ANCIENT PERUVIAN SPRANG FABRICS

by

MARY PATRICIA FRAME

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Department of FINE ARTS

The University of British Columbia
1956 Main Mall
Vancouver, Canada
V6T 1Y3

Date OCTOBER 18, 1982

ABSTRACT

This paper attempts to develop a technical feature of ancient Peruvian fabrics as a dating tool by describing its occurrence as fully as possible. The fabrics in this study share a common technique or method of manufacture which has been called "sprang". Sprang is a weftless technique of interworking a set of parallel elements fixed at both ends and it is characterized by the duplication of fabric in mirror-image symmetry at both ends of the warp. Structural peculiarities which remain in the finished fabric allow the identification of the method of manufacture.

A large sample of sprang fabrics was identified, analyzed, replicated and diagrammed. They were grouped on the basis of structural similarity. The fabrics were dated through grave association, where possible, but primarily through comparative stylistic and iconographic analysis.

The ancient Peruvian sprang fabrics are presented chronologically by horizon and period. Within each time segment, the sample is grouped by structure. What results is a profile of the sprang technique - the variations in structures, the modifications to the basic technique and the differing functions of the finished fabrics - as it is used through time.

By cross-checking technical groupings with grave association, style and iconography, it emerges that certain technical features are diagnostic of the originating culture. The application of this information includes the identification of undocumented fabrics in museum collections and the expansion of the iconographic repertory of some styles. The evolution of the techniques of sprang in ancient Peru is broadly sketched and some internal sequencing of the larger groups of technically

associated sprang fabrics is proposed.

The iconographic study of the sprang fabrics leads to some insights into the importance of fabric making within ancient Peruvian culture. In particular, the repeated association of the serpent with images of fabric structures in the sprang sample of the Early Horizon illuminates the significance of fabric and fabric making.

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ABBREVIATIONS

AMNH	American Museum of Natural History
BME	Basel Museum of Ethnography
BMS	Burke Museum, Seattle
CAI	Chicago Art Institute
DO	Dumbarton Oaks
FI	Collection of Fritz Ikle
FM	Field Museum
JCTM	Julio C. Tello Museo
KO	Kanebo, Osaka
LM	Lowie Museum
MAI	Museum of the American Indian
MDH	Musée de l'Homme
MM	Museum of Mankind
MNAA	Museo Nacional de Antropología y Arqueología
MRI	Museo Regional de Ica
OAG	Ohara Art Gallery, Kobe, Japan
PMH	Peabody Museum, Harvard
PT	Collection of Paul Truel
TM	The Textile Museum

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CHAPTER I

INTRODUCTION

The fabrics of ancient Peru have received the acclaim of cultural historians, anthropologists and antiquarians ever since European archaeologists began excavating and publishing their finds over a hundred years ago. The discovery and excavation of the Paracas tombs in 1925-27 brought to light a huge cache of fabrics, unrivalled among ancient cultures for their rich colour, elaborate imagery and technical virtuosity. The Paracas fabrics, more than any single find, aroused widespread interest and established Peruvian textiles as a significant artistic tradition.

Although the beauty and the cultural importance of fabrics from ancient Peru are readily acknowledged, they have been under-utilized in reconstructing the pre-history of Peru. Ceramics, which are more numerous and which do not require the same strictly arid conditions for preservation, have provided the criteria used in constructing chronologies. Despite the degradable quality of fabrics and their intermittent presence at archaeological sites, fabrics have particular virtues as repositories of information. Many fabrics are large or finely worked and can carry iconography that is more fully expressed than the often abbreviated symbols that occur on ceramics. For instance, the Carhua textiles, a south coast Chavinoid cache, display a range of iconography far more extensive than the range on contemporary ceramics. The technical variety and complexity of fabrics from ancient Peru afford another source of information. The number of processes involved in the production of fabric (spinning, plying, interworking of the elements,

dyeing, finishing) and innumerable quantitative variants that are possible at each stage of production, provide a large body of concrete factors that can be described and compared. Junius Bird has demonstrated the importance of technical analysis of fabrics in his work on the preceramic site of Huaca Prieta (1951-2, 1952) where he was even able to retrieve invisible iconography through laborious, thread by thread analysis. Inspired and encouraged by his work, others have made focussed studies of textile features. William Conklin, in his weave typology for Moche fabrics, has found certain specialized structures to be diagnostic of Moche culture (1979, p. 165). Dwight Wallace has collated spin and plain weave data from early sites which demonstrate a high degree of uniformity in these basic processes within a geographical area (1975, 1979). Ann Rowe has recently supplied the technical information on fabrics from a burial at Chanchan and has taken the first steps toward distinguishing North and Central Coast fabrics in the Late Intermediate Period (1980). A typology of fabric processes and structures by culture is beginning to emerge through the collating of technical information of excavated textiles. Some factors in the typology are proving to be culturally diagnostic. The technical data from fabric analysis provide a set of features that appear to be as useful as ceramic features, like shape and style, in identifying cultural context.

This paper is concerned with a group of fabrics sharing a technique called sprang which has a significant, though limited, presence in ancient Peru. Sprang is a weftless technique of plaiting on stretched threads (Collingwood, 1974) that is characterized by the duplication of fabric in reflective symmetry at both ends of the fixed warp. The

sample of sprang fabrics include published pieces and ones in the photo archive of Alan R. Sawyer. As well, many examples have been added from personal study in museums in Peru, the United States and Great Britian and through extensive correspondence with researchers and curators. I have proceeded to study the sample by technical analysis and replication and have recorded the structural variants in diagrams. I then ordered the sample chronologically, using grave context and stylistic and iconographic association. In analyzing and ordering the fabrics, my intent has been to provide a profile of the technical variants of sprang fabrics as they occur through time.

The choice of the sprang technique as the focus of this study was made on two bases. The need for investications of the occurrence of this technique in cultural contexts has been pointed out by Annemarie Seiler-Baldinger (1977, p. 18). A pioneering survey of the world-wide distribution of sprang has been done by Irmgard Weitlaner Johnson (1950). My own study of Peruvian sprang has shown that the use of this technique in ancient Peru was more extensive than her study indicates. In The Techniques of Sprang (1974), Peter Collingwood devises and describes methods for reproducing many of the structures of sprang, including historically occurring types and innovative types. With these works as foundation, it now seems important to trace the appearance of sprang within the cultural framework of ancient Peru to try to plot the development of the technique.

The second basis for choosing sprang as a subject arises from its singularity. Sprang is an unusual technique in that some evidence of the process or technique is retained in the structure of the finished fabric, unless it is too fragmentary or cut into paired pieces and

separated. This means the technique, in many cases, can be accurately and certainly identified. The structures that can be produced in the technique of sprang are limited to variations of three basic types. From the sample assembled, it appears that only specific, and often highly complex, variations of the basic structures were used. William Conklin has suggested that, in general, the more complex the structure of the fabric, the more diagnostic the textile is of the originating culture (1975a, p. 18). Sprang fabrics seem ideally suited for a technical investigation which might produce significant cultural indicators. Furthermore, many sprang fabrics have iconography that is identifiable to a specific culture. The iconography provides comparative material for checking the reliability of the technical data as indicators of cultural affiliation.

Description and Terminology

To further expand the definition given above, the term sprang in this paper refers to a weftless technique of making fabric on a set of stretched elements which are fixed at both ends. The interworking of adjacent elements is transmitted to both ends of the warp. This weftless procedure produces fabric simultaneously at both ends of the warp. The fabric grows toward the centre from both directions (Fig. 1). In general, when the unworked warps in the centre grow very short, some method of fastening, like chaining across the warps (Fig. 2) or inserting a weft, is necessary to prevent the fabric from unworking itself. The transverse halves of the fabric are in total mirror-image symmetry - in structure, design and even mistakes - because both halves are the product of the same set of hand motions. The basic fabric

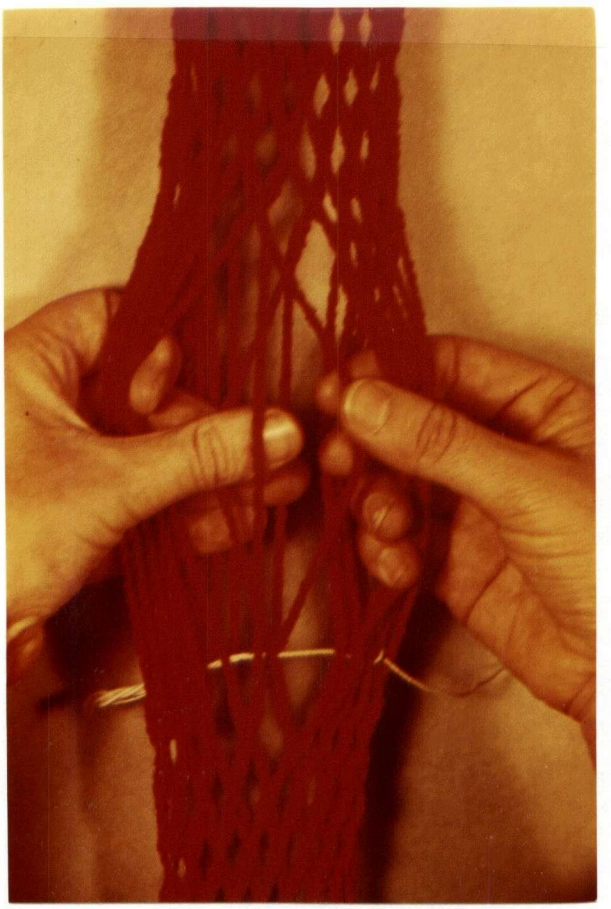


Fig. 1 Working a fabric in the sprang technique by finger-manipulating a set of fixed-end elements. Photo taken by Alan R. Sawyer.

