shipped.

Baskets are made to be used, and their shape depends on their function. The decoration is applied as the baskets are made. In the city of Guanajuato most of the baskets produced are made of tule, the rush used in petates. They are made with a rectangular bottom and a round top, the rush used often being dyed in bright colors.

At Tierra Blanca heavy bamboo splints are made into baskets which are very firm and durable. These baskets are made in a variety of sizes and shapes to meet the many uses to which they are put. Silao, noted for its toys, produces a number of small decorative baskets, a very

interesting one being made of straw with designs of concentric squares. Other toy baskets are made of maguey fibers, grass, and horsehair.

The Indians produce many interesting and amusing figures and animals from rushes. They also make a number of decorations from the rushes and from palm leaves.

Strands of rushes in natural color are also used in the production of several articles of clothing. Rain capes of palm, made by a technique similar to that used in thatching a roof, are common sights during the rainy season. Sombreros in all sizes, shapes, and textures are hand-woven of palm.

Rushes, straw, and palm leaves also have an important place in the creation of household articles. Fans for starting charcoal fires and sieves are among the most necessary of these.

This investigation is by no means a complete presentation of the subject because of the lack of records concerning the very early weaving processes and techniques. Many interesting articles which are produced and used in only one locality may have been overlooked. Because weaving is a creative craft, every article produced is different, and although these can be classified under broad heads, there still remain individual characteristics in the examples within one group.

The study could also be extended to include the designs which are applied to the woven articles. Stripes, checks, geometric designs, and the stylized birds and animals which are woven into cloth articles in different parts of the state could be examined and comparisons made with similar motifs among tribes in other sections of North, Central,

and South America. Many of these motifs may have forgotten connections with the pre-Conquest religion of the various peoples.

Conclusions

1. Weaving has always held an important place in the everyday life of the people occupying Guanajuato, and woven articles reflect the very thoughts of the people who made and used them.

2. The people of Guanajuato have from earliest recorded times been a very religious people. Many woven articles grew out of their religious needs, either before or after the introduction of Christianity. Several designs still used in weaving have connection with early religious ceremonies.

3. Woven articles are made to be used, showing the practical nature of those who made them. Because these articles are to be used, they are created along functional lines. Each article is especially fitted for its place in the home or as a garment, and all decoration grows out of or is subordinated to the form. Ornament is an integral part of the creation, and not something superfluous.

4. The natives of Guanajuato are very sociable. Even when they are working, they like to be where they can see and talk with one another. Usually there are at least two looms close together in the weaving shops so that a worker will not be isolated.

5. There is among the natives of Guanajuato a deep appreciation for the beautiful because of its familiarity. Those articles which will be used the most are given careful thought in regard to form and design, both by the artist who makes them and by the user who selects

them. Craftsmanship is a trait recognized both by the craftsman himself and by the layman. This appreciation for good work encourages the production of more beautiful articles. Many pieces of weaving which are used every day are examples of art good enough to be displayed in museums.

6. Not only do the people of the state appreciate the good work of others, but they enjoy creating articles of which they may be proud.

7. A great change in the life of a people will soon be reflected in their crafts. The changes brought about by the Conquest soon caused great changes in the weaving techniques. These changes did not mean the discarding of old methods, but rather the use of both old and new, each in the place it would best serve.

8. The materials used in the production of woven articles are those which are most easily acquired. The first materials used were those which were native to the territory; as means of transportation improved, fibers began to be imported from neighboring regions, and finally those from great distances were used.

BIBLIOGRAPHY

BOOKS

Books Quoted

- Bancroft, Hubert Howe, History of Mexico, Vol. IV, 1804-1824, The Works of Hubert Howe Bancroft, Vol. XII, San Francisco, The History Co., Publishers, 1886.
- Bancroft, Hubert Howe, Resources and Development of Mexico, San Francisco, The Bancroft Company, 1893.
- Bray, Helen A., Textile Fibers, Yarns, and Fabrics, New York, The Century Co., 1929.
- Carter, Herbert R., The Spinning and Twisting of Long Vegetable Fibers, London, Charles Griffin and Co., Ltd., 1904.
- Knack, C. Reginald, Mexico, London, T. Fisher Unwin, Ltd., 1919.
- Greenbie, Sydney, Next-Door Neighbor Mexico, New York, Row, Peterson and Co., 1942.
- Hanson, Earl Parker, editor-in-chief, associates, Colorado, Antonio, Raymond, Natalie, and Teall, Dorothy, The New World Guides to Latin American Republics, Vol. I, New York, Duell, Sloan, and Pierce, 1943.
- Joyce, Thomas Athol, Maya and Mexican Art, London, The Studio, Ltd., 1927.
- Joyce, Thomas Athol, Mexican Archaeology, London, Philip Lee Warner, 1920.
- Kirk, Betty, Covering the Mexican Front, Norman, University of Oklahoma Press, 1942.
- Kissell, Mary Lois, Yarn and Cloth Making, An Economic Study, New York, The Macmillan Co., 1918.
- Lehmann, Walter, The History of Ancient Mexican Art, Vol. VIII of Orbis Pictus, The Universal Library of Art, New York, Brentano's Publishers, 1922.

