PERUVIAN FEATHER-WORK: DEVELOPMENT, PURPOSES, AND TECHNIQUES

by
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ABSTRACT

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Virginia Helen Roll, Master of Science, 1965

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The purpose of this study was to gain knowledge of Peruvian feather-work, its development, its purposes, and the techniques involved in the production of this material. Through research and through examination of seventy-seven pieces of feather-work at seven museums, theories propounded in research were verified. In addition, discoveries were made. An additional method of stringing the feathers was discovered.

A brief history of the people shows that as they developed in agriculture, they had a parallel development in cultural accomplishments. It can be assumed that the agricultural development led to more time for cultural achievements. It has become known that their accomplishments in the area of textiles were outstanding. Among their textiles, feather-work was particularly unique.

TABLE OF CONTENTS

LIST OF FIGURES

SECTION I

INTRODUCTION

"A truly amazing symphony of colors,"[1] "a masterpiece of polychromatic harmony"[2]--such are the references made to Peruvian feather-work, some pieces of which are so outstanding that "...no description, no reproduction can do justice to this bewildering beautiful fabric which looks rather like the wing of some gigantic butterfly than anything made by human hands."[3]

The researcher first became aware of Peruvian feather-work while taking a course, International Textiles, at the University of Maryland. At that time The Textile Museum of Washington D. C. had on exhibit a group of Peruvian fabrics; it was in this collection that the researcher first viewed a number of pieces of feather-work. After observing this superb work done by the Peruvians, the researcher decided to pursue a study of feather-work. Thus the purpose of this study is to gain knowledge of Peruvian feather-work, its development, its purposes, and the techniques involved in the production of this material.

In 1907 Charles Mead[4] indicated in his writing that the feather-

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[1]Philip Ainsworth Means, Ancient Civilizations of the Andes (New York: Charles Scribner's Sons, 1931), p. 105.

[2]Ibid., p. 106.

[3]Adele Coulin Weibel, "The Elsberg Collection of Peruvian Textiles," Bulletin of the Detroit Art Institute, XIX, No. 4 (1940), p. 38.

[4]Charles W. Mead, "Technique of Some South American Feather Work," Anthropological Papers of the American Museum of Natural History, I (1907), p. 3.

work of the Americas has not been given the attention it deserves. Since that time, considerable attention has been given to Peruvian fabrics; but some specific groups of fabrics have been ignored. Feather-work is among these.

In pursuit of information regarding the techniques involved in feather-work, the researcher closely examined seventy-seven pieces of feather-work belonging to seven different museums. It is the knowledge gained from this effort that is herein presented.

A brief history of Peru has been included in the paper for the purpose of giving information regarding the people and the country where feather-work originated. Archaeological discovery has progressed quite rapidly in Peru, thus theories regarding the people and cultures are continually changing. The references used for the brief history included in this paper were those recommended by Dr. Clifford Evans.[1] The references used were The Ancient Civilizations of Peru by J. Alden Mason and Peru by G. H. S. Bushnell.

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[1]Curator, Division of Archaeology, Smithsonian Institution.

SECTION II

REVIEW OF LITERATURE

The boundaries of Ancient Peru are approximately the same as those of the present country of Peru. Highland Bolivia is included in Ancient Peru; but the greater part of the lowland forest east of the Andes, presently in Peru, was not a part of the ancient state. Ancient Peru was one cultural area, which for many years shared within its boundaries a common tradition.

The variations in the climate and topography of Peru are comparable to few regions of the world. Along the west coast is one of the great deserts of the world, where life would be impossible were it not for the river valleys crossing it from east to west. The foothills of the Andes begin only a short distance inland and rise gradually to snow-capped peaks. Below the high ranges, there are numerous river valleys, a few of which are not so steep and narrow that they could not support human life. The inhabitants of the coast had to depend on the rivers as their single source of water; they organized into large groups and developed rather extensive irrigation systems. The same was not necessary for the highland peoples as they had regular rainfall and other sources of water. Just beyond the Andean mountain range lay the tropical, humid, eastern lowlands, the nearest parts of which the old Peruvians penetrated only in order to acquire valuable tropical products.[1]

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[1]J. Alden Mason, The Ancient Civilizations of Peru, (Baltimore, Maryland: Penguin Books, 1961), p. 2.

If the ancient Peruvians had any written language of their own, nothing is definitely known of it at the present time; thus, any knowledge of their cultural and historical phases must be drawn from sources other than written records. The cultural history of Peru has been partially reconstructed on the basis of archaeological investigations with slight attention being given to word-of-mouth or post-recorded legends and traditions.

On the coast of Peru a study of the past is very favorable, because the dry, sandy soil has allowed the contents of the old Peruvian graves to remain in an almost perfectly preserved condition. Some information on ancient Peru has long been known from the artifacts looted from the coastal graves, but, because of lack of written records of these earlier discoveries, the building up of any chronology did not take place until serious archaeology was started. A more serious study was begun in the 1890's by Max Uhle, a German archaeologist and anthropologist. Since that time, archaeological efforts have been carried on in a truly scientific manner.

In the more serious archaeological pursuits, as excavations proceed downward, the location and spatial relationship of every object is carefully noted. One of the most important objects, pottery, which is nearly as indestructible as stone, has been very valuable to the archaeologist. The many variations in the technique, shape, and design of the pottery have been the archaeologist's main and standard criterion of cultural periods. Although all information was very carefully recorded during excavations, all dates of cultural periods were mere subjective estimates that frequently differed among equally respected authorities. The development of analysis by radioactive carbon has been

welcomed, since measurement of the radioactivity of any organic substance can be used with a high degree of accuracy in calculating the number of years since the "death" of the object.

It is becoming apparent that all of the great civilizations of the world developed along similar lines. A group of people usually began by hunting and gathering; then once situated they developed agriculture. Because of an ample food supply, it followed that there was time for the development of arts and crafts, social and religious institutions, and other cultural achievements. Then pressure of population and the resultant competition for food would bring about conflicts between adjacent groups and mastery by a few groups. Finally lust for power would bring about the establishment of an empire.[1]

The general chronology of Ancient Peru is still full of gaps; at the present, however, there is enough information available to bring about some understanding of the Central Andean Culture. Most historians and archaeologists agree to a general outline of the cultural periods of Peru; but when specific regions, phases, cultural items, and so forth are mentioned, there are many disagreements. Thus for the purposes of this paper, the researcher has used the archaeological cultural periods outlined by J. Alden Mason.[2] (See Chart 1)

The Incipient Era is generally divided into two periods, the pre-agricultural and the early agricultural. During the pre-agricultural period, the people lived by hunting wild game and gathering wild produce from the land and the sea. The origin of these men is not known, but

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[1] Ibid., p. 14.

[2] Ibid., pp. 16-17.

CHART I

ARCHAEOLOGICAL CULTURAL PERIODS IN PERU *

Climatic	Dates A	Dates B	Periods	Northern Coast	Central Coast	Southern Coast	Northern Highlands	Central Highlands	Southern Highlands	Cultural Development (Especially applicable to the North Coast)
Developmental Incipient	8000 BC		Pre-agricultural							Hunting, fishing, and wild-plant-food gathering
	2550 BC		Early agricultural	Huaca Prieta						Simple agriculture, combined with fishing, hunting, and wild-plant-food gathering
	1250 BC	1200 BC	Formative	Early Guanape						Corn and pottery are introduced. Great technical progress is made in all crafts
	850 BC		Cultist	Cupisnique	Early Ancon-Supe		Chavin			Cultural progress continues. Certain elements common to almost all regions a widespread religious cult-that of Chavin
	500 BC	400 BC	Experimental	Salinar, Early Gallinazo	Chancay white-on-red	Paracas Cavernas, Ocucaje	Huaraz white-on-red	Chanapata	Chiripa	Many new techniques indicate a very dynamic period
Florescent	300 BC	AD 400	Florescent	Moche, Late Gallinazo	Interlocking early Lima	Paracas Necropolis, Nazca	Recuay		Early Tiahuanaco, Pucara	Handicraft reaches its apogee as do engineering, architecture, and other social features.
	AD 500	AD 1000	Expansionist	Tiahuanaco	Tiahuanaco "Epigonal"	Nazca "Y"	Wilkawain	Huari	Tiahuanaco	Apparently a period starting with conquest and political or social unification, breaking down into one of disruption or decadence
	AD 1000	AD 1300	Urbanist	Chimu	Chancay black-on-white	Ica	Late Huamachuco	Early Inca	Collao Chullpa	Local autonomy with large population centres were a characteristic feature in some areas. Clear-cut regional styles in ceramics
	AD 1440	AD 1438	Imperialist	Inca	Inca	Inca	Inca	Inca	Inca	The Incas ride to power, conquer all others, and establish a military empire
	AD 1532	AD 1532	Colonial	Spanish	Spanish	Spanish	Spanish	Spanish	Spanish	The Spanish under Pizarro conquer the Inca empire; the Colonial Period begins

Dates 'A' and 'B' are proposed by equally competent authorities. The 'A' school accepts the rather few radiocarbon dates; the 'B' rejects them as not compatible with other archaeological data.

*J.A. Mason, The Ancient Civilizations of Peru (Baltimore: Penquin Books, 1961), p. 16.

it is possible that they are ancestors of the first men who arrived in the New World from Asia by way of the Bering Straits. During the Early Agricultural period, the people lived a simple sedentary life, providing for themselves only the necessities of life. Their diet consisted primarily of fish and wild plants with small supplements of cultivated foods. Their fabrics consisted of barkcloth and some twined cloths made of cotton or a bast fiber. The heddle loom was not yet used, thus all fabrics were made by hand manipulation. Ornamentation was sometimes accomplished by sewing on feathers.

The Developmental Era consisted of three periods: the Formative, the Cultist, and the Experimental. Most of the information on this era refers to the coastal people, as it is in this area that most of the archaeological investigations have been made. This is most likely due to the better preservative conditions along the coast. During this era a subsistence economy based primarily on seafood grew into an economy based almost entirely on agriculture. The population growth was slow; the political unit was the small village.

The Formative period brought the introduction of pottery and corn, and in turn, an easier life for these people. With pottery, cooking was done directly over the fire instead of in gourd vessels heated with small stones. With maise added to the local diet, more time was left for other pursuits because corn was a crop that yielded good returns for labor spent. Also in this period there was a continuation of twined fabrics and an introduction of some new weaving techniques. This period is sometimes referred to as Guanape, from a little fishing village of that name, where sites of this period were discovered.

The Cultist period brought the Chavín horizon style[1] and improvement in agriculture but little development in dress. Chavín, the first of several horizon styles of great importance in Peru, takes its name from the site of Chavín de Huantar in the northern highlands, where the Chavín cult began. This art style, emphasizing a feline-jaguar or puma-treated in a stylistic manner, spread throughout most of Peru. Agriculture improved immensely during this period and became the main source of food supply. Although the graves have not contained a sufficient number of fabrics to draw conclusions about the textiles of the period, it is known that men usually wore loincloths and both sexes wore some ornaments and feather headdresses and capes.

The Experimental period was a time of development, improvement, and invention. Progress in agriculture included the practice of irrigation and the cultivation of new plants. Most of the pottery had a red surface indicating a great technical advancement, since the pieces had to be fired in a hot oxidizing fire instead of a warm reducing fire. Because the characteristic pottery decoration was white on this red surface, the term "White-on-Red" is frequently used to describe the period. On the southern coast was one of the burial sites of this period, Paracas Cavernas. It is here that there have been found some very well made textiles, particularly gauzes. Other of the single-element weaving techniques were especially prominent. The clothing consisted of loincloths, waistbands, shirts, shawls, turbans, and headbands. The basic social group still continued to be the family, with little attention given to class distinctions.

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[1]An art style uniting wide areas of Peru.

The Florescent Era was a time during which the Peruvian cultures achieved and maintained economically, technologically, and artistically, a high level of excellence. These cultures, however, did not seem to be held together by any particular horizon style. The major cultures of this period were located in the coastal region; Moche was in the north, and Paracas and Nazca were in the south.

The Moche excelled especially in the area of ceramics; they had attained perfection in realistic modeling. Although made in molds, duplicates of the ceramics are rare. The stirrup-spout vase was the most characteristic shape, and the Moche molded almost every conceivable human or animal form into the body of the vases. Agriculture had reached a stage of technical perfection, and all food plants known to the early Peruvians were cultivated. Although civic planning was not yet a factor, there apparently was a status society among the Moche consisting of a small aristocratic group that directed a large labor class. Women's clothing during this time consisted of a long skirt and ear pendants, and the men wore loincloths for everyday and elaborately decorated shirts and skirts for special occasions. Little is known of the textile techniques, however, since the land of the Moche is damp, and dry sandy soil is necessary for preservation.

Paracas is best known for its magnificent mantles of a loosely woven wool or cotton material, embroidered with polychrome designs. These magnificent textiles have been found in numerous graves; it is believed they were made primarily for mortuary purposes. Evidence indicates that the Paracas culture gave birth to the Nazca culture.

The people of the Nazca culture were a sedentary, democratic group who gave much attention to ancestor worship. The lovely and

admirable textiles of Nazca also seem to have been made strictly for mortuary purposes, as they were in Paracas. Practically all of the textile techniques known to the early Peruvians, were known to the Nazca weaver. Wool, imported from the highlands, seems to have been used more frequently than the native cotton. The range of colors used in the fabrics was enormous; it consisted of some one hundred and ninety tints.