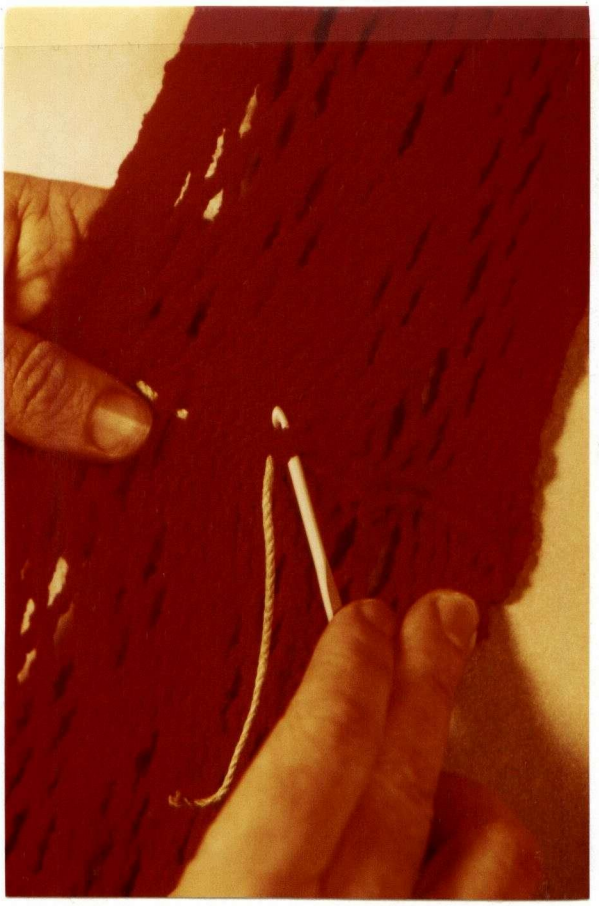


Fig. 2 Chaining the central, terminal area of a fabric made in the sprang technique. Photo taken by Alan R. Sawyer.

structures which can be worked in this way are interlinking, interlacing and intertwining (Fig. 3a,b,c).

Earlier literature on Peruvian fabrics uses a variety of terms to describe sprang fabrics: twining (O'Neale, 1942, p. 161), plaiting (O'Neale, 1942, p. 162), twine plaiting (O'Neale and Kroeber, 1930, p. 54, Pl. 21), loom plaiting (Bird, 1963b, p. 56, Pl. 10), twined "lace" (O'Neale, 1937, Pl. 54), plaiting with yarns held firm at both ends (d'Harcourt, 1962, p. 80, Pl. 54A, 56B). Some of these terms are used in the same work to describe fabrics made in non-sprang methods. It is often not clear whether the words are meant to describe a structure only or a structure and the technique. Part of the problem is that all the structures that can be produced by sprang, can be produced by non-sprang methods as well. When dealing with fragments, an interlinked sprang fabric may be identical with one made in single element linking, if the central, terminal area of construction is not present. Likewise, an interlaced sprang fragment can be identical to a fabric braided on free ends and an intertwined sprang fragment can be identical to intertwined bobbin lace. The presence of interlinked, interlaced or intertwined structures is not proof that sprang was the method of working (Collingwood, 1974, p. 34). A previous lack of separate, distinctive terms for technique and structure as well as the fragmentary nature of the archaeological fabrics gave rise to the confusing descriptions by some authors, especially O'Neale.

The fabric structure terminology used in this paper draws on the monumental work of Irene Emery, The Primary Structures of Fabrics: An Illustrated Classification (1966). Additional terminology for fabric technique relies extensively on Peter Collingwood's excellent book, The Techniques of Sprang (1974). Further advice on fabric terminology

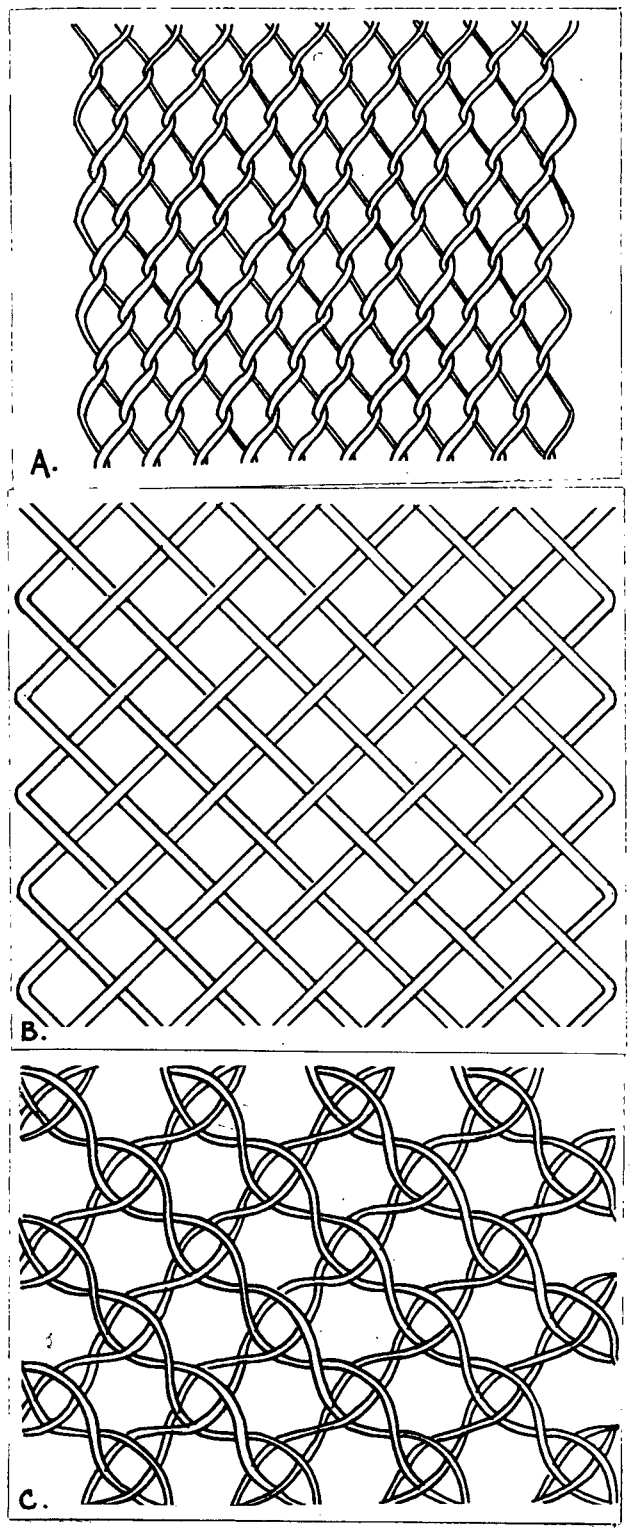


Fig. 3 The basic structures of the sprang technique
A. Interlinking
B. Interlacing
C. Intertwining

was generously given in personal communication by Noemi Speiser, Peter Collingwood and Ann Rowe. While acknowledging my indebtedness to these people, I take responsibility for the terminology used in this paper.

Identification of the Sprang Technique

Sprang fabrics can be identified by certain structural peculiarities that earmark the technique, if the fabric is not too fragmentary and if it has not been cut apart. Many of the complete pieces of ancient Peruvian sprang have loops at both ends of the warp. In a complete piece of interlinking, interlacing or intertwining that has loops at both ends, proof of sprang can be a central hold line that may be chained or wefted, and exact, reflective symmetry across this line. In interlinking and intertwining, the direction of the linking twist or twining twist (S or Z) will be opposite on either side of the hold line (Collingwood, 1974, p. 273-4). Some Peruvian variants of this type have more than one meeting line because an unusually long warp is worked in sections. Mirror-imaging of structure and design across each hold line is then the needed evidence. Centrally unworked warps, with warp loops at both ends, which join two symmetrical fabrics in any of the possible sprang structures is also proof that sprang was the technique. Some Peruvian sprang fabrics with centrally unworked warps are cut apart into two pieces. If the two symmetrical pieces are used together in one article or if a symmetrical mistake or irregularity is located, then it is likely that sprang was the technique. If the two pieces from one warp are made into separate articles, firm evidence for sprang may be lost entirely (Collingwood, 1974, p. 174). Some fragments which have no evidence of the technique, but are similar to

more complete fabrics with proof of sprang, will be considered to have been made in the same technique. While this is difficult to substantiate, the traditional and conservative nature of fabric processes in Peru add some weight to this interpretation.

Chronology and Style Identification

A number of authors have constructed chronologies, or abstract space-time grids, to order style changes in ancient Peruvian art. Alan R. Sawyer's book, Ancient Peruvian Ceramics (1966), is a major contribution to the definition and ordering of ceramic styles. The chronological table published by John Rowe and Dorothy Menzel (Table 1) is also based on ceramic styles. Since the publication of the Rowe and Menzel chronology in 1967, a number of articles and dissertations have been written that cross-tie textile style to segments of this ceramic chronology and, in some cases, refine the internal evolution of style as it applies to iconography on textiles. Among such writings, the works of Dawson (1979), J. Dwyer (1971, 1979), N. Dwyer (1979) and A. Rowe (1979) are particularly crucial to dating the fabrics in this study. Rowe and Menzel's chronology is a convenient, relative chronology and it is being used throughout this paper, in order to keep to a single set of chronlogical terms and dates.