- Mason, Otis Tufton, Woman's Share in Primitive Culture, New York and London, D. Appleton and Company, 1915.
- Murillo, Gerardo, (pen-name Dr. Atl) Las Artes Populares en Mexico, Vol. II, Mexico, Publicaciones de la Sria. de Industria y Comercio, 1922.
- Museum of Modern Art, New York, in collaboration with the Mexican Government, Twenty Centuries of Mexican Art, Prepared and printed in Mexico, 1940.
- Oglesby, Catherine, Modern Primitive Arts of Mexico, Guatemala, and the Southwest, New York, London, Whittlesey House, McGraw-Hill Book Co., Inc., 1939.
- Pan American Union, Mexico, A General Sketch, Washington, D. C., 1911.
- Pellow, Charles Ernest, Dyes and Dyeing, New York, Robert McBride & Co., 1918.
- Priestley, Herbert Ingram, The Mexican Nation, A History, New York, The Macmillan Co., 1923.
- Reichard, Gladys A., Navajo Shepherd and Weaver, New York, J. J. Augustin, 1936.
- Spinden, Herbert Joseph, Ancient Civilizations of Mexico and Central America (Handbook Series No. 3), New York, 1922.
- Teja Zabre, Alfonso, Guide to the History of Mexico, Mexico, Press of the Ministry of Foreign Affairs, 1935.
- Terry, T. Phillip, Terry's Mexico, Handbook for Travellers, Boston and New York, Houghton Mifflin Company, 1911.
- Thompson, J. Eric, Mexico Before Cortez, New York, London, Charles Scribner's Sons, 1933.
- Toor, Frances, Mexican Popular Arts, Printed in Mexico, Frances Toor Studios, 1939.
- West, Wallace, Our Good Neighbors in Latin America, New York, Noble and Noble, Publishers, Inc.
- Woodhouse, Thomas, The Handicraft Art of Weaving, London, Henry Frowde and Hodder and Stoughton, 1921.
- Woolman, Mary Schenk, and McGowan, Ellen Beers, Textiles, A Handbook for the Student and the Consumer, New York, The Macmillan Company, 1926.

Books Consulted

- Brown, Harry Bates, Cotton History, Species, Varieties, Morphology, Breeding, Culture, Diseases, Marketing, Use, New York, McGraw-Hill Book Co., Inc., 1927.
- Chase, Stuart, in collaboration with Marian Tyler, Mexico: A Study of Two Americas, New York, The Macmillan Co., 1931.
- Diccionario Enciclopedico Hispano-Americano de Literatura, Ciencias, Artes, Etc.
- Gardner, Helen, Understanding the Arts, New York, Chicago, Harcourt, Brace, & Co., 1932.
- Gruening, Ernest Henry, Mexico and Its Heritage, New York, London, The Century Co., 1928.
- Hewett, Edgar L., Ancient Life in Mexico and Central America, Indianapolis, New York, Bobbs-Merrill Co., 1936.
- James, George Wharton, Indian Blankets and Their Makers, New York, Tudor Publishing Co., 1937.
- Lewis, Ethel, The Romance of Textiles, New York, The Macmillan Co., 1938.
- Lopez Rosado, Diego G., Atlas Historico Geografico de Mexico. (no publisher named), 1940.
- Mason, Gregory, Columbus Came Late, New York, London, The Century Co., 1931.
- McCrory, Mae, Wool, Educational Printing House, Inc., 1939.
- Packard, Leonard O., and Sinnott, Charles P., Nations as Neighbors, New York, The Macmillan Co., 1933.
- Pan American Union, Mexico (American Nation Series, No. 13), Washington, D. C., 1932.
- Shook, Anna Nett, The Book of Weaving, New York, The John Day Co., 1928.
- Spence, Lewis, Myths and Legends, Mexico and Peru, Boston, David D. Nickerson & Co., no date.
- Vargas, Prof. Fulgencio, Historia Elemental del Estado de Guanajuato, Mexico, 1940.
- Watt, Sir George, The Wild and Cultivated Cotton Plants of the World, New York, Longmans, Green, and Co., 1907.

REPORTS

Reports Quoted

Hooper, Luther, "The Loom and Spindle: Past, Present, and Future," Annual Report of the Board of Regents of the Smithsonian Institution, 1914, Washington, Gov't Printing Office, 1915.

Mexico, Secretaria de Hacienda y Credito Publico, Departamento de Impuestos Especiales, 1926, Mexico, 1926.

Reports Consulted

Mason, Otis Tufton, "Influence of Environment upon Human Industries or Arts," Annual Report of the Board of Regents of the Smithsonian Institution, 1895, Washington, Gov't Printing Office, 1896.

ARTICLES

Articles Quoted

Christian Science Monitor Magazine, "Tribal Art of Basketry," Feb. 24, 1945, p. 6.

Encyclopaedia Britannica, 14th ed., Vol. I. Article, "Agave."

Miller, Walter, editor-in-chief, Standard American Encyclopedia, Vol. IV. Article, "Cochineal," Vol. XIII. Article, "Textiles," 1937.

Articles Consulted

Cory, Herbert, "Among the Zapotecs of Mexico," National Geographic, Vol. LI, No. 5 (May, 1927), 501-555.

Encyclopaedia Britannica, 14th ed., Vol. XII. Article, "Guanajuato."

Miller, Walter, editor-in-chief, Standard American Encyclopedia, Vol. XI. Article, "Sheep."

Olson, Gerda, "Living Art in Mexico," School Arts Magazine, Jan., 1938, pp. 133-135.

Probert, Frank H., "The Treasure Chest of Mercurial Mexico," National Geographic, XXX (July, 1916), 33-64.

Recueil de Planches, de l'Encyclopedie par Ordre de Matieres,
Tome sixieme.

Tanner, Clara Lee, "Shepherds of the Desert," Arizona Highways,
XXI (Aug., 1945), 7-11.