The Climactic Era was the last of the early Peruvian history. It consisted of three periods: the Expansionist, the Urbanist, and the Imperialist. During this era there was a maximum of materialistic development. Most of the groups and tribes of people were united into a few large nations: urbanistic, militaristic, and socialistic in nature.[1]

The Expansionist period is characterized by a horizon style known as Tiahuanaco. This particular horizon style acquired its name from one of the great sites of this time, located in the southern highlands. The influence, thought to be a religious cult, spread to most of Peru. Though strong, the influence was apparently not permanent. The major physical structures located at Tiahuananco are examples of unusually well constructed masonry. The perfectly cut stone blocks were held firmly together with notches, something unique in Peruvian masonry. Excavations in this area have not disclosed any textiles; however, well made textiles of the period, especially tapestries, have been found on the coast of Peru. The art style of this horizon included stylized geometric profiles of pumas, condors, and other figures.

The Urbanist period is often referred to as the 'City Builder Period'. It was during this period that the people tended to converge

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[1] Ibid., p. 88.

in large urban centers. There was a strong development of political and social organizations. Because of the absence of wheeled vehicles, or any means of transportation except the backs of llamas, men, and women, municipal problems must have been great in the large, crowded population centers. The largest of these centers was probably that of Chimu on the northern coast. The big, fertile, irrigated river valleys of Chimu made life possible for a large concentration of people. The craftsmanship of this time was technically excellent, but it tended to become static and standardized, with the most of the emphasis on quantity. Orderly rows and bands of only a few colors appeared to be the most typical design. On the northern coast, feather mosaics have been uncovered in excavations.

The Imperialistic period brought the rise of the Inca empire, a small militaristic group from within Peru, that gradually conquered surrounding groups and rose to power. The Inca influence extended throughout all of Peru; and Inca objects have been found in all regions. In some areas the objects found consisted of a blend of Inca and local styles.

The Inca pottery, consisting of a few standard wares in a few standard shapes, was considered excellent in quality. The use of bronze for tools and weapons was the main innovation in the area of metalurgy. Within the Inca organization, there was a group of women who were designated to serve the Emperor. Part of the group served in the capacity of specially skilled weavers. The weavers were provided with materials which they in turn made into cloth for the ruler and the gods. These people had a special counting system which consisted of an arrangement of knotted strings of various thicknesses, and it was with these strings

that the recording of numerical information was accomplished.

The later cultures of Peru are often regarded as highly civilized communities because they possessed many of the features of advanced cultures: efficient food production, large urban centers, political organizations, public works, class systems, and hierarchies. These later cultures of Peru, however, lacked certain aspects that accompanied the growth of the Old World cultures. They had no potter's wheel and no wheeled transportation. Also there seems to be no positive indication of their having had any system of writing.[1] Nonetheless they are considered one of the great early civilizations. One outstandingly great characteristic of the people of this Central Andean culture was their great manual skill associated with very simple apparatus.[2]

This skill is evident in the textile achievements of the Peruvians. The Peruvian fabrics exhibit a degree of technical perfection and decorative beauty acclaimed by many textile experts to be yet unsurpassed. The textile art in Peru is considered to have flourished to the degree that it did for three reasons: the climatic conditions of the high plateau required warm clothing, the natural fibers were readily available, and the agricultural economy was developed to such a degree that these people attained much leisure time.[3] The vigorous patterns of the Peruvian fabrics, with designs ranging from geometric to stylized natural, have an aesthetic interest which has seldom been surpassed in any category

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[1]G. H. S. Bushnell, Peru ("Ancient People and Places"; London: Thames and Hudson, 1963), p. 30.

[2]Ibid., p. 27.

[3]John Alden Mason, Brief Guide To The Peruvian Textiles (Lima: 1959), p. 3.

of fabrics. The Andean artist was quite daring in the use of color and design, but, nevertheless, the design always displayed the qualities considered essential to good design. This knowledge of textile technology was apparently understood by all classes of pre-Columbian life and was indeed the art of an entire people. The textile achievements were so remarkable that Peru should be entitled to a cultural position comparable with that of other great civilizations of ancient days.

> In no other part of the world has human society been known to produce such a rich diversity of textiles, outstanding for both their artistic and technical excellence.[1]

Once the people of the early civilizations acquired a knowledge of the craft of weaving, they soon developed ingenious methods of varying the monotony of plain weave fabrics. According to Crawford,[2] there has been found in the sandfilled graves of Peru, all of the textile processes known to the textile masters of antiquity, except for roller and block printing. However Birrell[3] indicates that the oriental knotted-pile weaves were the only textile techniques not known to the ancient Peruvians. Regardless of what textile techniques were or were not practiced, the Peruvians did show a great amount of skill and inventiveness in their many textile processes. Feather-work is one of these remarkable accomplishments. Feather-work, according to Weibel, "...remained the special glory of the Peruvian textile art for more than a thousand years, to the very end of the Inca period."[4]

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[1] Textiles of Ancient Peru (Washington D. C.: The Textile Museum, 1964), p. 2.

[2] M. D. C. Crawford, "Peruvian Textiles," Anthropological Papers of The American Museum of Natural History, XII, Pt 3 (1915), p. 90.

[3] Verla Birrell, The Textile Arts (New York: Harper and Brothers, 1959), p. 15.

[4] Weibel, op. cit., p. 39.

For the purpose of this paper the following will be used as a definition for feather-work; the definitions of various authorities being the original source. Feather-work is a fabric consisting of a plain weave, utilitarian, or ordinary background fabric to which overlapping rows of feathers are sewn. Within this paper the terms feather-work, feather-cloth, and feather mosaic will be used interchangeably.

The technique of making feather-cloth was seemingly a rather intricate and ingenious process. The feathers were first fastened together with a thread[1] or cord so that the feathers were parallel to one another, forming a string or fringe of feathers. These fringes of feathers were in turn fastened in successive overlapping rows, to a previously woven fabric, usually of cotton. The stitch holding the string of feathers to the fabric was made near the folded section of the quill, thus the lower end of the feathers could be raised slightly. The size, form, and color of the feathers used were determined by the design desired or by the ultimate purpose for which the feather-cloth was to be used.

Several methods were used for stringing the feathers. In all methods the top of the quill of each feather was folded over; and at this fold, each feather was secured with a knot made by a continuous thread. The difference between the methods used for stringing the feathers was in the manner in which the thread was fastened about the feather.

The first method to be mentioned is the method cited by Harcourt,[2]

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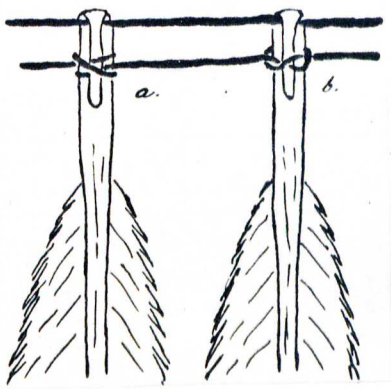
[1]The word thread applies to that which is used to string feathers and to sew; the word yarn applies to that which is used in weaving.

[2]Raoul d'Harcourt, Textiles of Ancient Peru and Their Techniques (Washington: University of Washington Press, 1962), p. 132.

Baessler,[1] and Mead[2] in their works. In this method the folded quill section of each feather was placed over a preliminary cord and was secured with a knot made by a second and lower thread. The knot used in this method was either a simple knot or a knot with two loops. (See Figure 1). This method will be referred to as Method I.

Figure 1

STRINGING METHOD I



a. Knot with two loops
b. Single knot

In the second method, the preliminary cord was eliminated, and only a single thread was used at the folded area. The thread was passed around the folded section of the quill, was passed through the fold, was pulled tight, and then was passed onto the next feather. The feather then rested in a position perpendicular to the stringing thread. This method

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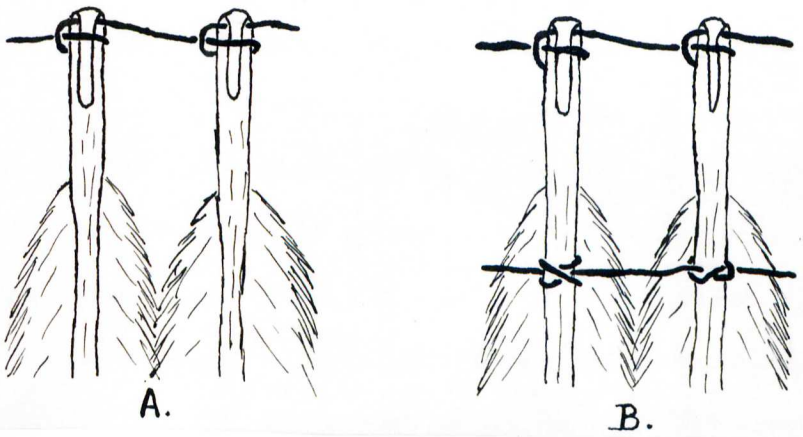
[1]Arthur Baessler, Ancient Peruvian Art, trans. A. H. Keene (New York: Dodd Mead and Co., 1902), IV, plate 148.

[2]Mead, op. cit., p. 7.

will be referred to as Method II. It is this method that was mentioned in the works of Holmes[1] and Yacovleff[2] (See Figure 2-A). If large thick-quilled feathers were used, a section of the back of the quill was cut away. Longer feathers were sometimes more securely held in their perpendicular position by a second thread. This thread formed a single or complex knot part of the way down the shaft of the feather (See Figure 2-B).

Figure 2

STRINGING METHOD II



When coarse feathers were used, a cord forming a terminal loop was attached to the end of the quill and was held in place by an additional thread that wrapped around the looped cord and the end of the quill. The feathers were then strung as they were in Method I with the loop taking the place of the folded quill (See Figure 3). In some cases

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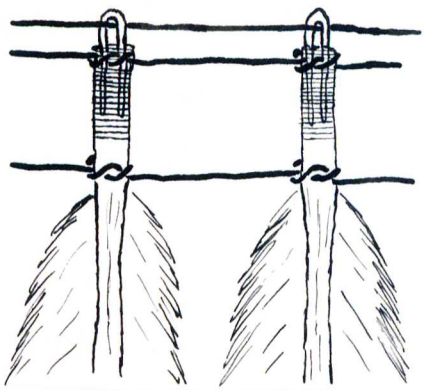
[1]William H. Holmes, "A Study of the Textile Art in Its Relationship to the Development of Form and Ornament," Sixth Annual Report of the Bureau of American Ethnology (Washington D. C.: Bureau of American Ethnology, 1885), p. 337.

[2]E. Yacovleff, "Arte plumaria entre los antiguos peruanos," Revista del Museo National, II, No. 2 (1933), p. 145.

this same procedure was followed in order to lengthen the shaft.

Figure 3

LENGTHENING SHORT FEATHERS

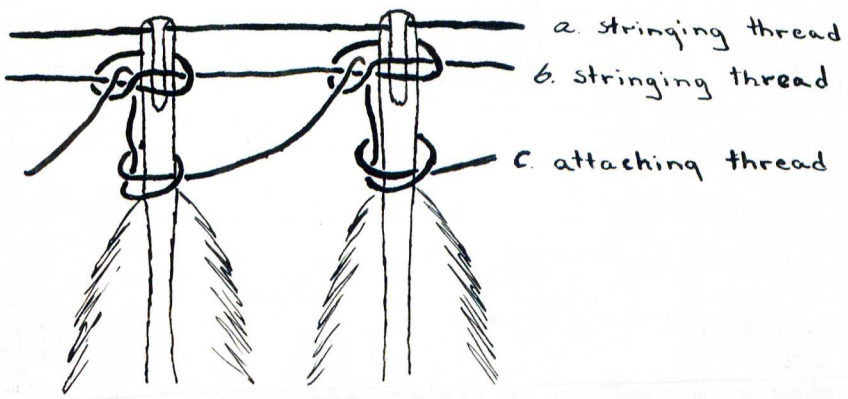


Those who have written on the techniques involved in making feather-cloth have given little attention to the ways in which the feathers were strung, but they have given even less notice to the systems used in attaching these fringes to the fabric. Strings of feathers have been found at various excavation sites, so for this reason it is assumed that the feathers were first strung and then attached to the cloth. Regardless of the system the Peruvians used to attach the strings of feathers to the fabric, the work seemed to have been done with great care, making sure that the overlapping feathers covered the stitches. The stitches varied from system to system, but in each instance the fringes were attached to the background in parallel rows. The stitches caught both the stringing threads and the background cloth. The feather fringes were placed in successive overlapping rows, working from the lower edge of the piece upward. They were usually attached only near the folded quill section, leaving the ends of the feathers hanging free.

One system of attachment mentioned by Mead[1], consisted of knotting not sewing. The feathers were strung by Method I. Then a third thread was used to attach the strings of feathers (See Figure 4). It was knotted to the fabric, was passed over the shaft of the first feather from right to left, was passed down through the cloth, came out on the righthand side, and formed a knot by being passed over and under the cord. It was then carried up the shaft of the feather and through the knot formed by the lower stringing thread.

Figure 4

MEAD ATTACHMENT SYSTEM



In an article by Holmes[2] a sketch is given illustrating an additional system used for attaching the strings of feathers. It appears that a slanted stitch caught the feathers to the fabric; the stitch being taken right on top of each of the stringing threads (See Figure 5).

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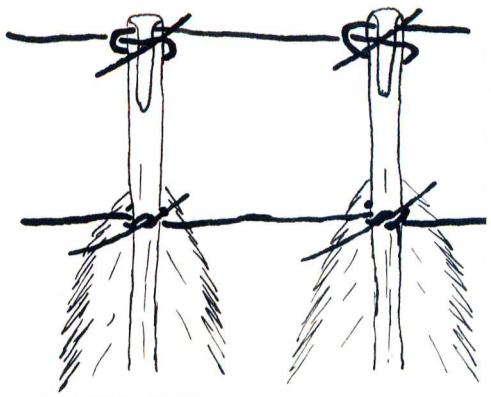
[1]Mead, op. cit., p. 7.