This chronology employs units of time, or contemporaneity which are called horizons and periods (1962). The units of time correspond to style change in the master ceramic sequence of Ica. The three horizons, Early, Middle and Late, are times of cultural or artistic unity in ancient Peru. The Chavin style dominates the Early Horizon (1400-400 B.C.), the Huari style dominates the Middle Horizon (550-900 A.D.) and the Inca style dominates the Late Horizon (1476-1534 A.D.). The

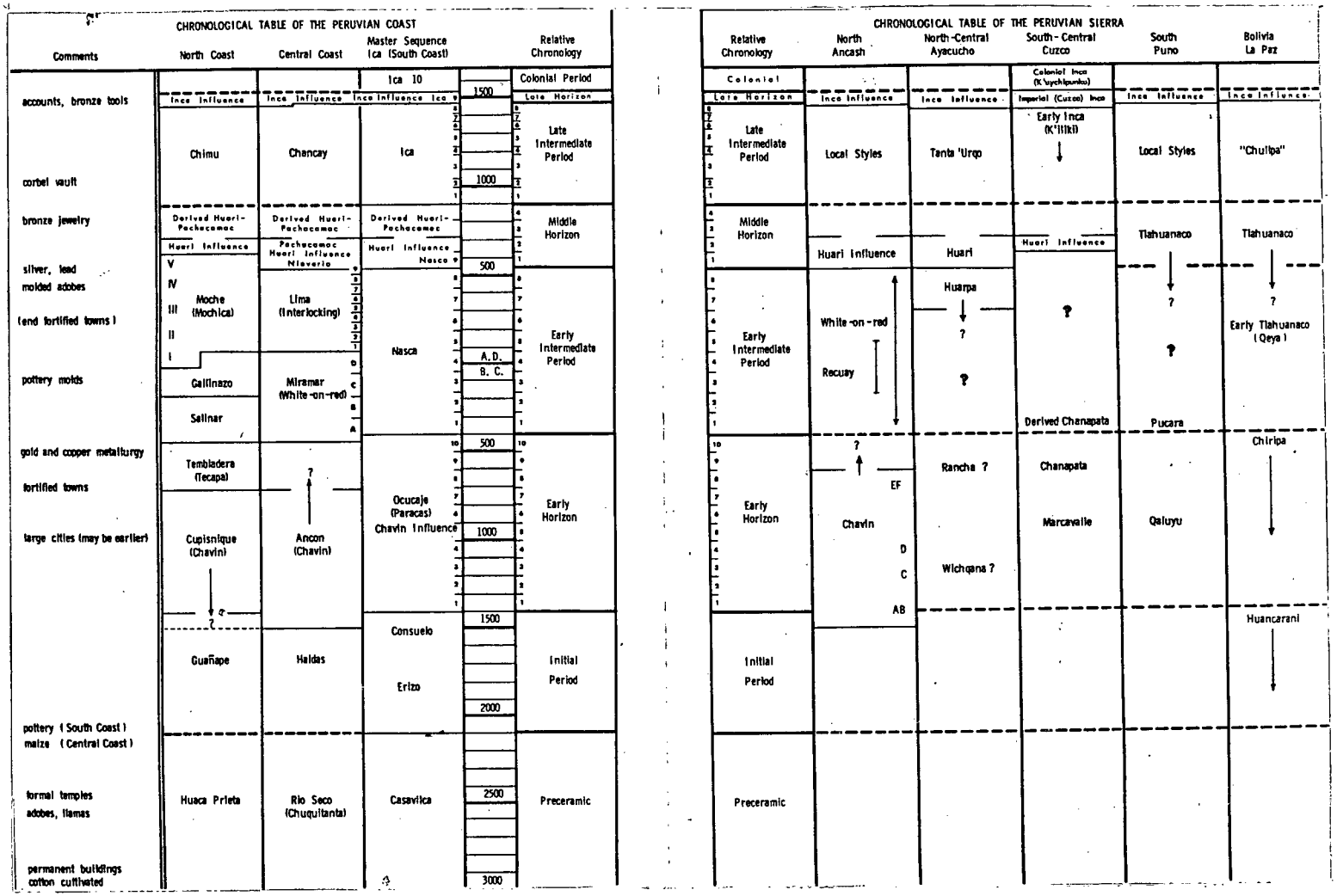


Table I Chronological Table (Rowe and Menzel, 1967)

Early Intermediate Period (400 B.C.-550 A.D.) and the Late Intermediate Period (900-1476 A.D.) are times of regional diversity and fall between the horizons. The Preceramic Period (3000-2100 B.C.) and the Initial Period (2100-1400 B.C.) are earlier than the horizons or intermediate periods.

The absolute dates given are still open to question and precise cross-tying from the Ica master sequence to other ceramic sequences is not complete. Archaeologists are not in complete agreement on the spatial or temporal extent of some styles nor on the absolute dates that correspond to style change. Although chronological matters are far from settled, there is considerable accord among scholars on the relative ordering of styles and the internal evolution within styles.

Most of the fabrics in this study can be placed in a general cultural context through a combination of comparative techniques. Firstly, a few have been excavated scientifically and their ceramic or other associations have been recorded. These few pieces are identified on the basis of stratigraphy, carbon 14 dating of associated remains, or association with ceramics of a known style. Other fabrics, of unknown origin, can be grouped with these fabrics if they share important features. The shared features may be stylistic and iconographic or they may be technical and structural. Because the structural features of sprang fabrics are particularly complex and specific, they have been used to add in additional pieces which lack comparative iconography or stylistic features. The validity of associating fabrics through specific technical features will be illustrated throughout the paper as fabrics that have been grouped on the basis of a consistent style and iconography also exhibit a common technique and structure.

Some technically homogenous groups of fabrics in this study are

without a single excavated example. Neither does the iconography relate closely to that found on ceramics. Even for placing them in a general cultural context, it is necessary to relate them to broad stylistic features in other textiles which have grave associations with ceramics that have been identified. As Andean chronology is based on ceramic sequences, this circuitous method is sometimes the only one open for dating fabrics. Even when the general placement of a group of sprang fabrics relies on several slender connections, a contribution to the chronology of fabrics can sometimes be made. A large group of sprang tassels which lack excavation data have been arranged in an internal sequence, based on small changes in structure and technique. The sequence was then cross-checked with the direction of stylistic and iconographic change which is known for ceramics or other fabrics. The incomplete state of the knowledge of Andean art styles demands the use of the diverse techniques employed in this paper for identifying fabrics.

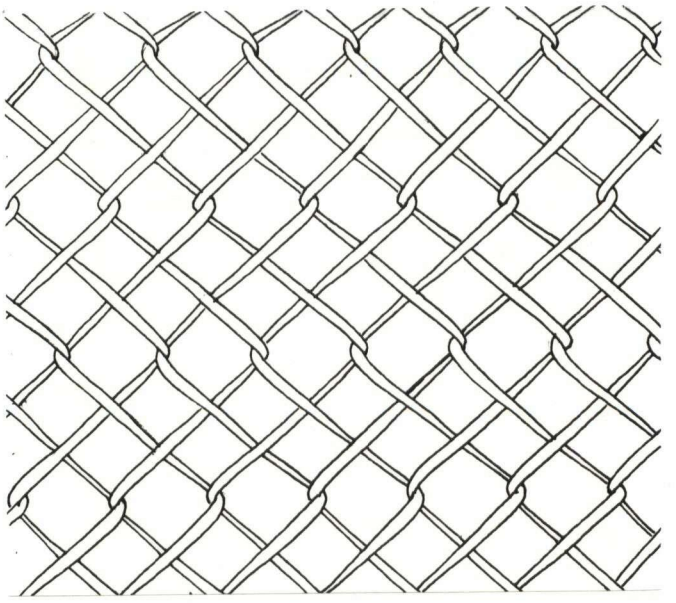
CHAPTER II

PRECERAMIC AND INITIAL PERIODS

In chronicling the appearance of the sprang technique in ancient Peru, the published data from excavations should be the prime reference for setting the earliest dates. However, the incompleteness of the archaeological record in the early periods, as well as errors in distinguishing the products of the sprang technique, weaken the ability of this source to reflect the approximate date that sprang came into use. A more speculative method of comparing the level of technology required for sprang with the level of technology exhibited by extant fabrics can only suggest where the sprang technique might be expected to appear, if the archaeological picture were more complete.

The earliest report of sprang is from the late preceramic settlement of Asia on the central coast (Engel, 1963). However, I have studied the report and doubt the accuracy of the identification of sprang as the technique. Six photos or diagrams of one bag (Cat. No. 0.798), said to be loom-plaited or sprang, suggest a single element constructional method rather than sprang. The close-up photo of one area of the bag does show a structure consistent with both the techniques of sprang and single element linking. The structure combines S and Z linking with oblique interlacing (Fig. 4). The supporting photos and diagrams, however, show features of this bag that are inconsistent with the sprang technique. The bottom of the bag (Engel, 1963, Fig. 58) shows a central point with radiating and increasing numbers of ribs. The diagram of an area where the ribs increase in number show threads in jumbled paths of varying

A.



B.

Fig. 4 Structure of a preceramic bag from Asia
A. Engel, 1963, Fig. 62, Cat. No. 0.798
B. Combination of S and Z linking and oblique interlacing

lengths (Fig. 5). In sprang, the set of elements is of a uniform length. These irregular thread movements, and the varying thread lengths they require, could not be encompassed on a sprang warp. They are, on the other hand, quite consistent with single element linking. Nowhere are a hold line or symmetrical irregularities mentioned or shown. All the indicators suggest a single element technique where the bag is begun at the bottom with a single thread and built up in spiralling rows, with extra stitches added to increase the size and shape the bag. The reconstructed bag (Engel, 1963, Fig. 79) is similar in shape and shaping to other bags from Asia made in the single element techniques of linking and looping. It must be concluded that the analyst working with these textiles did not have a clear conception of sprang, perhaps confusing the presence of a linked structure that can (but need not) be produced by the sprang technique.

The second example, described as having "loose sprang" (p. 40) added to the side selvedges of a looped rectangle, is an equally dubious case. Though fragmentary, it appears that parts of both end selvedges of each addition are present (Fig. 6). The end selvedges appear to have looped ends. If these additions were separate interlinked sprang pieces, a hold line and a change of twist direction would be visible in the centre of each added piece. If the two additions were part of one sprang warp, then each addition would have one cut warp end. Neither of these features appears in the photograph. All the visible features are consistent with single element linking and not with interlinked sprang.