[2]Holmes, op. cit., p. 230.

Figure 5

HOLMES ATTACHMENT SYSTEM



In the process of creating the glorious feather-cloth, the Peruvians first made the base fabric, shaping it according to its final use. Then the fringes of feathers were attached to the base fabric. If two or more colors of feathers were used, an organized design was created. This design consisted of either monochrome bands extending the width of the garment or polychrome patterns using geometric or stylized realistic figures. When the design consisted of monochrome bands extending the width of the garment, the strings of feathers were made up of a single color. The strings of feathers were then used as each particular color was needed.

If a polychrome design was desired, this meant that within a row of feathers there was in some cases a need for feathers of several different colors, depending on the demands of the design. According to Harcourt if a polychrome design was desired, "...it must be taken into consideration when preparing the fringes and the colours of the feathers

changed where required."[1] Harcourt[2] in his book, Textiles of Ancient Peru and Their Techniques, points out that when the feather fringes were prepared, the feathers were selected for their size, form, and color. This too, seems to indicate that the ultimate design was taken into consideration when the feathers were strung. Mead[3] in his article on feather-work also indicates that when a polychrome design was envisaged the different colored feathers were arranged on the strings in reference to the design to be produced. In this article, Mead was speaking of what he observed from specific pieces in the collection at the American Museum of Natural History. Yacovleff has the following to say about the achievement of polychrome design: "...threading thus the feathers of different colors and combining then the strings the makers of gold and silver tissue got figurations aplenty."[4] Means in his writing indicates the same: "When plumes of various colors were used to make a design, the arrangement of the feathers of each tint had to be planned out carefully beforehand in order that every feather might come in its appointed place in the scheme."[5] Baessler in Ancient Peruvian Art mentions that when fringes of feathers were made up that feathers "...of about equal size and colour..."[6] were knotted on the stringing

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[1]Raoul d'Harcourt, "Surface Decoration with Feathers, Metal Sequins, Tassels, and Tufts," Ciba Review, XII (February, 1960), p. 36.

[2]Harcourt, Textiles of Ancient Peru and Their Techniques, loc. cit.

[3]Mead, op. cit., p. 8.

[4]Yacovleff, op. cit., p. 146.

[5]Means, op. cit., p. 489.

[6]Baessler, loc. cit.

threads. This manner of which Baessler speaks, would tend to be contradictory to all of the previous methods; as it indicates that when a change of color was made in a polychrome design, the entire fringe of feathers had to be changed, since each color was strung individually.

Weibel[1] mentions in her writing that full-sized cartoons with the designs painted in the colors must have been provided as guides for the Peruvians as they produced the feather mosaics. No other references seem to indicate that these people had a cartoon or guide by which to work.

In the polychrome designs, some of the lines were rather intricate; therefore, in order to make the figures sharper and clearer, the overlapping portions of the feathers were cut away.

In Inca times the art of making feather-cloth was so widespread that special depots were set up for distributing the feathers. Thus, the artisan went there for his supplies. Some of the feathers used in the feather-cloth were from the coastal birds, but the more brilliant plumage came from birds in the Amazon region. These more gorgeous feathers came from toucans, parakeets, and macaws. The coastal Peruvians probably acquired the feathers by trading with those people living in the Amazon region. Also it is believed that feathers from many varieties of the parrot family were used. Some feathers were thought to have come from tropical rain forest birds. It is possible that the Peruvians may have artificially colored the feathers, but to date there are no findings to qualify this. With the naturally or artificially colored feathers, the Peruvians produced feather mosaics that were and still are lovely. It should be said that the Indians

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[1]Weibel, loc. cit.

were wise to select feathers since the color is so very long-lasting and durable.

For making the ground cloth for the feather mosaics, the Peruvian weavers had available to them many of the natural fibers. There were two kinds of cotton, brown and white; the natural brown cotton was used when a brown color was desired in the fabric. There were numerous wool fibers that could be used, from the following animals: the llama, the domesticated alpaca, and the wild vicuna. Occasional use of human hair has been found; that used was black, rather coarse, and very long. It is also thought that there existed wool from the guanaco or huanacu and a bast fiber derived from the maguey plant. The environment of the highlands was not good for growing cotton, as the environment of the coast was not healthy for raising wool-bearing animals. Since feather-cloth, in most instances, is a background fabric with a mosaic of feathers completely covering the surface, the emphasis is on the overlay. So for this reason, the background fabric did not have to be made of a lustrous, elegant fiber, but could be made of cotton in its natural form. Although many other fibers were available, they were not as plentiful as cotton; thus, they were seldom used except when they added to the aesthetic quality of the textile.

The fabrics made by the Peruvians were, in most instances, very well constructed. The yarns used in the fabrics were of the highest quality even though they were a product of rudimentary methods. When working with cotton, the seeds were removed by hand, and the fibers were separated from their tangled condition by hand. The cotton in the fiber bundles in the American Museum of Natural History "...is remarkably clean

and well carded."[1] This is quite outstanding since no tools have yet been found that can be connected with the cleaning and carding processes.

The yarn used in the Peruvian fabrics was twisted by hand, without the aid of a spindle rotated by a fly wheel. The Peruvians had two types of spindles: a banded spindle which was a highly polished single stick of palm wood, pointed at both ends with a pottery band in the center; and a tri-part spindle which consisted of two pieces of polished, pointed palm stuck in the end of a piece of hollow cane. Both of these types had dual purposes: (1) aiding in spinning, and (2) acting as a bobbin for the weft yarn. Many pottery bowls have been found, and it is believed that because of their size and shape that they served as a resting place for the points of the spindles. Two or more ply yarns were most frequently used, because greater evenness and more uniform strength was attainable. Occasionally single yarns were used in the place of ply-yarns; the choice being made with the ultimate purpose of the yarn being the determining factor. The Peruvian textiles show no improper use of yarn. The strength, covering qualities, rigidity, evenness, and elasticity were all considered according to the end result desired. The Peruvian weavers were aware of the inherent qualities of the various fibers, and they judiciously selected the appropriate fiber for the warp and weft direction of the fabric. If both wool and cotton were used in the same fabric, the warp was never of wool. The background fabric of the feather-cloth was usually made of a natural brown and/or white cotton; however, had the Peruvians so desired the fabric could have been dyed. To dye the fabrics, mostly vegetable dyes were used. The depth and fastness of the dye was acquired by using a mordant, which

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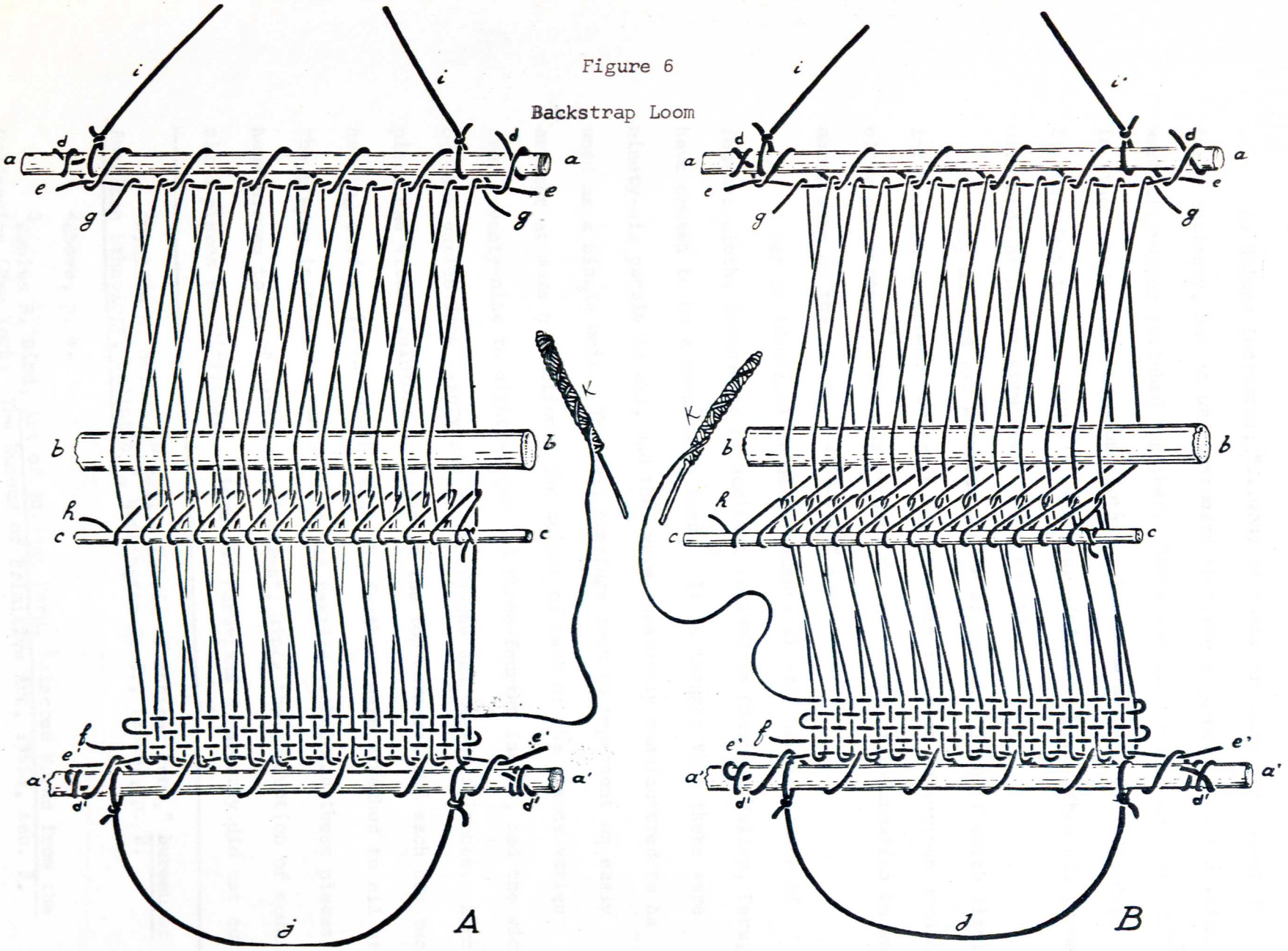
[1]Crawford, op. cit., p. 70.

makes the fibers rough and porous and in turn more receptive to dye. The colors that seemed to have been most readily available were blue, yellow, and red. The blue was derived from indigo; the yellow was a product from the bark of a false pepper tree; and the red is thought to have come from vegetable and animal sources, the primary animal being the cochineal. Violet and green were obtained by sucessive dyings of the appropriate primary colors. The weaving of the background cloth was done on a backstrap loom (See Figure 6). The loom was assembled so that a large reed (b) separated the two warp leases, and a shedding stick (c) with small loops attached, (h) allowed the raising and lowering of the two groups of yarn. The weft yarn (f) was carried back and forth through the shed by the bobbin (k). Once the weft was carried through, a large blade could be used to tighten the weft yarns. The loom consisted of two parallel bars (a & a') with the warp yarn (g) stretched between them; the one bar (a) was attached to a tree, and the other bar (a') had a strap (j) that passed around the lower back of the weaver allowing him to control the tension.

Since the loom had no warp beam, the pieces were relatively small. The pieces were generally no more than six and one half to eight and one half feet in length and twenty-three to twenty-nine inches in width. When a larger piece was desired, two smaller pieces could be sewn together. The textile products of the ancient Peruvians included a wide range. Basically for the head there were caps, bands, and pendent ornaments; for the body there were mantles, shirts, girdles, and sashes. Also they constructed blankets, hangings, ceremonial fabrics, and strange banners.

Figure 6

Backstrap Loom



Raoul D'Harcourt, Textiles of Ancient Peru and Their Techniques
Seattle: University of Washington Press, 1962

As Holmes indicates; "...many of these articles were woven in their entirety, but it was customary to weave a garment in parts which were afterwards stitched together. There was no cutting and fitting."[1] In other words, all Peruvian clothing showed an absence of tailoring. It was woven to size, usually with four finished edges. Thus all garments were made of one or more rectangular pieces.

Many museums own numerous pieces of feather-cloth of which little information is known. Criteria for analysis improves as serious archaeology progresses.[2] This was evident by the amount of information known about some of the pieces examined for this study.

A set of identical or nearly identical wall hangings made of feather-cloth, discovered by accident in 1943 in Churunga Valley, Peru, have proven to be a remarkable find.[3] It is thought that there were ninety-six panels in all, and they were apparently manufactured to be used as a single unit. The wall hangings seem to represent an early attempt at mass production. The height of each of the pieces varies from seventy-nine to eighty-eight and three-fourths inches, and the width of each varies from twenty-six to thirty-one and one-half inches. Each piece has vicuna reinforcing tapes at the top corners, and each has two heading cords. It is thought that the feathers were attached to all of the pieces in the same manner. To the textile technician these pieces have proven to be of particular interest, since the production of equal sized pieces was difficult. Since the Peruvians apparently did not cut

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[1]William H. Holmes, "Textile Fabric of Ancient Peru," Bureau of American Ethnology, Bulletin 7, Washington D. C., (1889), p. 8.

[2]Above, p. 4.

[3]Junius B. Bird, Art of Ancient Peru, Selected Works from the Collection (New York: The Museum of Primitive Art, 1958), sec. 3.

fabrics to a particular size and shape, the fabrics had to be woven to meet the certain specification. This was not a simple task as each piece had four selvages or finished edges. The problem of creating equal sized pieces was approached in two different ways: in some pieces the warp created the short dimension, but in the majority of the pieces the warp created the long dimension. Most of the panels are thought to have been divided into rectangular quadrants with yellow, blue, and/or rose feathers being used in a checkerboard fashion. Six of these wall hangings were examined for this study.

In the lower Ica Valley of Peru there have been found one hundred and seventeen miniature ponchos believed to have belonged to the Inca period. Fourteen of these belonging to The Museum of Primitive Art and five of these belonging to The Museum of the American Indian, were examined for this study (See Appendix A for photograph). Bird[1] indicates in his writing that these pieces varied in size from twelve by twelve inches to six and one-half by six and three-quarter inches. The base fabrics are not considered to be standardized, and the workmanship as a whole is considered to be rather casual when compared with other feather-work. The majority of the pieces do not have neck openings, but the results of a comparative study of the designs, indicate that they were indeed ponchos.[2] All would probably have neck openings had they been prepared with more care. However, they are considered to have been made solely as grave offerings.

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[1]Ibid., sec. 6.

[2]Ibid.

SECTION III

DISCUSSION OF PIECES EXAMINED

The purpose of this study was to gain knowledge of Peruvian feather-work, its development, its purposes, and the techniques involved in the production of this material. This information was to be partially gained through the examination of individual pieces of feather-cloth. The researcher first examined a few pieces of feather-cloth at The Textile Museum, Washington, D. C. From information acquired during this examination and from investigation of the study forms used by The Textile Museum, the researcher designed a form (See Appendix B). This form was used by the researcher for recording the specific information determined from the examination of each piece. The researcher examined all pieces that were made available by the staffs of the following museums: The Textile Museum, The American Museum of Natural History, Museum of The American Indian, The Brooklyn Museum, The Smithsonian Institution, The Museum of Primitive Art, and The Virginia Museum of Fine Arts. Upon examination, each piece was assigned a study number to distinguish one specimen from another.[1]

As mentioned earlier, feather-work consists of a utilitarian background to which previously made fringes of feathers were attached. It is the specific method used in stringing the feathers and system used in attaching them to the background fabric that differentiates one piece from

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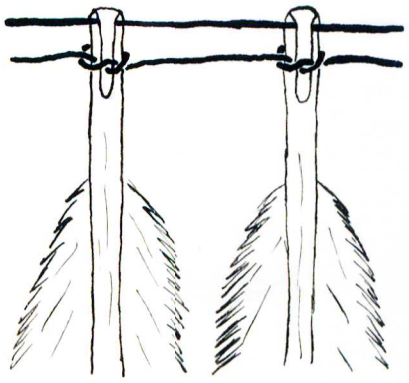
[1]As specific pieces are discussed in this paper, the study number of each is given in the footnotes, and for a list giving each study number and the corresponding museum accession number, see Appendix C.

another. The references consulted for this study seem to indicate that there were two methods used by the Peruvians for stringing the feathers. The two methods were previously cited in this study and were referred to as Methods I and II.[1] In addition to these two methods, there seems to be an additional method that was used in the pieces examined in this study, and this method will be referred to as Method III.

In Method I, the folded quill section of each feather was placed over a preliminary cord and was held secure by a second and lower thread. Twelve[2] of the items examined in this study were found to have the feathers strung by Method I; the specific knot used was a simple knot. (See Figure 7.) One of the items was a string of feathers[3] that apparently

Figure 7

STRINGING METHOD I



had never been attached to a fabric. The other eleven were completed

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[1]Above, p. 15 and 16.

[2]Study Nos. 9 a-g, 16, 6, 5, 19, 30. (Appendix C)

[3]Study No. 19. (Appendix C)

pieces of feather-cloth. One in this group of twelve pieces was a child's poncho;[1] this garment was covered with coarse feathers. The feathers had been treated in the manner described on page 17, Figure 3. A cord forming a terminal loop was attached to the end of the quill and was held in place by an additional thread that wrapped around the looped cord and the end of the quill.

In fifty of the seventy-seven pieces examined, Method II was used. In this method, the thread was passed around the folded section of the quill, through the fold and was pulled taut, allowing the feather to remain in a position perpendicular to the thread (See Figure 8). In some instances the thread was passed around the feather from front to back (See Figure 8-A) while in others it was passed around the feather from back to front (See Figure 8-B). In the pieces examined, it was found that the stringing of the feathers progressed either from left to right or from right to left, the final difference being the location of the loop in the knot (See Figure 8-C).

As mentioned previously, when long feathers were strung by Method II, they were held in a more perpendicular position by a second thread. All of the pieces in this study that had the feathers strung by Method II, were found to have this second thread. However, the feathers in the pieces were variable in length; in most cases they would not be considered long. This second thread was placed at varying distances below the first thread, but most frequently one-eighth to one-fourth inch from the upper threads (See Figure 9-A). In some cases, it appeared that this second thread also helped to hold the folded section

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[1]Study No. 30. (Appendix C)

Figure 8

STRINGING METHOD II

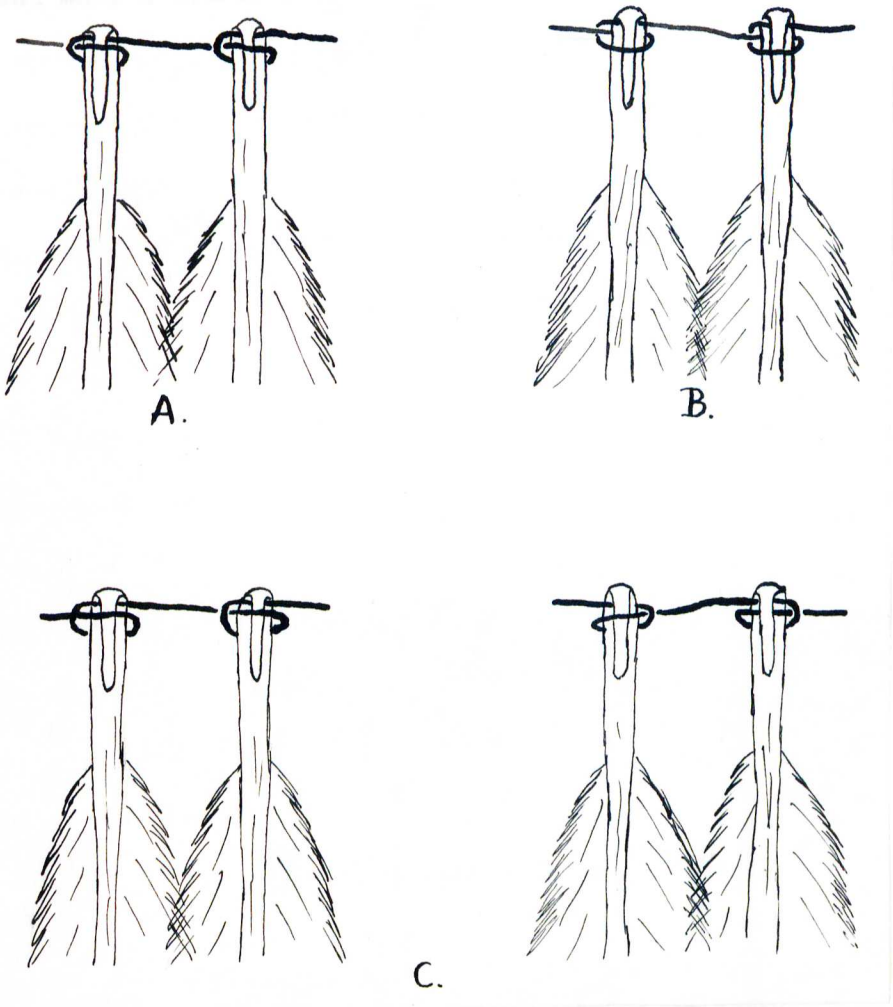
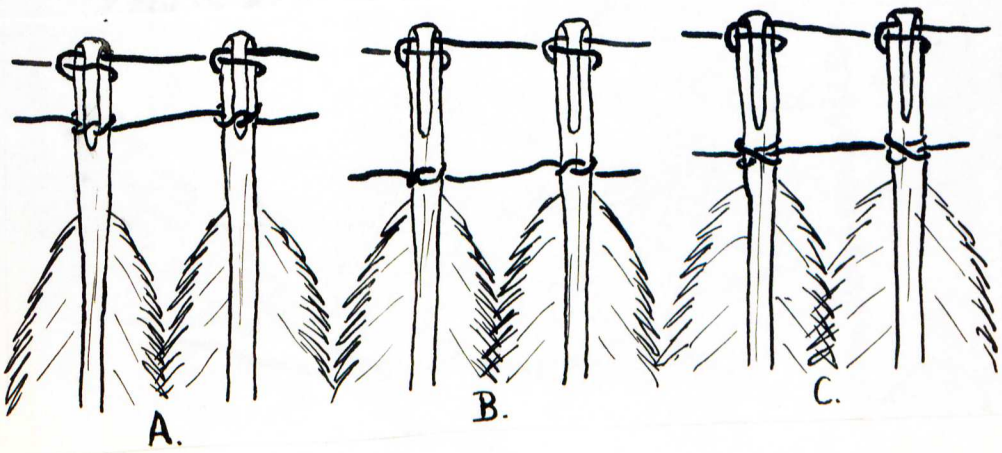


Figure 9

STRINGING METHOD II WITH LOWER THREADS

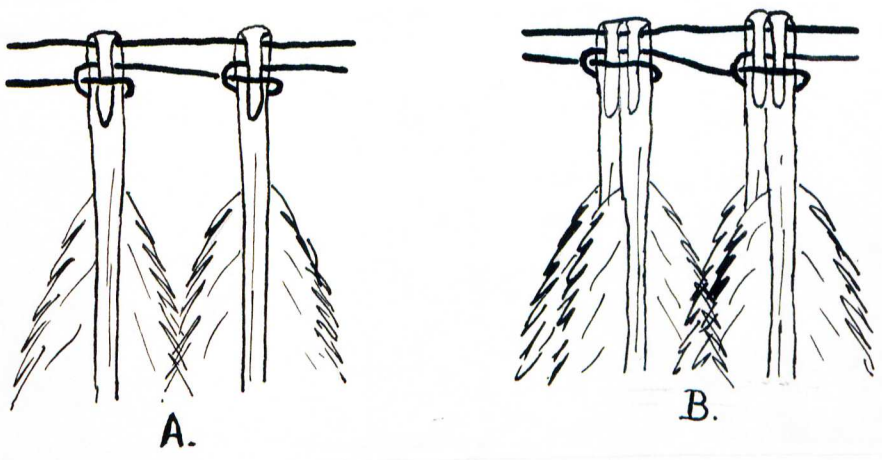


of the quill in place (See Figure 9-A) while in others it was placed too low to serve any such purpose (See Figure 9-B). In two[1] of the pieces the thread made a double loop around the feather instead of the more characteristic single loop (See Figure 9-C).

Twelve[2] of the items examined seemed to have had the feathers strung in a manner similar to both Methods I and II. The top of the quill was folded over, as it was in the other two methods, and a thread was passed through the folded section. A second thread was used to hold the folded quill in place, but instead of using the simple knot as in Method I, there was used the same knot as was used in Method II. The thread was passed around the folded section of the quill, was passed through the fold, and was pulled taut allowing the feather to remain in a perpendicular position (See Figure 10-A). This is the method that will be referred to as Method III.

Figure 10

STRINGING METHOD III



[1]Study Nos. 46, 47.

[2]Study Nos. 18, 23, 27, 31, 32, 33, 41, 42, 44, 49, 68, 69.

Two of the feather ponchos[1] that had the feathers strung by Method III were slightly unique in that two feathers were fastened together with each knot (See Figure 10-B).

In one piece,[2] the feathers at the lower edge were fastened in a manner described by Mead[3] as a method used for attaching single feathers. In this particular piece, it appeared that the quill of the feather had been folded over, and a thread was fastened by the kind of knot used in Method II. In addition to this, a second thread was passed through the fold of the quill (See Figure 11). The ends of both threads were then brought up, forming a vertical line with the shaft of the feather. These ends were then divided into three sections and were braided. The length of the braided section varied with the length of the feather in relation to the end length desired. The end of the braided section was then strung by Method III. The threads used in the braided section were of some kind of bast fiber.

Figure 11

EXTENDING THE LENGTH OF THE FEATHER

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[1]Study Nos. 33 and 42.

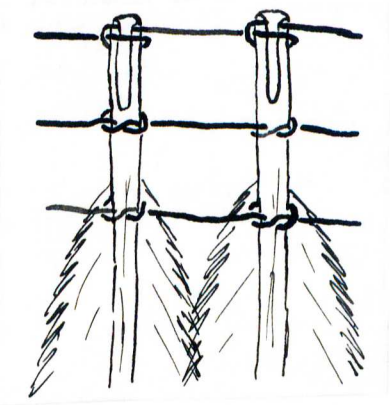
[2]Study No. 23

[3]Mead, op. cit., p. 7.

In some of the pieces examined, one or two additional threads were sometimes used to help hold the feathers in a position perpendicular to the stringing threads. This was usually done with a single knot, at various intervals along the length of the feather (See Figure 12). This treatment was used most frequently on the ponchos that had a single row of large feathers at the lower edge of the garment. The researcher found that this was used in combination with all of the methods of stringing the feathers.