The report of sprang from the preceramic site of Asia appears to be based on an erroneous understanding of the sprang technique. Sprang has not been reported from other preceramic sites though it would not be

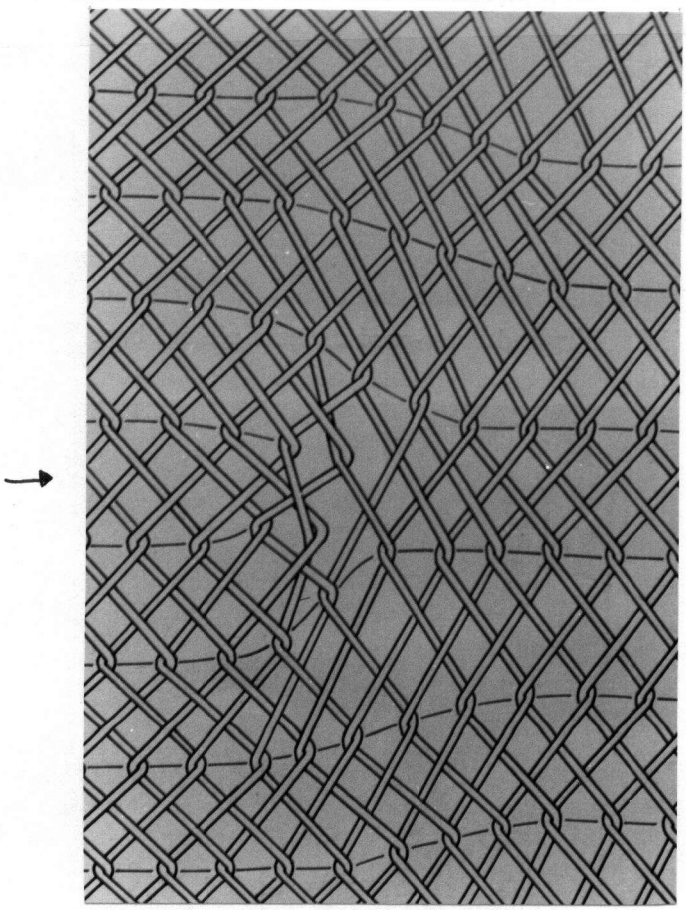


Fig. 5 Structural detail of the Asia bag indicating a non-sprang technique (Engel, 1963, Fig. 64, Cat. No. 0.798) (arrow indicates increased rib area)

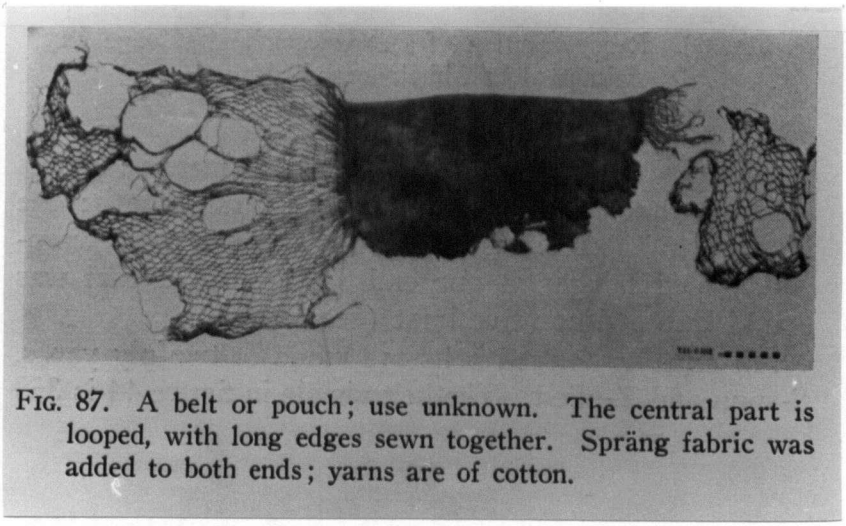


FIG. 87. A belt or pouch; use unknown. The central part is looped, with long edges sewn together. Spräng fabric was added to both ends; yarns are of cotton.

Fig. 6 A preceramic fabric from Asia that is described, probably erroneously, as having "loose sprang" attached (Engel, 1963, Fig. 87, Cat. No. 0.1018)

surprising if it had been. Junius Bird's careful analysis and description of the predominantly weft-twined fabrics of Huaca Prieta, particularly of the warp selvedges, gives the best insight into the methods of working used by preceramic people (1951-2, 1952, 1963, 1968). The level of textile development and the technology applied to the production of the weft-twined and plain weave fabrics is sufficient for the production of fabrics by sprang. The making of firm, continuous elements by spinning fibres and plying them is well established at the preceramic sites of Huaca Prieta (Bird, 1951-2, p. 74), Asia (Engel, 1963, p. 24-5) and at the Ancon-Chillon area sites (Moseley, 1975, p. 25-33). The presence of warp loops at both selvedges of some fabrics (Engel, 1963, p. 27; Bird, 1951-2, p. 76) shows that the preparation of a set of parallel elements by continuous warping was a usual practice at these sites. Strict maintenance of warp order is amply demonstrated by the elaborate patterns produced by transposing warps in the weft-twined fabrics (Bird, 1963). The use of loom bars to support and tension the warp of weft-twined fabrics at Huaca Prieta (Fig. 7) has been convincingly hypothesized by Bird (1951-2, p. 76) on the basis of the large size of the fabrics and the looped warp ends. Plain weave fabrics are also found at preceramic sites, though infrequently compared to twined ones (Bird, 1951-2, p. 76, 1952, p. 45; Engel, 1963, p. 43-4 and Fig. 97). Unlike twining, plain weave separates the warp into two equal groups made up of alternate warps, with a shed or opening between them. Doing sprang requires the separation of a warp by making a shed, for without it, any interruption in work would allow the fabric to undo if a shed retainer (cord, hand, stick) did not lock the last warp movements. In plain weave, the final weft retains the shed. The level of technical development needed for

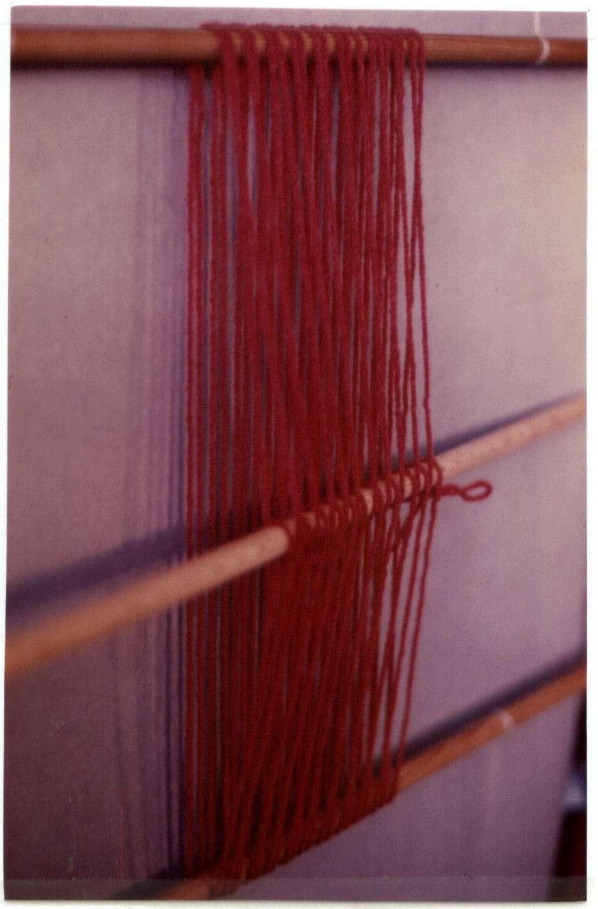


Fig. 7 Three bar loom with a false circular warp (constructed after Bird, 1951-2, p. 76)

sprang - a set of continuous elements of equal length and sufficient strength, a support and tension system and the separation of the warp by a shed - are present in the twined and plain weave fabrics from preceramic sites.

Several Huaca Prieta fabrics exhibit some intriguing structural similarities to sprang fabrics. The warps of three weft-twined pieces, diagrammed by Junius Bird, travel in helical paths (Fig. 8), unlike the more usual cross and re-cross paths. A helix is the warp path in interlinked sprang. Other diagrams show the linking of adjacent warps between the rows of spaced weft-twining (Fig. 9). The linking is repeated but reversed in direction between the next rows of weft-twining. This reciprocal movement is necessary when a warp is fixed at both ends in order to move the threads back to their original position and prevent a disordering of the warps at the terminal area. Even if this is a mistake as Junius Bird believes it is (p.c.), the correction of it in the succeeding row exhibits an understanding of the duplicating action (in reverse) of a twist when warp ends are fixed. The mirror-imaged duplication of warp movements on a set of fixed-end elements is the major characteristic of the sprang technique. The orderly repetition of the initial mistake, without the correction, and the omission of twined wefts would result in interlinked sprang.

Although speculative, it does appear that the level of technical development exhibited in other fabrics is sufficient for the advent of sprang in the Preceramic Period and that the invention of sprang only awaits a fortuitous accident ... but how long a wait?

It is clear that sprang did not become the major fabric making technique at any point in the history of Peru, even with its advantage

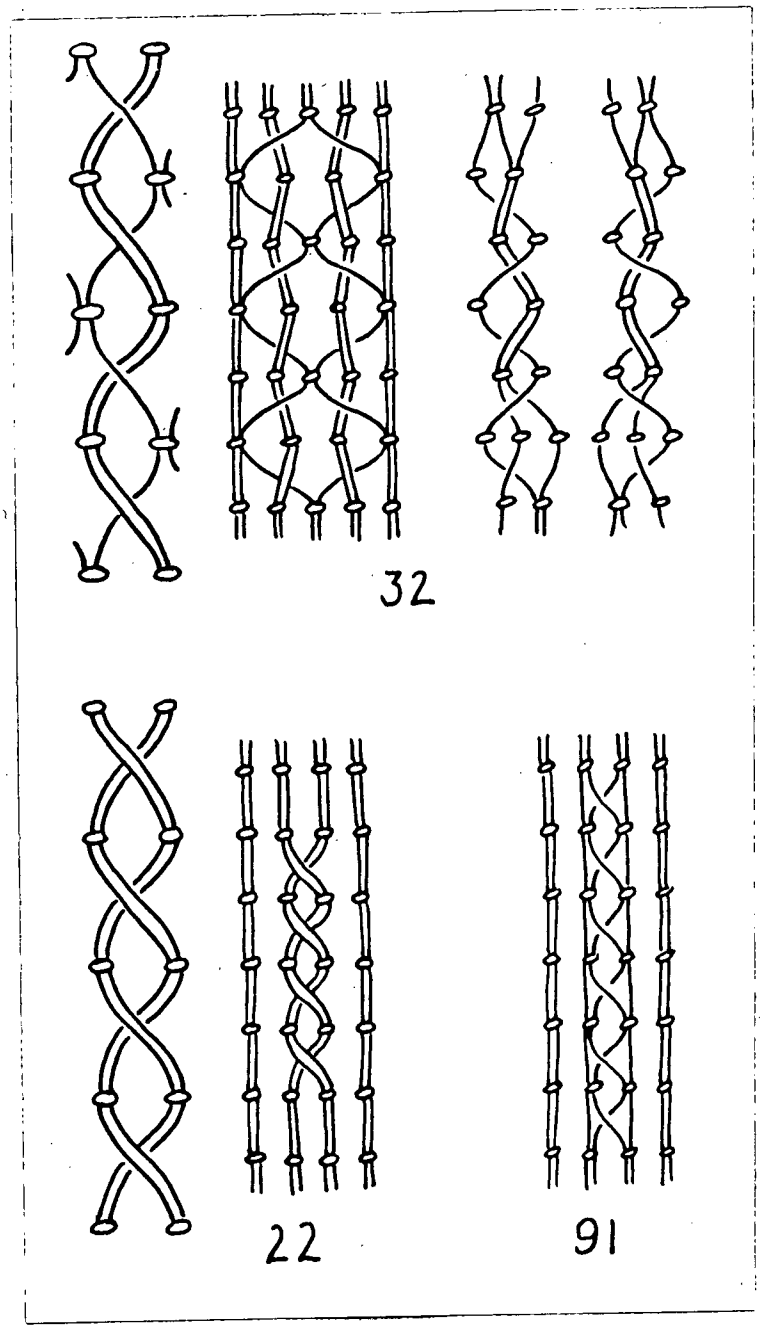


Fig. 8 Diagrams of weft-twined fabrics from Huaca Prieta having helical warp paths (after Bird, 1968, Figs. 32, 22 and 91)

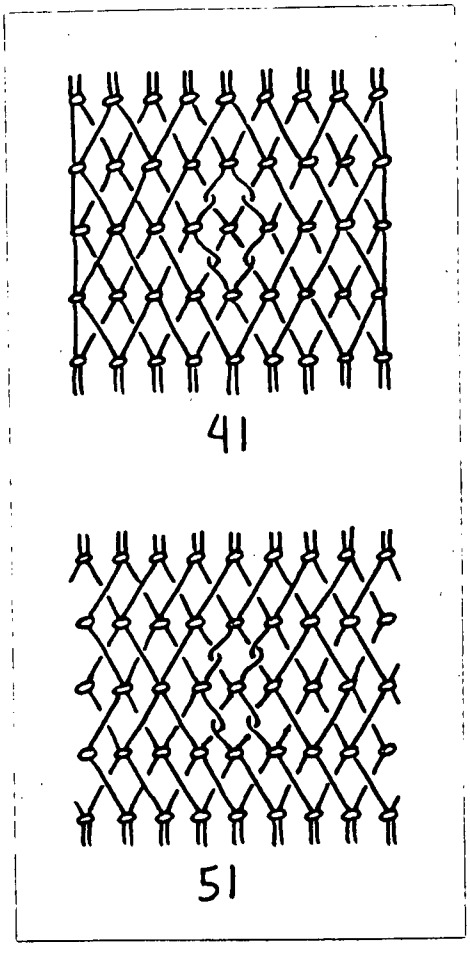


Fig. 9 Diagrams of weft-twined fabrics from Huaca Prieta with linking warps (after Bird, 1968, Figs. 41, 51)

of simultaneously producing fabric at both ends of a warp. During the Preceramic Period, weft-twining, knotting and looping, which are totally hand-manipulated, were the major techniques. In the Initial Period, weaving progressively became the ascendent technique, perhaps evolving out of twining (Conklin, 1975b). The entrenchment of weaving as the major technique throughout the rest of Peruvian pre-history may have resulted from the invention of shed controls to move warps mechanically. The archaeological record is not complete enough to know when the shedding appliance of the heddle came in to use. The best estimate is that it may have been in use during the Chavinoid phase of the Early Horizon, when large, evenly battened fabrics, like the Carhua fabrics, were being made (Conklin, 1978, p. 3). The sprang technique requires a lesser level of technical development than the revolutionary method of weaving with heddles, yet archaeologically, it is not represented earlier (aside from the questionable Asia report). It is possible sprang developed before weaving, but for reasons embedded in the culture, it remained a minor and, at present, unverified technique. During the 1350 years when it was quite definitely in use, sprang was always a minor technique, used for specific types of fabrics.

Though sprang has not been correctly recorded from Preceramic and Initial Period sites, comparison to the technical level exhibited by other fabrics from these time periods suggests that the sprang technique could have developed from the Preceramic Period onward. We may never know when it came into use because it might have originated in areas where there is little or no fabric preservation, like the highlands. This lengthy speculation on the origin of the sprang technique has been pursued because, among the earliest recorded examples, are very complex

and competent fabrics which do seem to indicate a substantial development period.

CHAPTER III

THE PARACAS-NASCA TRADITION OF THE EARLY HORIZON AND EARLY INTERMEDIATE PERIOD

Interlinking: Cerrillos

At present, the earliest, correctly identified sprang fabric from a controlled excavation is a long narrow strip, possibly a belt (Wallace, 1962, p. 311). Dwight Wallace excavated the piece at Cerrillos, Ica Valley and dates it to the Isla Phase or approximately Ocucaje 7 (upper valley[1]) in the chronology of Menzel, Rowe and Dawson (1964), c. 800-700 B.C. The dimensions are 84 cm by 2.5 cm and there are warp loops at both ends. The threads are three ply cotton, Z spun and S plied. The structure is almost all interlinking, tightly beaten. A single row of interlacing (threads pass over two, under two) appears 11 cm on either side of the central, terminal area (Fig. 10A). The terminal area (Fig. 10B) is interlooped (p.c. Dwight Wallace, 21/12/79).

The interlinked structure connects adjacent threads in an elbow-like link throughout. The only change in this regular structure is in the direction of the helical path of each thread at points 11 cm from the central area. At that point, the S twist interlinking switches to Z twist interlinking. (In the mirror-imaged half of the fabric, the switch is from Z to S twist). The change of direction in interlinking takes place along the row of 2:2 interlacing. Such a change of twist direction will make a fabric lie flatter by reversing the torque imparted to the over-all fabric, but it is difficult to tell if this was intentionally done. It could have resulted from turning the loom end for end and repeating one row of the two row sequence used in the rest of the fabric,

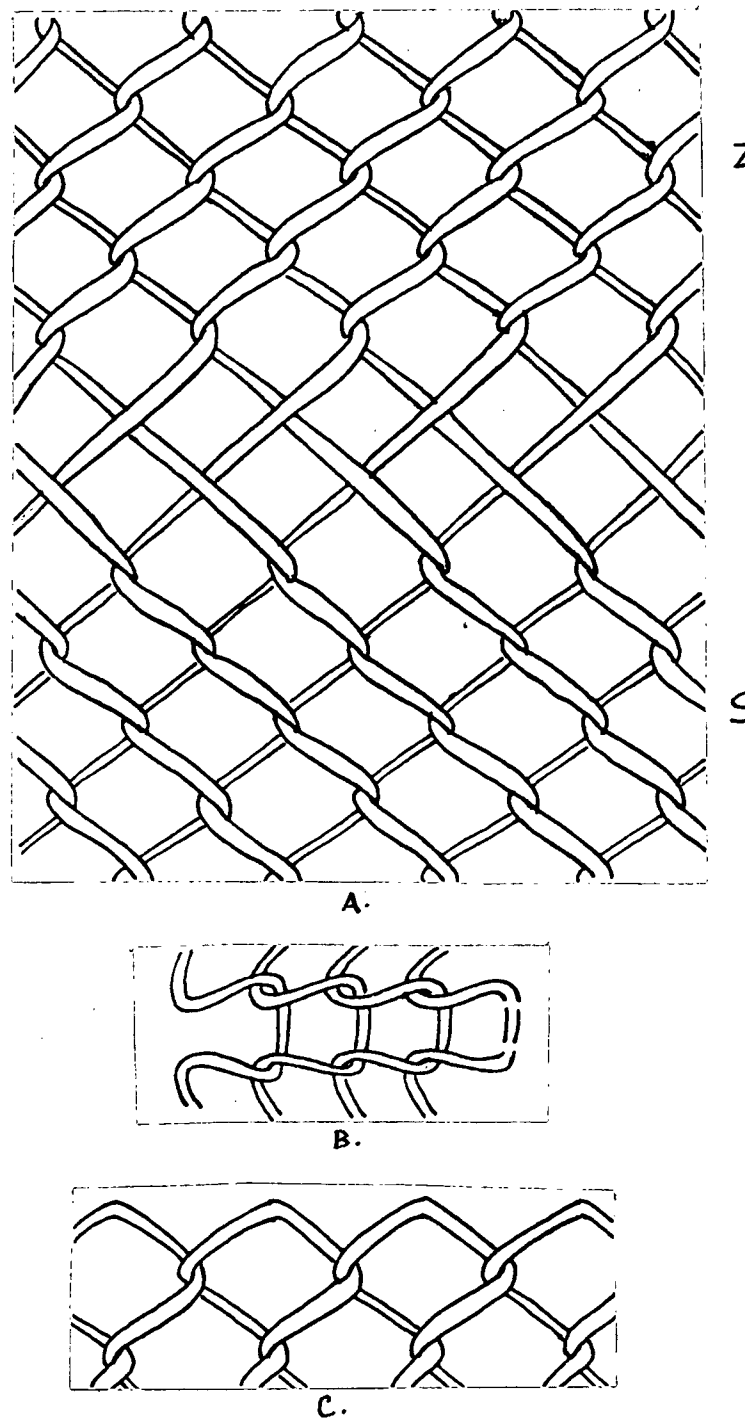


Fig. 10 Technical details of the earliest confirmed sprang fabric, Cerrillos, Early Horizon 7
A. Structure: interlinking and interlacing
B. Chained closure at the centre
C. Warp loops at both ends
(After sketches supplied by Dwight Wallace, 21/12/79)

perhaps after an interruption in work.