Figure 12

METHOD USED FOR MAINTAINING PERPENDICULAR POSITION



All of the pieces of feather-cloth examined in this study, were pieces in which the feathers were strung before being attached to the fabric. Of the seventy-seven pieces, twelve of the items had the feathers strung by Method I and twelve pieces had the feathers strung by Method III. The other fifty pieces, were peices in which the feathers had been strung by Method II.

As was previously mentioned,[1] those who have written on feather-cloth have given little attention to the systems used in attaching the feather fringes to the background fabric. Although the feathers were strung primarily in the three ways, the systems used in attaching these strings of feathers are slightly more variable. As mentioned on page 17, it is assumed that the feathers were first strung and then attached. This assumption can be partially supported by the existence of the string of feathers,[2] belonging to The American Museum of Natural History. It is one which has never been attached to a fabric or which has been removed from a fabric.

The seventy-seven pieces of feather-cloth examined for this study had the feather strings attached in a variety of ways. Systems, however, seem to fall into four groupings because of the stitch and/or the placement of the stitch.

The first system to be discussed was characterized by a continuous thread that made two stitches, one vertical and one horizontal. This system will be referred to as System A; it was found in twenty-five of the pieces[3] examined (See Figure 13). In nine[4] of these it appeared that the strings of feathers had been attached by catching two feathers to the fabric just below the second stringing thread. A second and continuous stitch was then made between the feathers, catching a section of

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[1]Above, p. 17.

[2]Study No. 19.

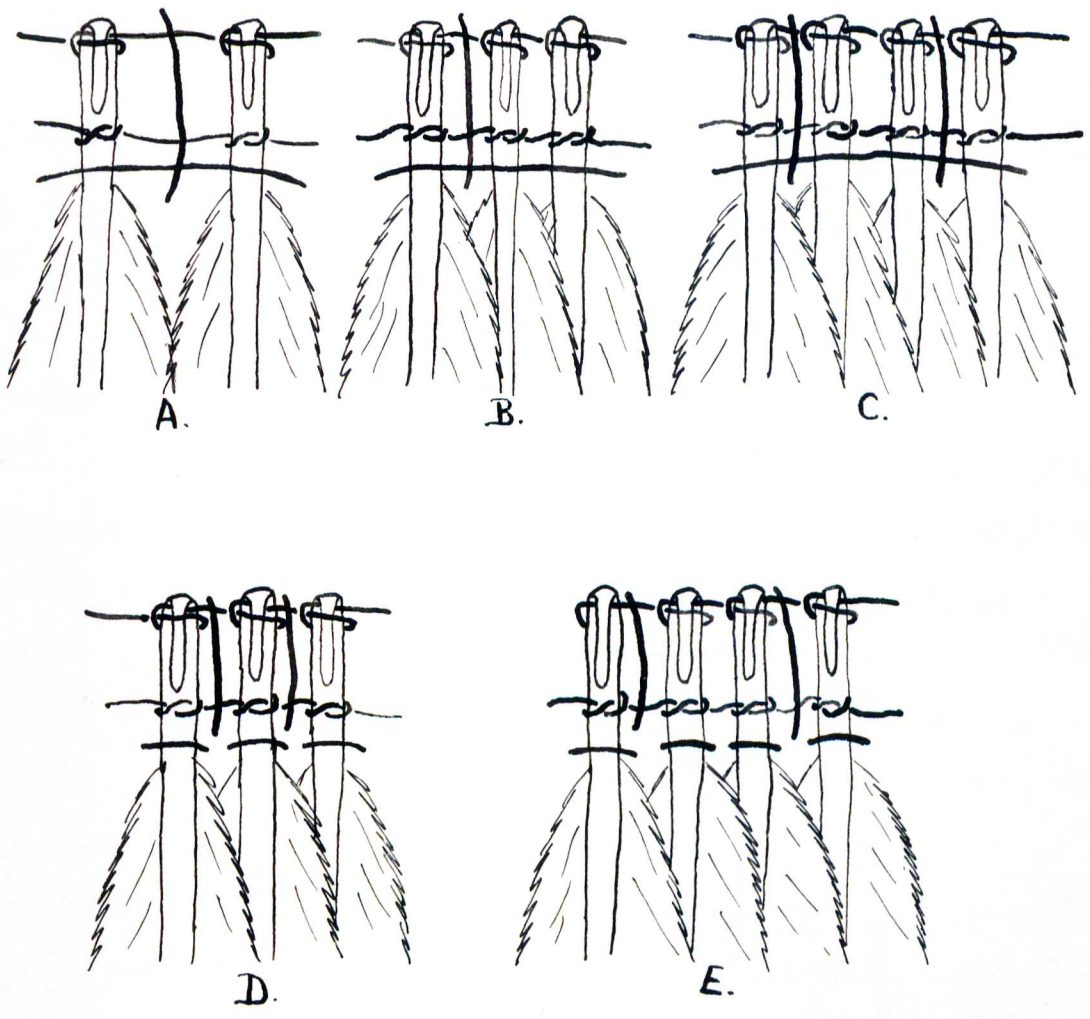
[3]Study Nos. 25, 50, 51, 52, 57, 59, 60, 61, 62, 35, 36, 37, 38, 54, 58, 56, 55, 34, 17, 45, 47, 10, 48, 49, 15. (Appendix C)

[4]Study Nos. 25, 50, 51, 52, 57, 59, 60, 61, 62. (Appendix C)

the fabric and the stringing threads. The two stitches crossed and were perpendicular to one another (See Figure 13-A). In seven miniature

Figure 13

ATTACHING SYSTEM A



ponchos[1] the same technique was used for attaching the feather strings, with the exception that the horizontal stitch went over three feathers. This meant that the vertical stitch did not cross the horizontal stitch

[1]Study Nos. 34, 35, 36, 37, 38, 54, 58. (Appendix C)

in the center (See Figure 13-B). In an additional miniature poncho[1] the horizontal stitch went over four feathers, and for each horizontal stitch there were two vertical stitches (See Figure 13-C). The two variations of this System A as shown in Figures 13-B and 13-C were found in combination in still another of the miniature ponchos,[2] the first being used for feathers one and one-fourth to two inches long and the second for feathers three to four and one half inches long.

All of the eighteen pieces of feather-cloth[3] that had the strings of feathers attached by the variations of System A as shown in Figures 13-A, 13-B, and 13-C, were miniature ponchos, except for one piece that is thought to have been part of a human size poncho. Twelve of these seventeen miniature ponchos were part of the collection of about sixty miniature ponchos belonging to The Museum of Primitive Art, and they are recorded as having come from an original find which included 117 such miniature ponchos. The other five of the seventeen in this group, belong to The Museum of the American Indian and are also listed as having come from the original cache of 117. As mentioned previously, the workmanship on these pieces was considered by Bird[4] as casual and to have been done hurriedly. It would seem that this System could indeed be done hurriedly, but it was certainly not a secure fastening. However, since these miniature ponchos are considered to have been made for

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[1]Study No. 56. (Appendix C)

[2]Study No. 55. (Appendix C)

[3]Study Nos. 25, 50, 51, 52, 57, 59, 60, 61, 62, 34, 35, 36, 37, 38, 54, 58, 56, 55. (Appendix C)

[4]Bird, op. cit., sec. 3.

mortuary purposes, a secure fastening was not necessary.

Three additional pieces[1] had the strings of feathers attached with a slightly different placement of the attaching stitches. The horizontal stitch included only one feather and did not cross the vertical stitch (See Figure 13-D). Three of the wall hangings[2] had the strings of feathers attached by the variation of System A as shown in Figure 13-D except that the vertical stitch was made between every two feathers (See Figure 13-E). One other piece, a poncho,[3] had the feathers attached in the variation shown in Figure 13-B except that the horizontal stitch was made between the two threads used in the stringing process.

Those articles that had the feathers attached in the variations shown in Figure 13-D and 13-E were pieces that would have been subject to more wear and abrasion than the miniature ponchos. These six articles were: a belt, a headband, and four wall hangings. Since each feather was caught separately, the variations of Method A as shown in Figures 13-D and 13-E were more secure fastenings than the variations shown in Figures 13-A, 13-B, and 13-C. Thus it would seem that the degree of security of the attaching stitch was possibly related to the amount of wear and abrasion the end product received.

All of the articles that had the strings of feathers attached by System A had the feathers strung by Method II except for one wall hanging that had the feathers strung by Method III.

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[1]Study Nos. 17, 45, 47. (Appendix C)

[2]Study Nos. 10, 48, 49. (Appendix C)

[3]Study No. 15. (Appendix C)

The second system of attachment to be discussed is characterized by stitches in the horizontal direction only and will be referred to as System B. Thirteen of the pieces[1] had the fringes of feathers attached by this system. Nine pieces[2] had the feather strings attached by a running stitch that went over each feather and between and parallel to the two stringing threads. The thread caught one or two yarns or a section of the fabric, passed over the fabric and the shaft of one of the feathers, and went back in the fabric again (See Figure 14-A). In one piece of feather-work[3] a similar running stitch was used, but it crossed over two feathers and passed through the fabric to the underside for a sufficient distance in order to bypass one feather (See Figure 14-B). The stitch on another piece[4] had a continuous thread that crossed the feather at two different spots, one below and one between the threads used in stringing the feathers (See Figure 14-C). Two additional feather-cloths[5] had the strings of feathers attached with a stitch made between the two stringing threads. The stitch on these two pieces was a back stitch and not a running stitch (See Figure 14-D).

All thirteen pieces using this System B attachment were entire or parts of man size garments and appear to have been used or worn to some degree. All thirteen had the feathers strung by Method II.

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[1]Study Nos. 4, 12, 14, 20, 21, 22, 24, 43, 71, 28, 1, 29, 8. (Appendix C)

[2]Study Nos. 4, 12, 14, 20, 21, 22, 24, 43, 71. (Appendix C)

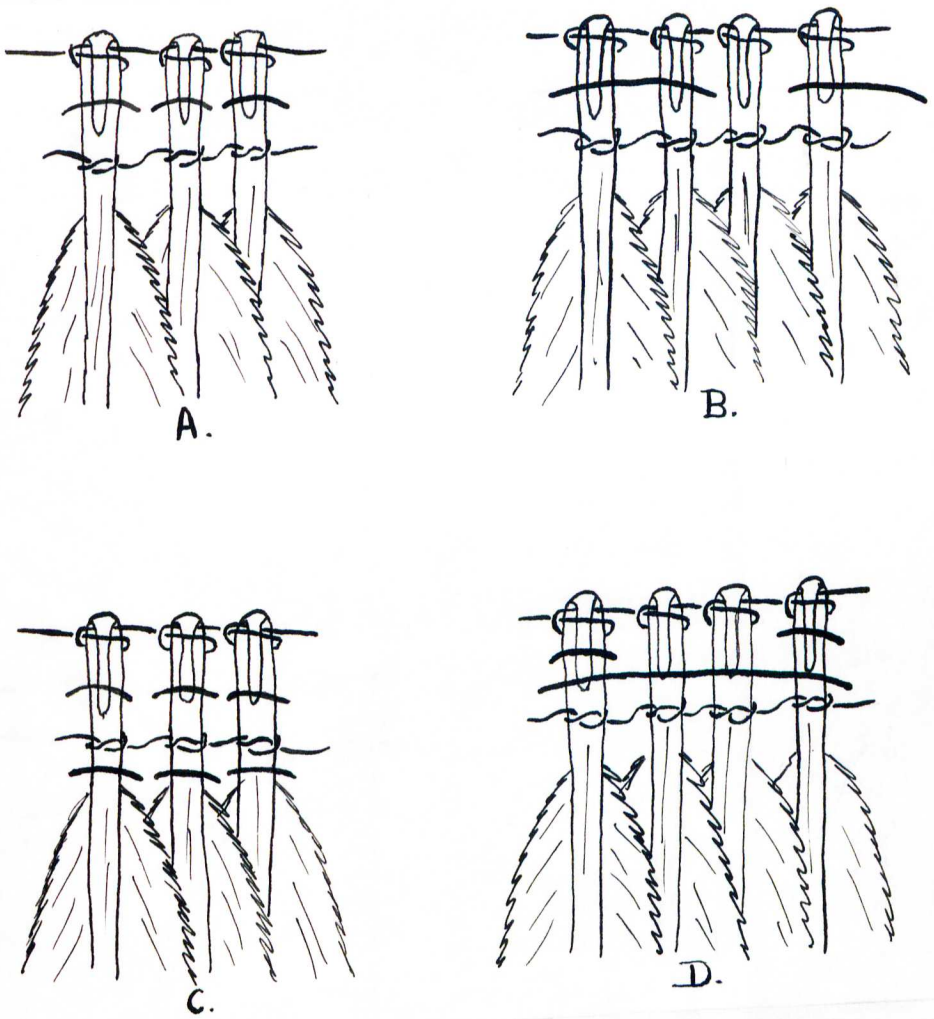
[3]Study No. 28. (Appendix C)

[4]Study No. 8. (Appendix C)

[5]Study Nos. 1, 29. (Appendix C)