Several insights into the method of working are preserved in the technical data supplied by Wallace. The warp loops at both ends show a continuously wound warp was prepared. The fabric has no heading cords at either end, nor are the warp loops enlarged, as sketched by Wallace (Fig. 10c). It appears that this piece was not mounted on bars, either directly through the loops, like the twined fabrics of Huaca Prieta, or by lashing a heading cord area to bars, like the majority of woven and sprang fabrics. As the fabric has only sixteen threads and is less than a metre long, it is quite possible that a temporary cord was passed through the warp loops at both ends and attached to fixed points for tensioning. In 1978, I watched an Ollantaytambo woman weave on a warp prepared in this way and tensioned between her big toe and her waist. Because of the limited size of the Cerrillos piece, special tools or equipment would not be needed.

There is good evidence in the single row of interlacing that the fabric was worked in horizontal rows against a transverse fabric fell or working edge. This method requires establishing a shed in the warp, even if only with the hands or a cord (see Collingwood, 1974, pp. 58-64 for a full description of a working method). This point is raised because other narrow sprang fabrics in this study are worked along oblique fabric fells. The difference in the orientation of the fabric fell may indicate separate developments for these two variant techniques. The technique of the Cerrillos sprang fabric with the transverse fell has more in common with the techniques of preceramic twining and weaving where the fabric is built up in horizontal rows on a set of longitudinal elements. The technique with oblique working edges, found in the straps of Paracas-Nasca skirts, may have evolved out of braiding on free ends,

where the fabric fell is almost always oblique.

Interlinking may be the earliest fabric structure made in the sprang technique in Peru. Non-sprang, linked and looped fabrics are numerous in preceramic sites, like Asia (Engel, 1963) which indicates a use or appreciation for the stretchy, expandable quality shared by those single element fabrics and interlinked sprang fabrics. The impetus for developing the technique for interlinked sprang may have arisen from an attempt to speed up the slower method of working with a single element. Although interlinked sprang fabrics resemble single element, linked fabrics most closely, the technical requirements and the probable evolution of interlinked sprang share more with twining and weaving in the earlier periods.

Interlinking: Openwork Sample

The earliest extensive group of fabrics produced in the sprang technique are interlinked headdresses and bags from the South Coast area. Some of the pieces have provenience. The Paracas sites of Paracas Cavernas and Cabeza Larga and the Hacienda Ocucaje in the Ica Valley have yielded interlinked sprang. Most of these technically homogenous fabrics have distinctive iconography which supports the inclusion of other fabrics that are without provenience. Grave association and stylistic comparisons to objects outside the grouping indicate these fabrics are primarily from Early Horizon 9 with a few examples that are transitional to 10 (c. 600-450 B.C.). The workmanship and the patterning complexity of this group do indicate a substantial developmental period preceded them. However, this has not yet been borne out archaeologically and, so far, the use of the sprang technique for this type of patterned interlinking is confined to the late stages of the Early Horizon with no examples from

outside the South Coast area. This is a period where a new and alien imagery appears on the South Coast. Its origins are unknown but are suspected of lying in an intermountain valley (Sawyer, 1966, p. 87). If this is the case, textile preservation might be so poor that the direct precedents of the interlinked sprang hoods will never be known.

Most of the fabrics in this group appear to be headdresses, either long, flat turbans or hoods. Several pieces of different sizes and constructional features may be small bags or mantles. The structure of the fabrics is 1:1 interlinking combined with "holes" or omitted links (Fig.11). The patterning depends solely on the contrast between the regularly worked, dense cloth and the openwork created when links are omitted. No other structure or variant is introduced except the chained hold line which secures the threads in the centre of each complete piece and the heading areas at either end which are generally strengthened with three to seven wefts inserted in plain weave sheds (Fig. 12). The chained hold line and the reflective symmetry of design and structure on either side of the hold line is the proof that sprang was the technique.

The designs are all-over patterns with approximately equal dense and open areas. Some of the patterns interlock and repeat exactly while others repeat variations on a similar theme. All the fabrics are monochromatic: dark blue, orange, maroon, green, gold, off-white and light blue pieces are present. The majority use deeply dyed wool, probably alpaca, while a few cotton ones are either natural coloured or pale in hue.

The two best documented pieces comes from the Paracas Cavernas site on Cerro Colorado, Terrace III, Tomb 2 and 3. These excavations were made under the direction of Dr. Luis Valcárcel of the Museo Nacional, Lima in 1931 and the textile finds were published the following year

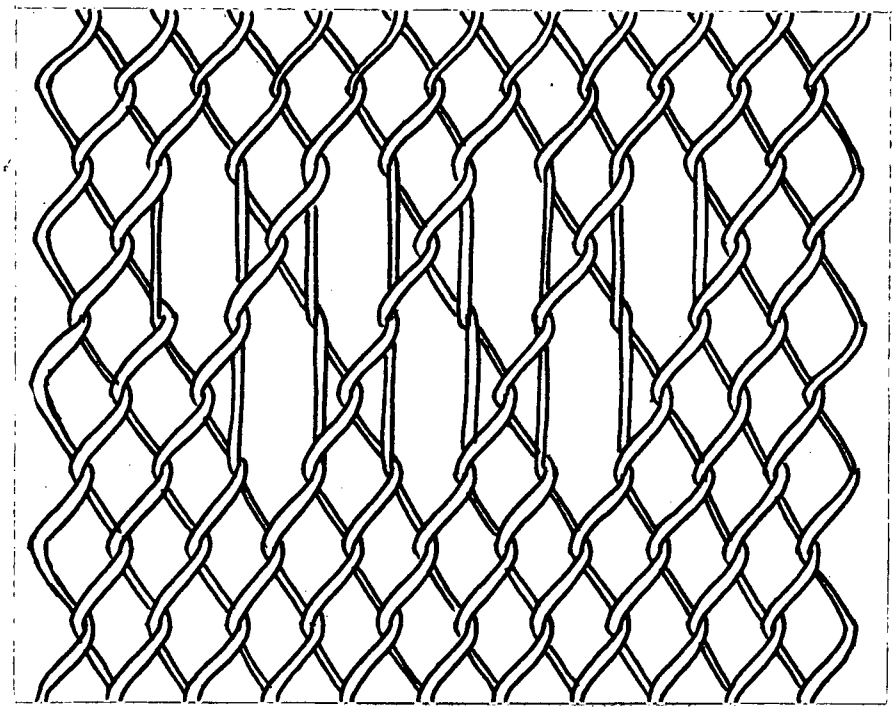


Fig. 11 Structure of South Coast headdresses: Interlinking with "holes", or links omitted

A.

B.

Fig. 12 General features of Early Horizon interlinked sprang
A. Chained hold line
B. Heading area with wefts
(AMNH 41.2/5346)

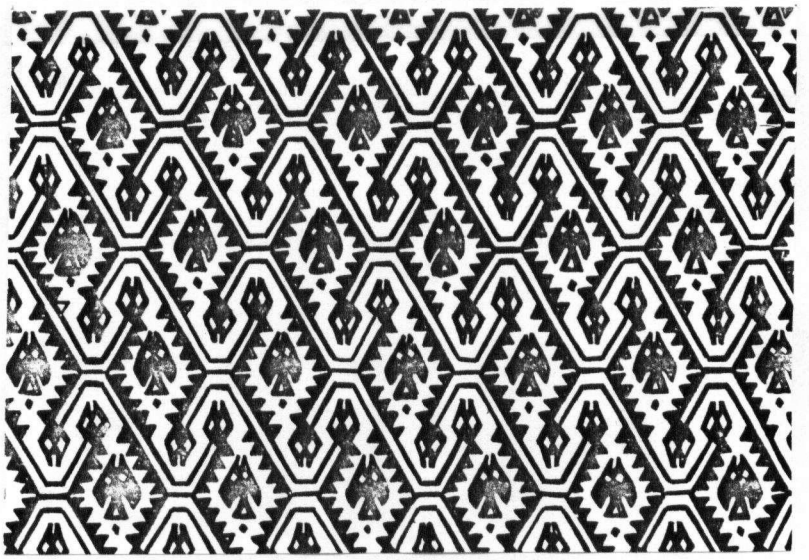
(Yacovleff and Muelle, 1932). MNAA #8430 is an orange, wool oblong of of interlinked sprang from Tomb 2 which has dimensions of 1.35 M x 0.60 M (p. 36). A detailed photograph shows the structure and the chained hold line and a drawing shows the pattern of a serpentine grid with birds (?) in the interstices (Fig. 13). MNAA #8509 from Tomb 3 is also orange, wool interlinked sprang but it is longer, 2.20 M x 0.40 M (p. 44). The design is a branching serpentine repeat (Fig. 14). Both #8430 and #8509 were found on heads that were separated from torsos. Unlike the textiles that were wrapped around the torsos, the sprang fabrics were carefully arranged on the head as they might have been worn in life:

> "Contrarimente a esto, las cabezas, hasta en los casos de hallarse separados del tronco, conservaban su tocado cuidadosemente puesto y en forma que sin duda corresponde a su manera de usar." (p. 50, Yacovleff and Muelle, 1932)

The two headdresses are described as being in the form of hammocks, flat but with gathered ends (p. 52). Another openwork headdress in a non-sprang technique is used to illustrate the manner in which hammock-shaped headdresses of Tomb 2 and 3 were arranged on heads (Fig. 15).

In addition to the two well-documented turbans in Fig. 13 and 14, Nobuko Kajitani has supplied pictures of four other interlinked sprang fabrics in the Museo Nacional de Antropología y Arqueología, Lima. One, at least, is from an excavation by Julio C. Tello as it still retains a number (12/9030) from his numbering system, in addition to its current number, Lima 1091. It is long and narrow with the ends gathered through loops of the heading cord (Fig. 16) in a manner similar to that described for the two previous headdresses. The dimensions are 1.87 M x 0.99 M (p.c. Nobuko Kajitani). Although this piece is narrower, it seems likely that it, too, was fashioned into a hammock shape and wound onto a head. It is possible that this turban came from Tello's 1925-6

A.



B.

Fig. 13 Interlinked sprang turban, Paracas Cavernas, Terrace III, Tomb 2, MNAA #8430
A. Detail of terminal area (d'Harcourt, 1962, Pl. 56B)
B. Extension of pattern repeat (after Yacovleff and Muelle, 1932, Fig. 10)

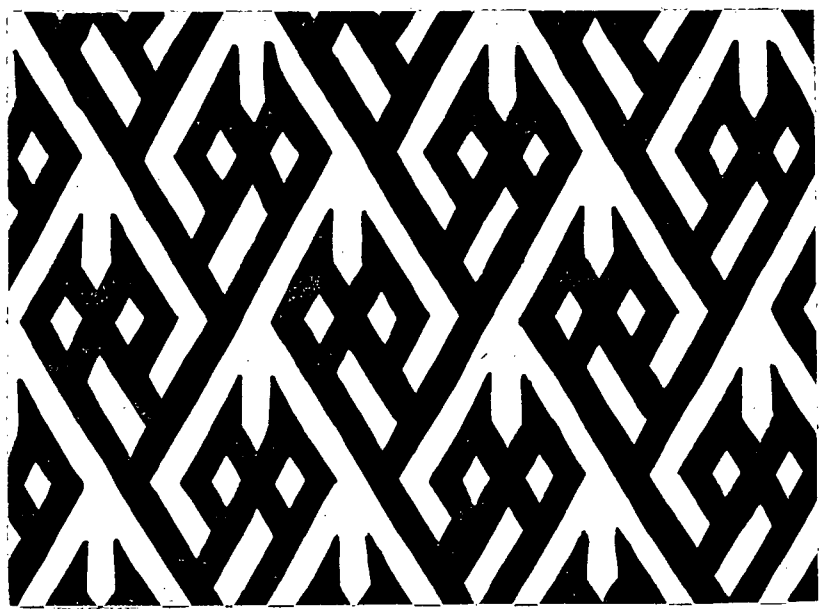


Fig. 14 Pattern repeat on interlinked sprang turban, Paracas Cavernas, Terrace III, Tomb 3, MNAA #8509

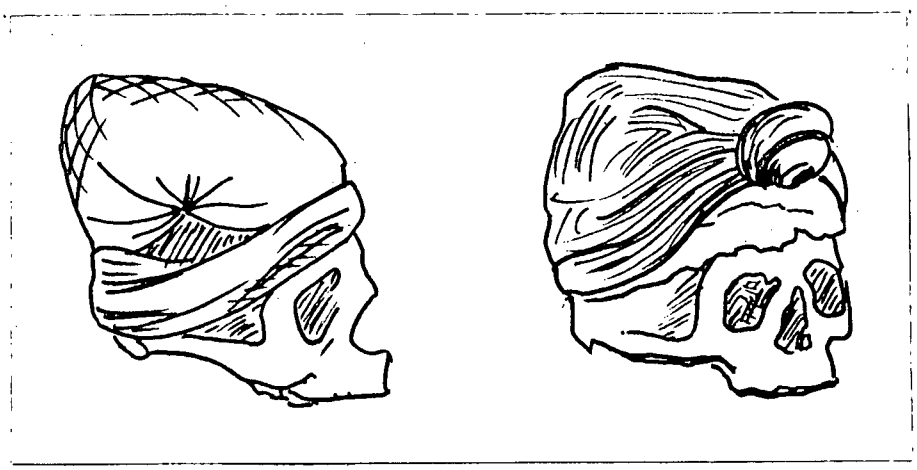


Fig. 15 Arrangement of headdresses on truncated heads in Tombs 2 and 3, Terrace III, Paracas Cavernas (after Fig. 23, Yacovleff and Muelle, 1932)

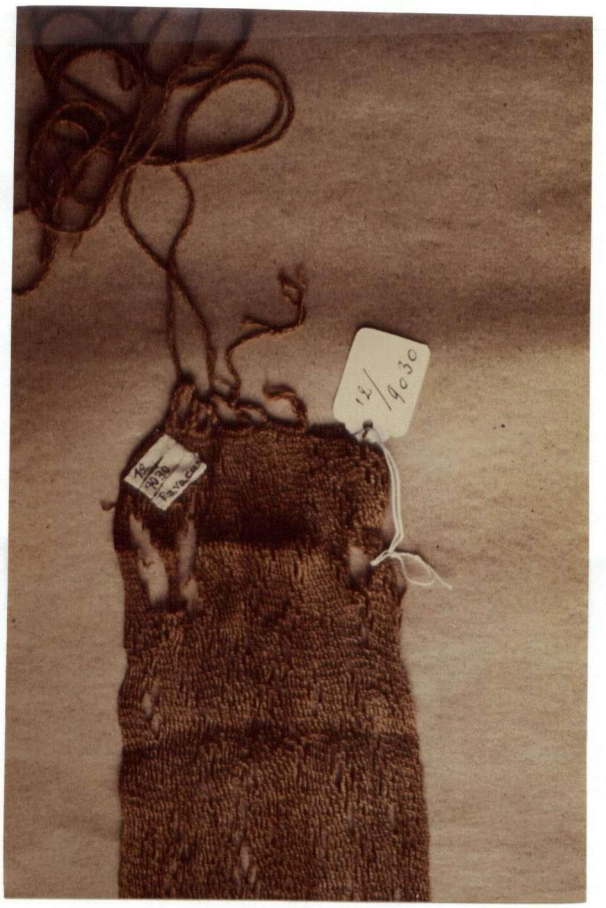


Fig. 16 Detail of a Paracas turban showing gathering loops (MNAA #1091, photo courtesy of Nobuko Kajitani)

work at the Paracas Cavernas site. The design of the turban repeats double headed serpents inside a complex grid (Fig. 17).

Two very deteriorated sprang fragments of a single piece with indeterminate dimensions are also in the Museo Nacional (Fig. 18). They have a serpentine grid design, similar in organization to the one in Fig. 13. The origin of this piece is unknown but, stylistically and technically, it relates closely to fabrics known to have come from the Paracas Cavernas site. This piece seems to be wider than the others mentioned and so may not have been used as a turban although there does seem to be fragments of a looped heading cord and gathering folds at one end.

The other two pieces in the Museo Nacional, Lima for which Nobuko Kajitani supplied information have different constructional details which suggest they might have been bags. One has complete warp selvedges and a chained hold line. It is constructed by folding across the chained line and sewing the side selvedges together (Fig. 19). The design is horizontal zigzags and the dimensions are 0.12 (x2) M x).24 M. The other fragment is also wide in proportion to its length. The seam in the centre, which joins side selvedges, suggests it may also have been a bag rather than a turban (Fig. 20). The design is a little irregular but it is also a branching serpent design, similar to Fig. 14.

A long rectangular piece of interlinked sprang was on display at the Julio C. Tello Museo, a small museum at the foot of Cerro Colorado, the hill that contains the Paracas Cavernas site (Fig. 21). It is said to come from the site of Cabeza Larga, a shore site directly by the museum (p.c. Guardian, Tello Museo). The relative dimensions of the piece suggest it might have been another turban, although there are no heading cord loops in its present, post-conservation state. The

Fig. 17 Detail of a Paracas turban showing the pattern repeat of a double-headed serpent in a complex grid (MNAA #1091, photo courtesy of Nobuko Kajitani)

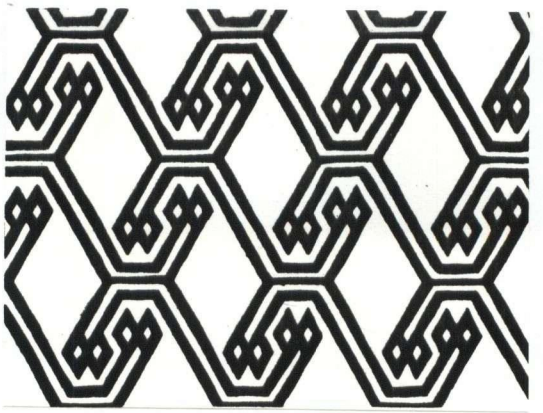


Fig. 18 Two fragments of the same Paracas turban (?) with a serpentine grid design (MNAA Lima 98 and 112, photo courtesy of Nobuko Kajitani)

Fig. 19 Interlinked sprang bag (?) with zigzag pattern
(MNAA Lima 104, photo courtesy of Nobuko Kajitani)