Figure 14

ATTACHING SYSTEM B



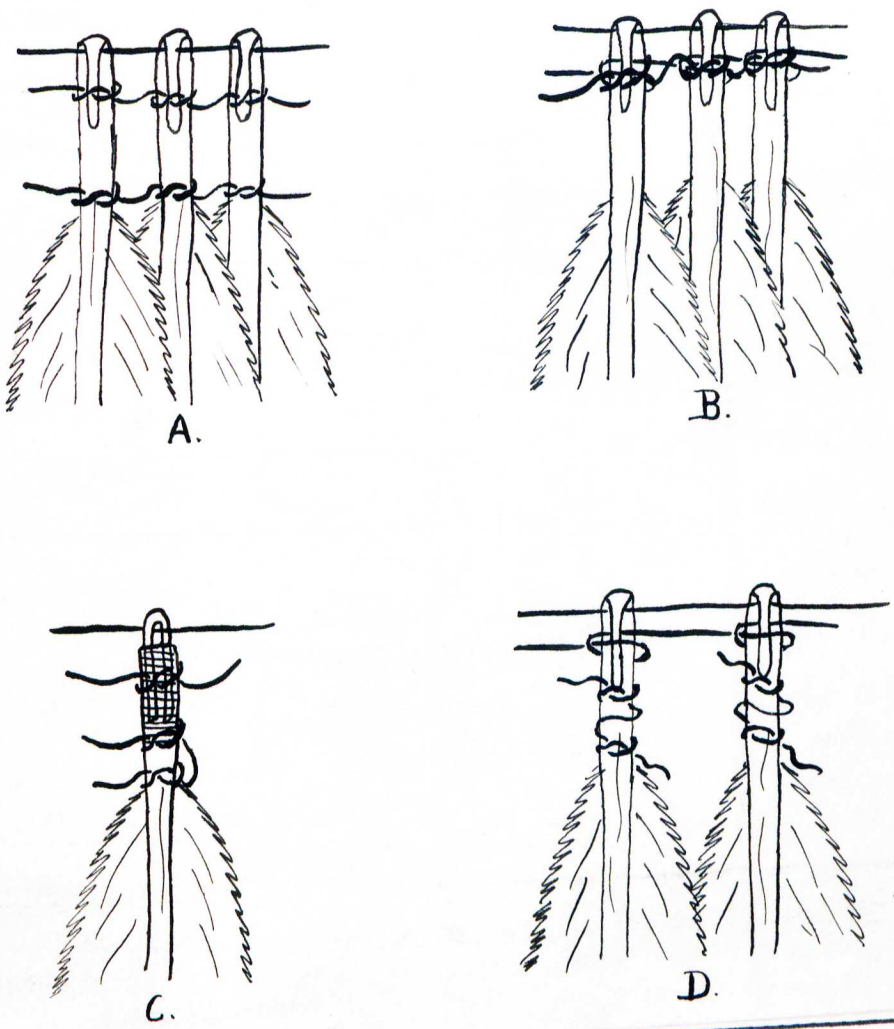
The third system of attachment to be discussed involved the use of a single knot, and it will be referred to as System C. Twenty-two[1] of the articles examined had some variation of System C used in the attaching of the strings of feathers. This system is quite similar and in some cases like the system of attaching described on page 18, Figure 4.

[1]Study Nos. 9 a-g, 32, 42, 41, 5, 16, 6, 33, 69, 23, 27, 31, 18, 30, 44, 68. (Appendix C)

Eighteen of the articles[1] in this group of twenty-two had the strings of feathers attached with a single knot that included a section of the background fabric and the shaft of a single feather. (See Figure 15-A). This single knot was placed below the two stringing threads and differed from the system discussed on page 17 in that the thread did not pass through the knot in the lower stringing thread.

Figure 15

ATTACHING SYSTEM C



[1]Study Nos. 9 a-g, 32, 42, 41, 5, 16, 6, 33, 69, 23, 27, 31. (Appendix C)

In one poncho,[1] this single knot was placed right over the lower stringing thread; the attaching thread may or may not have passed through the knot in the stringing thread (See Figure 15-B). A child's poncho[2] had two of these single knots for each feather, and both knots were made below the stringing feathers. The two knots were made with a continuous thread and were probably used because the feathers were four and three-fourths inches long (See Figure 15-C). A similar attachment using two single knots, was used in two other ponchos.[3] The attaching thread passed through the knot in the lower stringing thread as it made the upper attaching knot (See Figure 15-D). This particular treatment was used throughout the two ponchos, one had feathers three-fourths to one inch long and one had feathers one and one-half inches long. Thus the length of the feathers did not seem to dictate the number of knots used in the attachment process. Three of eighteen pieces[4] that had the feathers attached in the variation shown in Figure 15-A also had some feathers attached by the variation shown in Figure 15-C. However, on these pieces the attachment was used for short, not long, feathers which was not the case in the other article on which this attachment was used.

Of the twenty-two pieces having this System C attachment, eleven[5] articles had the feathers strung by Method I and eleven[6] had

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[1]Study No. 18. (Appendix C)

[2]Study No. 30. (Appendix C)

[3]Study Nos. 44, 68. (Appendix C)

[4]Study Nos. 41, 42, 9-d (Appendix C)

[5]Study Nos. 5, 6, 9 a-g, 16, 30. (Appendix C)

[6]Study Nos. 18, 23, 27, 31, 32, 33, 41, 42, 44, 68, 69. (Appendix C)

the feathers strung by Method III. Ten[1] of the pieces in this group of twenty-two had other rather striking similarities that are worthy of attention. The ten pieces include a set of seven miniature garments belonging to The Textile Museum, a shawl and poncho belonging to The Brooklyn Museum, and a large cloth belonging to The American Museum of Natural History. Basically these are all plain cloth with strings of feathers attached on only a relatively small portion of the article, in most cases acting only as a fringe. These pieces were made available to the researcher as part of the feather-work collections of each of these museums.

In the classification of Peruvian fabrics set up by Means in Ancient Civilizations of the Andes he lists a class of fabrics referred to as Chaquira. Chaquira by definition is "ordinary cloth to which have been sewn small discs, bangles, or bells made of copper, silver, gold, bone, or shells."[2] In his book, Ancient Civilizations of the Andes, Means[3] gives an example of chaquira. The piece that he cites as an example belongs to The American Museum of Natural History, and it is one[4] of the ten pieces in this study that had the rows of feathers attached to only a relatively small portion of the background fabric. Of the seventy-seven pieces examined for this study, these are the only ten that might be referred to as chaquira.

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[1] Study Nos. 9 a-g, 69, 23, 68. (Appendix C)

[2] Philip A. Means, A Study of Peruvian Textiles, (Boston: Museum of Fine Arts, 1932), p. 33.

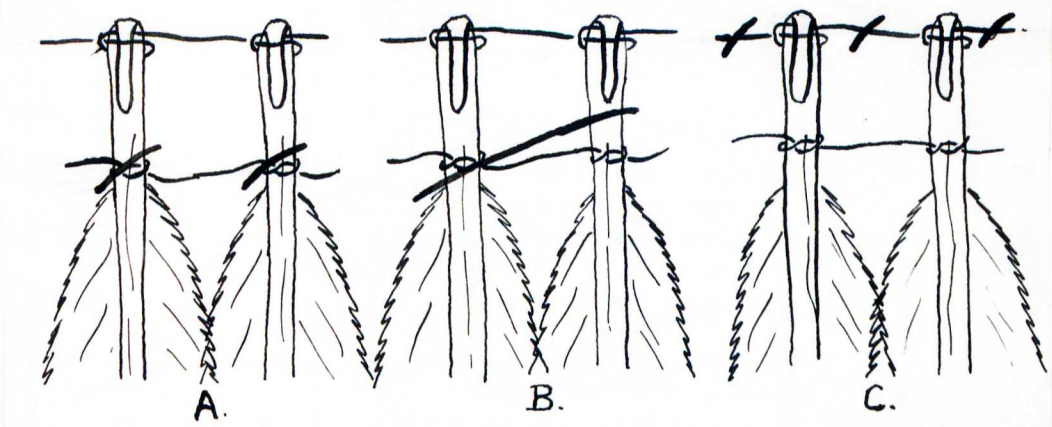
[3] Means, Ancient Civilizations of the Andes, loc. cit.

[4] Study No. 23. (Appendix C)

The last system of attachment to be discussed was accomplished by use of a slanted stitch. Although this system is similar to the system discussed on page 19 , Figure 5, it is different enough to be classified separately. This system will be referred to as System D (See Figure 16). Nine articles[1] in this group had the strings of feathers attached by a thread that first caught the fabric and was passed over the feather at the point where the lower stringing thread was located. This stitch was at a slight angle. The thread passed over only one feather per stitch in six[2] of the nine pieces (See Figure 16-A) and passed over two feathers per stitch in the other three[3] pieces (See Figure 16-B).

Figure 16

ATTACHING SYSTEM D



This stitch, as found in these pieces, sometimes had both a slant

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[1]Study Nos. 11, 46, 13, 39, 48, 66, 3, 67, 63. (Appendix C)

[2]Study Nos. 11, 46, 13, 39, 48, 66. (Appendix C)

[3]Study Nos. 3, 67, 63. (Appendix C)

to the right and a slant to the left. This was probably determined by the direction in which the worker was stitching. In two pieces[1] of feather-cloth examined, an ornament and an apron, there was a similar slanted stitch used, but in these two pieces the stitch was made across the top stringing thread instead of the lower stringing thread (See Figure 16-C). Both of these pieces had a background cloth of wool and were the only ones examined that did; the others all had a background of cotton. However, the two pieces with the wool background were quite different in other respects. The feather ornament was a specimen of very fine workmanship with beautiful white feathers, and the feather apron was a rather crude piece with very large buzzard or turkey feathers.

As has been previously pointed out, some of the individual articles had the strings of feathers attached by more than one system. The same is true of three other pieces that have not been previously discussed. These three[2] have the same two systems of attachment. Two feather ponchos in this group had the feathers attached by System A and by System D. There is a slight variation in the use of System D. One had the feathers attached in the variation shown in Figure 16-B, and the other had the feathers attached in the variation shown in Figure 16-A except that the stitch was only made over every other feather. The third piece, a miniature poncho, had the strings of feathers attached by System D, Figure 16-A, and System A, Figure 12-A, except that in System A, the horizontal stitch was made between the two threads used for stringing. Because it is one of the miniature ponchos, it is more

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[1] Study Nos. 7, 65. (Appendix C)

[2] Study Nos. 26, 53, 64. (Appendix C)

closely related to those pieces that had the feathers attached by System A. These three pieces had the feathers strung by Method I as did all but one of the pieces that had the feathers attached by Systems A and D.

All of those pieces of feather-cloth that had the feathers attached by Systems A, B, and/or D had the feathers strung by Method II except for one wall hanging that had the feathers strung by Method III. All of those pieces that had the feathers attached by System C had the feathers strung by Methods I or III. This would seem to indicate that there was some relationship between the method used for stringing and the system used for attaching the strings of feathers. Not enough is known about the origin or dates of the pieces to determine if this might be significantly related to the techniques used. There may be some significance in the fact that the two stringing methods used in the group having the feathers attached by System C have one characteristic that is distinctive of these two stringing methods. Both have the quill of the feather folded over a preliminary cord.

One of the distinctive characteristics of feather-cloth was that as the feathers were attached in successive overlapping rows an organized design was created when two or more colors of feathers were used. All but five[1] of the pieces examined in this study had more than one color of feathers used within all or part of the piece; thus, on all or part of these pieces there was an organized design created. In all of the pieces the design consisted of either monochrome bands extending the width of the piece or polychrome patterns using geometric or stylized

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[1]Study Nos. 28, 63, 17, 30, 69. (Appendix C)

realistic figures (See Appendix D for an example of a polychrome design).

As mentioned previously,[1] some information has been included in writings on feather-work as to the techniques involved in creating the designs. All of the references[2] herein cited agreed that if alternately colored monochrome bands extending the width of the piece were desired, these were accomplished by using strings of feathers consisting of feathers of a single color. This was also found to be the technique used in the pieces examined in this study.

The techniques involved in creating the polychrome designs are thought to have been achieved by one and/or two methods.[3] In the first and most widely accepted method, the desired design was attained by carefully arranging the different colored feathers during the stringing process, so that when the strings of feathers were attached to the fabric, the design was formed automatically. The other method, mentioned only by Baessler,[4] consisted of changing the entire fringe of feathers when a change of color was desired in a polychrome design, thus individual colors had to be strung separately.

The stringing and attaching threads in feather-cloth did not usually show because the feathers were strung closely to one another and were attached with a considerable amount of overlap. Thus in order to detect the method used in creating the polychrome designs, the feathers

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[1]Above, p. 20.

[2]Above, p. 20.

[3]Above, p. 20.

[4]Above, p. 21.

had to be lifted or moved to the side. In some of the pieces, however, the shafts of the feathers had been broken and the feathers had fallen off. When this happened, the stringing and attaching threads were left exposed. Therefore in this study, if a piece was framed, and there were no feathers broken off in an area where a color change had been made, the researcher was unable to determine how the color change was accomplished in that particular piece. Fifty-two pieces in this study had the polychrome designs, and it was possible to determine how the color change was achieved in forty-one of these. On all of forty-one pieces with the polychrome designs it appeared that the different color feathers had been strung separately. Therefore within what seemed to be a continuous row of feathers, an entirely new string of feathers was used when a color change was desired. In thirty-two of the forty-one pieces there was a break in the attaching process each time a color change was made. This may have been necessary in many cases because, when the color of the feather was changed, quite frequently the kind and size of the feathers was also changed. This change in the size of the feathers might demand a slight variance in the distance between the rows of feathers.

It would seem from observations made in this study, that the polychrome designs were achieved by using strings of feathers of a single color and changing the entire string of feathers each time a different color was desired. Also it would seem that in most cases the attaching thread was also broken between each color change; however, there were a few pieces that had a continuous attaching thread. Close examination of the photograph in Appendix E indicates that where color changes were made, the rows of feathers were not continuous.

As previously mentioned Weibel[1] indicated that a full sized cartoon may have been used as a guide in making feather-cloth. No additional theories were found regarding this; however one poncho[2] has a thread showing, where the feathers are worn away; in this instance it appears that there might possibly have been a design outline to follow. A photo of this poncho is included in Appendix F. The thread is located in the bare area just beneath the man's left cheek. It may well have been that guide lines were used for the more intricate designs.

On all of the feather-work examined the design lines had been charpened by cutting away part of the beard of the feathers.

In all pieces the strings of feathers were attached so that they extended across the weft of the fabric, which in turn made the feathers parallel to the warp yarns. In eleven of the pieces[3] part of the strings of feathers were given a slightly different treatment. In these pieces, part of the design consisted of slanted or curved lines; and the strings of feathers were allowed to follow the design in these parts (See Figure 17). Seven[4] of these eleven pieces were part of the group of miniature ponchos. (See also curved lines on poncho in Appendix D) There were other pieces examined that had a similar or the same design lines, but on these the strings of feathers were attached in the usual manner of following the weft yarn.

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[1]Above, p. 21.

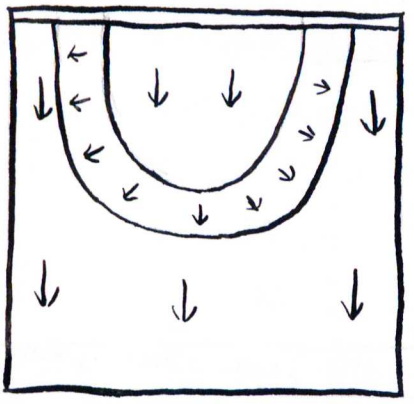
[2]Study No. 6. (Appendix C)

[3]Study Nos. 25, 26, 35, 36, 44, 58, 59, 60, 61, 62, 64. (Appendix C)

[4]Study Nos. 35, 36, 58, 59, 60, 61, 62. (Appendix C)

Figure 17

FEATHERS FOLLOWING DESIGN LINES



Orange, blue, green, yellow, brown, and white were the colors of the feathers most frequently found on the pieces examined in this study. It appeared that the colors of the feathers were the natural colors.[1]

The background fabric of feather-cloth served primarily as a base to which strings of feathers were attached. On most pieces the background fabric showed only slightly or not at all. This may explain why the fabric did not seem to be of the fine quality for which the Peruvians were very well known. In many cases the yarn twist and the weave were both loose and irregular. Paired wefts were used in nineteen[2] of the pieces, paired warps were used in fourteen[3] of the pieces, and

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[1]The researcher considered including in this study the identification of natural and dyed feathers, but decided not to upon the recommendation of an ornithologist. This recommendation was made because some of the feathers used came from birds that are now extinct, thus identification is impossible in some cases.

[2]Study Nos. 3, 20, 24, 25, 31, 34, 35, 36, 37, 43, 51, 52, 53, 55, 58, 59, 61, 63, 67. (Appendix C)

[3]Study Nos. 5, 6, 9 a-d, f & g, 16, 30, 41, 44, 68, 69. (Appendix C)

paired warps and wefts (basket-weave) were used in five[1] pieces. This construction in most cases does not constitute a firmly woven fabric. The make-up of the yarns in most pieces was two-ply, and in some pieces was single. The use of single yarns was occasionally found in all of the Peruvian fabrics.[2] Thus it would seem, from the examination of the pieces of feather-cloth in this study, that a high quality background fabric was not considered important when making feather-cloth.

The background fabric of all of the pieces of feather-cloth was made of natural brown and/or white cotton, except for two pieces that were made of wool.

In this study information was also gained about the direction of the twist of the yarns and the count of the yarns in the background fabric. When tabulated this information did not seem to have any significance so it was disregarded.

As previously mentioned the Peruvians gave careful consideration to warp and weft yarns when weaving their garments.[3] All of the garments that were examined in this study were found to have the warp yarns going in the lengthwise direction of the garment. This was determined by noting the position of the selvages and the loom ends.

The Peruvians used the backstrap loom for weaving their fabrics. Since the loom required that the weaver be seated, the fabrics produced were no wider than about twenty-nine inches, about the arm-span of the weaver. Because there was no warp beam, the fabric made was no longer

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[1] Study Nos. 12, 13, 32, 33, 42. (Appendix C)

[2] Above, p. 23.

[3] Above, p. 23.

than about eight and one half feet. Thus if the Peruvians needed a fabric larger than that which could be produced on the loom, several pieces were sewn together. Of the twenty-seven man size ponchos examined for this study, those that were wider than twenty-nine inches were made of two pieces of fabric that had been sewn together. There were nine ponchos that had been made of two pieces of fabric, and in each case a section near the shoulder was left unstitched, thus providing a neck opening (See Appendix D). These nine varied from twenty-five to forty-seven inches in width. Nine others of the twenty-seven ponchos had background fabrics that were made of single fabrics varying in width from ten to twenty-six inches. The ponchos that had a single background fabric had a neck opening that was either a woven slit or a cut slit. The cut slit edges had been rolled and/or overcast to finish them. The last nine ponchos were only parts, and the widths could not be determined. The entire length of the ponchos varied from about three to seven and one half feet long.

Some of the ponchos were found to have what would seem to be a slightly unusual treatment of the background fabric. On all four[1] sides of three of the ponchos the background fabric had been folded to the outside before the feathers were attached. Two[2] other ponchos had only the sides folded in the same manner. In each case the folds measured about two inches in depth and were not needed as a finish because none of the edges were cut edges. This treatment may have been done at the

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[1]Study Nos. 5, 6, 16. (Appendix C)

[2]Study Nos. 14, 18. (Appendix C)

sides to give greater strength particularly on those pieces[1] that had either lacing or tying cords knotted to the sides. However, it may be that all folding was done so that the woven fabric would fit desired specifications for the final poncho. If this be the case, this would explain why one other poncho[2] had the lower edge of the background fabric folded up like a hem and two others[3] had pieces of fabric added to the lower edges of the background fabrics.

These twenty-seven ponchos are believed to have been made to be worn. Therefore, it would seem that this would have been considered as the garment was constructed. All but two of the whole ponchos that were examined had a section in the middle of the garment to which no feathers were attached. These areas were the width of the background fabric and measured one and one half to nine and one half inches long. It would seem that this was done so that the poncho would fit the curve of the wearer's shoulder. (See Appendix D) This was not true of two of the ponchos[4] on which the quills of the feathers on the back and front of the garment met at the shoulder. It would seem that because of the stiffness of the quills at the shoulders that the poncho would not have fit very well. Of course it may well be that the garment was not made to be worn but was made for mortuary purposes. The feathers on all of the ponchos had been attached so that the shaft faced upward on both the front and the back of the poncho.

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[1]Study Nos. 5, 6, 16. (Appendix C)

[2]Study No. 44. (Appendix C)

[3]Study Nos. 43, 22. (Appendix C)

[4]Study Nos. 16, 71. (Appendix C)

Eight of the man size ponchos had a fringe effect created at the lower edge. Seven[1] of the ponchos ends had a single row of four inch feathers attached at the lower edge (See Appendix F). Two[2] of these had the quills of the feathers covered with either a separate piece of fabric or a fold of the background fabric. Smaller feathers had then been placed on top of these sections extending down to a point where they would partially overlap the long feathers. The eighth poncho[3] had small feathers instead of longer ones. They were prepared by first taking a base string and starting at the top of this base string, wrapping another string around the base string, occasionally inserting a feather until six or seven had been attached. The top of the base cord was then attached to the backside of the lower edges of the poncho.

None of the ponchos examined in the study were found to have the sides sewn, but some did have other types of side fastenings. Three[4] of the pieces had cords hanging free at the sides, but so spaced that they were probably tied once the garment was on the wearer. One[5] poncho had a cord that was alternately tied to the front and the back of one side while on the other side there were cords hanging free that could eventually fasten the front to the back. Two additional ponchos[6] had

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[1]Study Nos. 5, 6, 27, 32, 33, 41, 42. (Appendix C)

[2]Study Nos. 5, 6. (Appendix C)

[3]Study No. 71. (Appendix C)

[4]Study Nos. 5, 32, 41. (Appendix C)

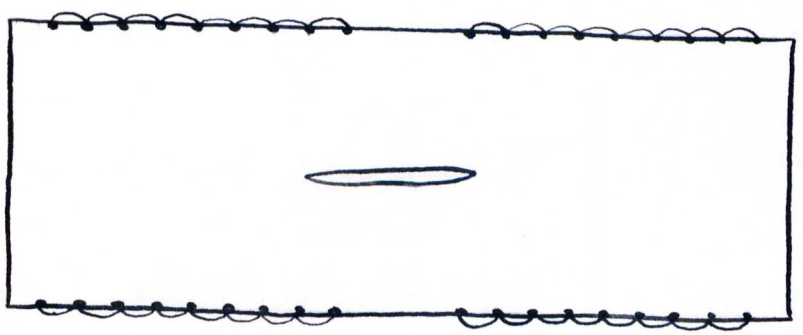
[5]Study No. 33. (Appendix C)

[6]Study Nos. 6, 16. (Appendix C)

cords attached at intervals to both the front and back sides. Such spacing indicates that the garment might have been laced. (See Figure 18)

Figure 18

ATTACHMENT CORDS ON SIDE OF PONCHO



One poncho that was examined had a worn area at the waist; this suggests that the poncho was probably worn with a belt.

Two pieces,[1] one whole poncho and a piece of another that were examined had evidence of repair. There were holes in the background fabric that had been repaired with a patch on the wrong side. It is interesting to note that in one of these pieces[2] there was a change in the color of the feathers just beneath the hole. These feathers, apparently attached sometime after the original construction, were red, almost as if to show that the wearer had been wounded in this spot. Other pieces might have had patches but because many of the examples were mounted or framed, the researcher was unable to see the inside of the ponchos.

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[1]Study Nos. 20, 24. (Appendix C)

[2]Study No. 20. (Appendix C)

Six wall hangings[1] examined were part of the group of ninety-six that came from the site in Churunga Valley, Peru.[2] Five[3] of the six had blue and yellow quadrants, and one[4] had blue and rose-red quadrants. The feathers for the hangings were strung by Method I in five[5] and Method III in one.[6] The same knot is used in both of these methods, but in Method III the feathers are folded over a preliminary cord. Two pieces[7] had the strings of feathers attached by System A, two pieces[8] had the strings of feathers attached by System D, and two pieces[9] had the strings of feathers attached by either a combination of Systems A and B or Systems A and D.

Both of the possible methods of achieving the standard size were represented in those examined. The warp yarns created the long dimension in four[10] of the panels and short dimension in two of the pieces.[11]

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[1]Study Nos. 10, 11, 46, 47, 48, 49. (Appendix C)

[2]Above, p. 26.

[3]Study Nos. 11, 46, 47, 48, 49. (Appendix C)

[4]Study No. 10. (Appendix C)

[5]Study Nos. 10, 11, 46, 47, 48. (Appendix C)

[6]Study No. 49. (Appendix C)

[7]Study Nos. 47, 49. (Appendix C)

[8]Study Nos. 11, 46. (Appendix C)

[9]Study Nos. 10, 48. (Appendix C)

[10]Study Nos. 10, 11, 46, 49. (Appendix C)

[11]Study Nos. 47, 48. (Appendix C)

One[1] of the pieces in which the warp yarns created the long dimension had two inches of one of the loom ends folded to the back side. All had the wool reinforcing tapes, and all had been attached in the same way except for one.[2]

The measurements of the pieces examined varied from seventy-three to eighty-eight inches in width. The one with the height of seventy-three and one-half inches is the rose-red and blue one,[3] and this is five and one-half inches smaller than that which is considered to be the standard. It was also the rose-red and blue one that had part of the feathers attached by System B and had the reinforcing tapes fastened in a slightly different manner. This may indicate that the rose-red and blue panels and the blue and yellow panels form individual groupings and were done at separate times. However, many more pieces would have to be examined to determine this.

The differences between these pieces are not great and some can probably be attributed to individual techniques used by the workers. These differences however do indicate that if standards did exist for making these pieces, the adherence to the standards must not have been too rigid.

Upon examination the nineteen miniature ponchos that came from the single cache of some one hundred and seventeen give every indication of having been done in the casual manner previously mentioned.[4] The background fabric could not be considered finely woven or serviceable,

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[1] Study No. 49. (Appendix C)

[2] Study No. 10. (Appendix C)

[3] Study No. 10. (Appendix C)

[4] Above, p. 27.

because the weaving pattern of many of the pieces was not consistant. The yarn was very loosely twisted, and the fabric was quite loosely woven. The ponchos examined varied in size from six by seven and one-fourth inches to thirteen and one-half by thirteen and one-half inches. Because of the wide variance in size it can probably be said that the background fabric in most of the ponchos certainly was not woven to meet any certain specifications. However, in all cases the following was found in the construction of the poncho: the top or one side consisted of a fold, and the other three edges were either (1) a selvage; (2) a loom end; or (3) a folded selvage, loom end, or cut edge. Because the background fabric was folded to the underside on a considerable number of the edges, perhaps a specific measure was desired for the final product (See Appendix A).

On the basis of the design it seems that the feathers have been attached so they hang down in the front and the back. However there are nine[1] pieces that have had the strings of feathers attached so that the rows are parallel to the weft yarns. This of course means that the final garment does not have the warp yarns extending in the lengthwise direction. This is completely out of character with that which is usually done by the Peruvians,[2] and probably indicates that these ponchos were indeed made only as burial offerings. One wonders, however, why these people would use inferior quality products for burial offerings when ancestor worship was apparently so important to them.

The sides were sewn on nine[3] of the ponchos, and the sides were

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[1]Study Nos. 50, 51, 52, 53, 54, 55, 56, 57, 62. (Appendix C)

[2]Above, p. 23.

[3]Study Nos. 50, 51, 54, 55, 56, 57, 60, 61, 62. (Appendix C)

not sewn on four.[1] On five[2] this could not be determined as the pieces were framed. Only one[3] has a woven slit for the neck opening, and this is probably the one of which Bird[4] spoke. Two pieces[5] had cut slits for the neck openings; these may have been made at the time of construction, however, it is quite possible that they were added later by someone other than a Peruvian.

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[1]Study Nos. 53, 58, 59, 63. (Appendix C)

[2]Study Nos. 34, 35, 36, 37, 38. (Appendix C)

[3]Study No. 63. (Appendix C)

[4]Above, p. 27.

[5]Study Nos. 58, 59. (Appendix C)

SECTION IV

SUMMARY AND CONCLUSIONS

The purpose of this study was to gain knowledge of Peruvian feather-work, its development, its purposes, and the techniques involved in the production of this material. The ancient Peruvians displayed in all their fabrics a degree of technical perfection and decorative beauty that has been acclaimed by many textile experts to be yet unsurpassed. These textile achievements of the Peruvians can probably be attributed to their great manual skill associated with very simple apparatus.

One of the remarkable textile achievements of the Peruvians was feather-cloth. Feather-work is a fabric consisting of a plain weave, utilitarian, or ordinary background cloth to which overlapping rows of feathers are attached. The background fabric was most often cotton, and before the feathers were attached, it was usually shaped according to its final use. The feathers were first fastened together with a thread or cord so that the feathers were parallel to one another, forming a string or fringe of feathers. The strings of feathers were in turn fastened in successive overlapping rows, to the background fabric. References seem to indicate that the feathers were strung by two methods, and the strings of feathers were attached in two ways.

If two or more colors of feathers were used in a piece of feather-cloth, an organized design was created. This design consisted of either monochrome bands extending the width of the garment or polychrome patterns using geometric or stylized realistic figures. According

to the references consulted for this study, when the design consisted of the monochrome bands extending the width of the garment, the strings of feathers were made up of a single color. All but one of the references indicated that when a polychrome design was envisaged, the different colored feathers were arranged on the strings in reference to the design to be created.

Two groups of pieces of feather-work have proven to be extremely interesting and enlightening to those interested in ancient Peru. One group is a set of ninety-six nearly identical, feather-work wall hangings discovered in 1943. They were apparently manufactured to be used as a single unit. These have been of particular interest because they are all about the same size, and the production of equal sized pieces was difficult for these people using a backstrap loom. The second group is one of one hundred and seventeen miniature, feather-cloth ponchos. These peices are not considered to be standardized as were the wall hangings, and the workmanship as a whole is rather casual. These miniature ponchos were all apparently made as a single grave offering.

The researcher, in order to gain additional information about feather-cloth, examined seventy-seven pieces of feather-cloth belonging to seven museums. The researcher found within the pieces examined for this study, three methods used for stringing the feathers. Two of the three, were methods that had been mentioned individually in the references on feather-cloth. The third was entirely undiscovered heretofore.

The strings of feathers in the pieces examined had been fastened in a variety of ways. The systems used seemed to fall into four groupings because of the stitch and/or the placement of the stitch. Two of the systems were very similar to those mentioned in the references on

feather-cloth. All of the pieces of feather-work that had the feathers strung by one particular method had the strings of feathers attached by one of three of the four systems used in attaching the strings of feathers. The pieces that had the feathers strung by the other two methods had the strings of feathers attached by the fourth method of attachment. This would tend to indicate a definite relationship between the methods used in stringing the feathers and systems used in attaching the strings of feathers. Not enough is known as to the origin or the time of the pieces to determine if that might be significantly related to the techniques.

All but five of the pieces examined for this study had two or more colors of feathers used within all or part of the pieces. These pieces had organized designs that consisted of monochrome bands extending the width of the piece or polychrome patterns using geometric or stylized realistic figures. The researcher found that the monochrome bands were accomplished by using a string of a single color of feathers. The polychrome designs were also achieved by using strings of feathers of a single color, and each time a color change was desired the entire string of feathers had to be changed. Also in many of the pieces examined, the attaching thread was broken between each color change. The method used for achieving the polychrome design, mentioned by all but one of the references, was not found in any of the pieces. (This was the method that consisted of arranging the different colored feathers on the strings in reference to the design to be created.)

Six of the ninety-six wall hangings were examined and these six were found to have several differences between them: colors of feathers, methods used in stringing the feathers, and methods used in attaching

the string of feathers. These differences were not great and could probably be attributed to techniques used by the invididual workers. Because the size and general appearance of these pieces are almost identical, they probably were made by standards.

Nineteen of the one hundred and seventeen miniature ponchos coming from the single cache, were examined. Examination of these pieces seemed to indicate that they were indeed, hurriedly made. The yarn was very loosely twisted, the fabric was very loosely woven, and the weaving pattern was inconsistant. The background fabric in many of the pieces had been folded when it was not necessary; this might tend to indicate that the weaver was attempting to achieve a specific size.

The researcher recommends that this can be an on going study. Continued archaeological discoveries in Peru are bringing forth new examples of various artifacts, feather-work included.

APPENDIX A

MINIATURE FEATHER-CLOTH PONCHO

Courtesy of The Museum of Primitive Art


57.292
1

APPENDIX B

STUDY FORM

Object_____ Museum_____ Number_____

Fabrication Study number_____

Background cloth Yarn or Thread	Fiber	Makeup	Count	Color&Dye

Comments and Comparisons

Method used in attaching feathers

Feather Identification, size, color, and source

Design in feather cloth

Use of Object

Origin of Object

APPENDIX C

STUDY NUMBERS AND CORRESPONDING MUSEUM ACCESSION NUMBERS

The following is a list of the study numbers assigned to each piece examined by the researcher. Following each study number is the museum name and accession number of that particular piece. The following abbreviations have been used for the names of the museums.

AMNH The American Museum of Natural History

BM Brooklyn Museum

MAI The Museum of the American Indian

MPA The Museum of Primitive Art

SI Smithsonian Institution

TM The Textile Museum

VMFA The Virginia Museum of Fine Arts

1. TM - 91.829
2. TM - 524
3. TM - 91.276
4. TM - 91.155
5. SI - 387711
6. SI - 387710
7. SI - 133362
8. TM - 91.361

9a. TM - 1962.9.1

9b. TM - 1962.9.2

9c. TM - 1962.9.3

9d. TM - 1962.9.4

9e. TM - 1962.9.5

9f. TM - 1962.9.6

9g. TM - 1962.9.7

10. TM - 91.749
11. TM - 91.562
12. TM - 91.456
13. TM - 91.431
14. TM - 91.434
15. TM - 91.367
16. TM - 91.395
17. AMNH - 41.0 3611
18. AMNH - B 4588
19. AMNH - 41.2/5622
20. AMNH - 41.D 7307
21. AMNH - 41.0 1351
22. AMNH - 41.0 1342
23. AMNH - B8539
24. AMNH - 41.0 1350
25. AMNH - 41.0 1341
26. AMNH - 41.0 1345
27. AMNH - B 8580
28. AMNH - 41.0 1353
29. AMNH - 41.0 1352
30. AMNH - B 3165
31. AMNH - 41.0 1552
32. MAI - 10 5857
33. MAI - 10 1
34. MAI - 23 829

35. MAI - 23 831
36. MAI - 23 830
37. MAI - 23 832
38. MAI - 23 828
39. MAI - 22 8996
40. MAI - 21 3594
41. MAI - 10 5856
42. MAI - 10 2
43. MAI - 20 6681
44. MAI - 10 0
45. MAI - 17 8910
46. MPA - 56.437
47. MPA - 57.289
48. MPA - 57.119
49. MPA - 56.434
50. MPA - 57.290 C
51. MPA - 57.290B
52. MPA - 57.291A
53. MPA - 57.292B
54. MPA - 57.292J
55. MPA - 57.292JJ
56. MPA - 57.292X
57. MPA - 57.292FF
58. MPA - 57.293V
59. MPA - 57.293 O
60. MPA - 57.293 F
61. MPA - 57.293 I
62. MPA - 57.293 G
63. MPA - 57.299
64. MPA - 56.412
65. BM - 41.1275-108 A
66. BM - 41.522
67. BM - L42.87-53 Strang Collection
68. BM - 37.2908 PA
69. BM - 37.2906
70. BM - L59.4
71. VMFA - 5823

APPENDIX D

FEATHER-CLOTH PONCHO WITH POLYCHROME DESIGN

Courtesy of The Museum of Primitive Art

APPENDIX E

FEATHER-CLOTH PONCHO SHOWING NONCONTINUOUS ROWS

Courtesy of The American Museum of Natural History

APPENDIX F

FEATHER-CLOTH PONCHO WITH POSSIBLE DESIGN THREAD

SELECTED BIBLIOGRAPHY

Books

Ancient Peruvian Textiles. Washington, D. C.: The Textile Museum, 1945.

Baessler, Arthur. Ancient Peruvian Art. Translated by A. H. Keane. New York: Dodd Mead and Company, 1902, Vol. 4.

Bennett, Wendell C. Ancient Arts of the Andes. New York: The Museum of Modern Art, 1954.

Bennett, Wendell C. Ancient Peruvian Art. Hartford: 1937.

Bennett, Wendell C. and Bird, Junius B. Andean Cultural History. New York: American Museum of Natural History, 1949.

Bird, Junius B. Art and Life in Old Peru-An Exhibition. New York: The American Museum of Natural History, 1962.

Bird, Junius B. Art of Ancient Peru, Selected Works from the Collection. New York: The Museum of Primitive Art, 1958.

Birrell, Verla. The Textile Arts. New York: Harper and Brothers, 1959.

Breck, Joseph, and Means, Philip A. Peruvian Textiles-Examples of the Pre-Incaic Period. New York: The Metropolitan Museum of Art, 1930.

Bushnell, G. H. S. Peru, Ancient Peoples and Places. New York: Frederick A. Praeger, 1963.

Doering, Heinrich. Old Peruvian Art. London: A. Zwemmer, 1963.

Doering, Heinrich. The Art of Ancient Peru. New York: Frederick A. Praeger, 1952.

Harcourt, Raoul d'. Textiles of Ancient Peru and Their Techniques. Edited by Grace Denny and Carolyn Osborne. Washington: University of Washington Press, 1962.

Joyce, Thomas. South American Archaeology. New York: G. P. Putnam's Sons, 1912.

Mason, John Alden. Brief Guide to the Peruvian Textiles. Lima: 1959.

Mason, John Alden. The Ancient Civilizations of Peru. Baltimore: Penguin Books, 1961.

Means, Philip A. Ancient Civilizations of the Andes. New York: Charles Scribner's Sons, 1936.

Means, Philip A. A Study of Peruvian Textiles. Boston: Museum of Fine Arts, 1932.

Montell, Gosta. Dress and Ornaments in Ancient Peru. Gothenburg and London, 1929.

Smith, Howell. Brief Guide to the Peruvian Textiles. London: The Board of Education, 1926.

Squier, George E. Peru. Incidents of Travel and Exploration in the Land of the Incas. London: MacMillan and Company, 1877.

Reiss W. and Stubel A. Necropolis of Ancon in Peru. Translated by A. H. Keane. Berlin: A. Asher and Company, 1880-1887.

Textiles of Ancient Peru. Washington D. C.: The Textile Museum, 1964.

Zimmern, Nathalie H. Introduction to Peruvian Costume. New York: John B. Watkins Company., 1949.

Articles

Crawford, M. D. C. "Peruvian Textiles," Anthropological Papers of the American Museum of Natural History, XII, pt. 4 (1915), pp. 64-100.

Harcourt, Raoul d'. "Peruvian Textile Techniques," Ciba Review, XII (February, 1960), pp. 2-40.

Holmes, William H. "A Study of the Textile Art in Its Relationship to the Development of Form and Ornament," Sixth Annual Report of the Bureau of American Ethnology (1885), pp. 189-252.

Holmes, William H. "Textile Fabric of Ancient Peru," Bureau of American Ethnology, Bulletin 7 (1889).

Lothrop, Samuel K. "American Feather-Decorated Mats," The American Anthropologist. XXV (July-September, 1923), pp. 304-306.

Mead, Charles Williams. "Conventionalized Figures in Peruvian Art," Anthropological Papers of the American Museum of Natural History, XII (1916), pp. 203-209.

Mead, Charles W. "Technique of Some South American Feather Work," Anthropological Papers of the American Museum of Natural History, I (1907), pp. 3-17.

Means, Philip A. "A Series of Ancient Andean Textiles," Bulletin of the Needle and Bobbin Club, IX (1925), -p. 24-26.

Weibel, Adle Coulin. "The Elsberg Collection of Peruvian Textiles," Bulletin of the Detroit Art Institute, XIX (1940), pp. 37-39.

Yacovleff, E. "Arte plumaria entre los antiquos peruanos," Revista del Museo Nacional, II, no. 2 (1933), pp. 137-147.

Unpublished Materials

Bird, Junius. "Data on Five Feather-covered Wall Hangings." New York, 1955. (Mimeographed)

Other Sources

Textile Museum. Notes taken regarding articles included in an exhibit of Peruvian fabrics. April, 1964.