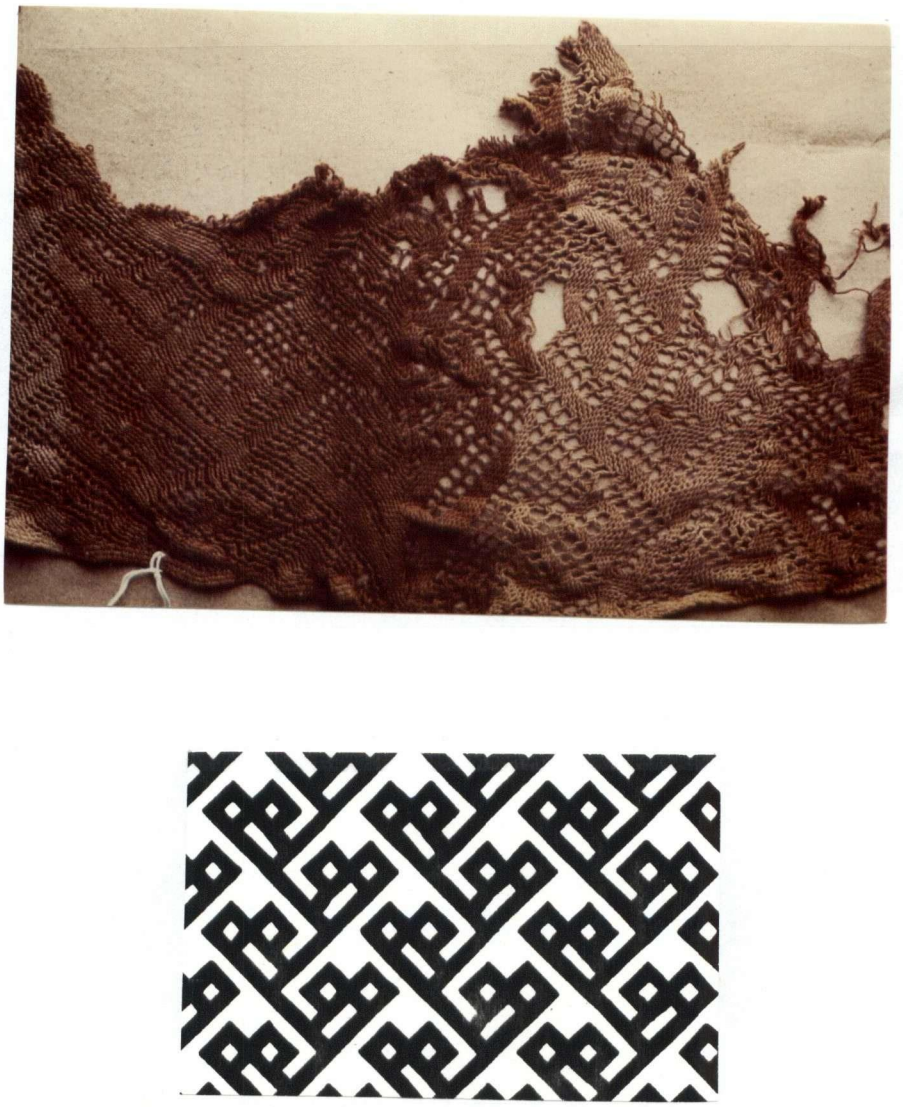
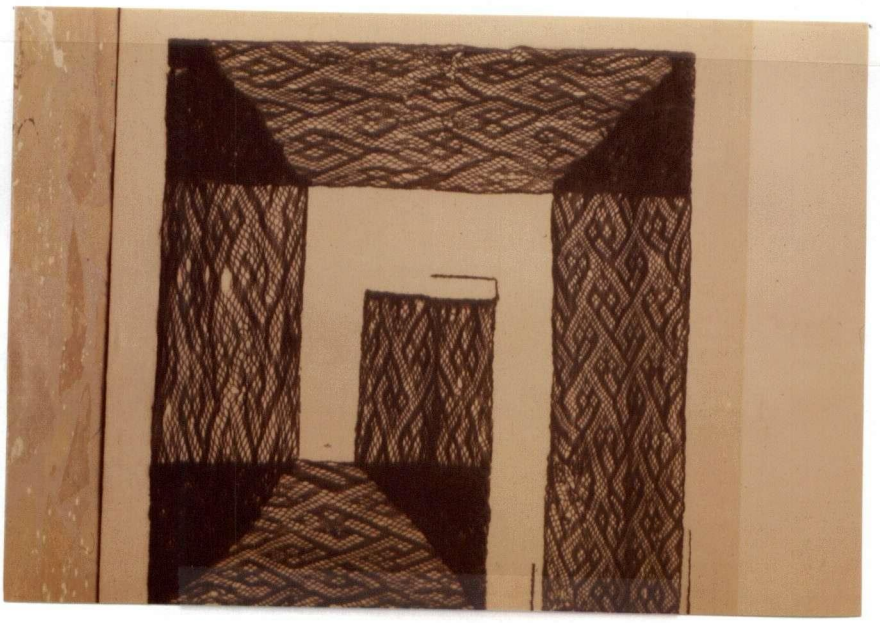


Fig. 20 Interlinked sprang bag (?) with branching serpent design (MNAA Lima 106, photo courtesy of Nobuko Kajitani)



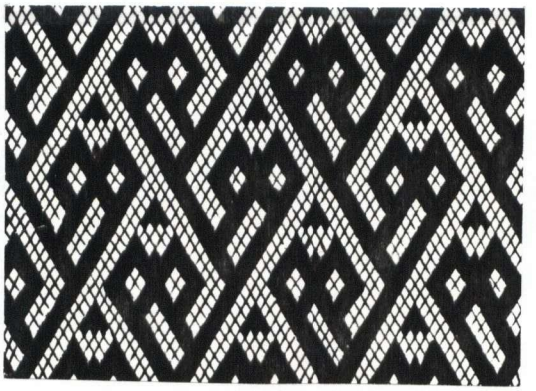


Fig. 21 Interlinked sprang turban (?) from Cabeza Larga, Paracas with branching serpent design (Julio C. Tello Museo, no number)

branching serpent design differs only slightly from the one in Fig. 14.

The Ohara Art Gallery in Kobe, Japan, also has a rectangular piece of interlinked sprang from Peru (Fig. 22). It appears to be a turban because of the gathering loops at one end. The dimensions are 1.44 M x 0.45 M (p.c. Nobuko Kajitani). Although this piece is without provenience, it is closely associated technically and stylistically with the Paracas Cavernas turbans. The design is a serpentine grid having some similarity to Fig. 13, although, if there is a figure in the interstices of the grid as in Fig. 13, it is not clearly discernable in the photograph. The design is comparatively large scale.

Another group of interlinked sprang fabrics have come from the Ica Valley site of Ocucaje. M.E. King has reported on a group of "hoods", or head coverings, found on mummies at this site (1965, p. 304). The sprang hood, which has not been reported from any other site, is typically constructed from one long piece of fabric which is folded across the transverse center and sewn together along one side selvedge and along the warp selvedges. (This method of construction is different from that of the bags in Fig. 19 and 20, where both side selvedges are sewn and the warp selvedge is left unsewn.) On site observers reported that the hoods were sometimes found over the heads and hanging down the backs of mummies (King, 1965, p. 304). Hoods from Ocucaje are made in woven double-cloth and gauze weave as well as interlinked sprang. The openwork gauze and sprang hoods are similar in construction features, while the double cloth hoods are left unseamed along the warp selvedges.

There are three hoods, two complete and one fragmentary, of interlinked sprang in the Ocucaje sample worked on by M.E. King. A maroon alpaca hood, with dimensions of 0.670 M x 0.265 M, has a motif of a

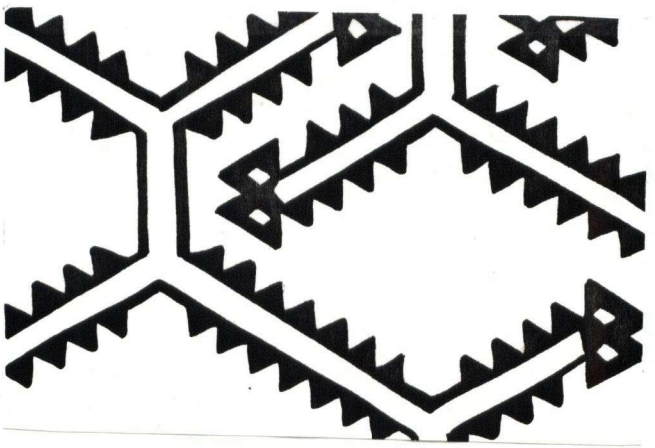


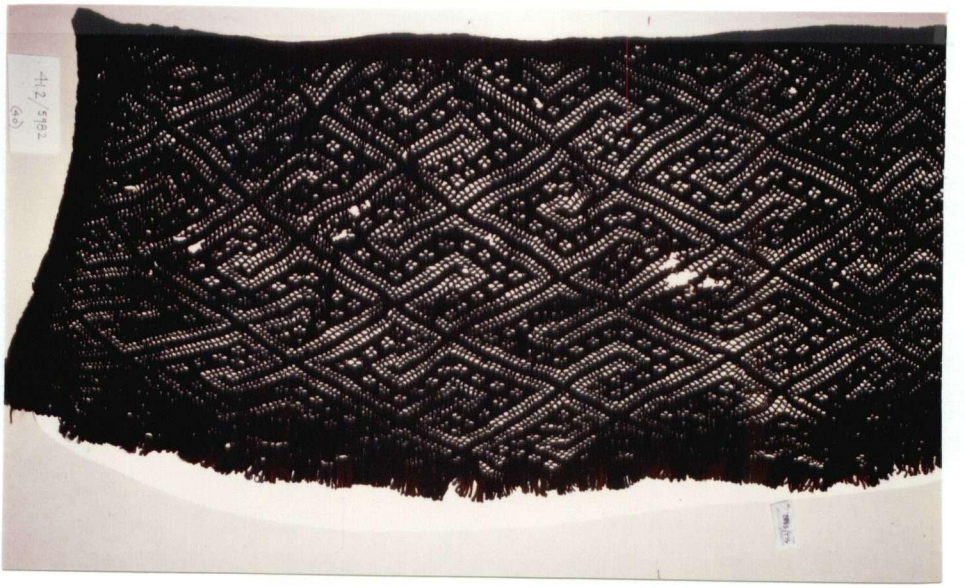
Fig. 22 Interlinked sprang turban with serpentine grid design (OAG H5, photo by Mr. Tanaka, supplied by Nobuko Kajitani)

double headed serpent repeated inside a complex linear grid (Fig. 23). The motif is identical to one on the narrow turban in Fig. 16 and to another on an openwork tunic of unspecified structure sketched by Rebecca Carrión-Cachot (1930, Fig. 4h). There is a slight error in King's drawing of this motif (1965, Fig. 78d), as these three openworks do have the same design. The Ocucaje hood has an added multi-coloured fringe.

The second complete hood in King's thesis is dark blue alpaca with dimensions of 0.625 M x 0.335 M (Fig. 24). The structures, construction and finishes are the same as in Fig. 23. The design is far more elaborate, with three variants of the saucer-eyed "Oculate Being" (Menzel, Rowe and Dawson, 1964, pp. 171-2, 196-8 and 239-44).

A fragmentary Ocucaje piece of light blue cotton interlinked sprang has a design of branching serpents (Fig. 25), similar to Fig. 14. A photograph of this piece was requested but the museum was unable to comply because it was too fragile. King is uncertain whether this fabric was used or intended as a hood (1965, p. 378). Even incomplete, the width measurement of 0.450 M is more than the other hoods, Also, it is made of cotton while the hoods are made of alpaca. There is some slight reason to think it may have been a mantle or shroud.

Two interlinked sprang hoods not included in King's study also come from Ocucaje (p.c. Alan Sawyer). Fig. 26 is a maroon alpaca hood from the private collection of Paul Truel, one of the owners of the Hacienda Ocucaje, where the King sample originated. It has a branching serpentine design similar to Fig. 14, 20, 21 and 25. It resembles the hoods in King's sample except that it does not have an added fringe. The other hood is made of gold alpaca with a design of serpent heads set within



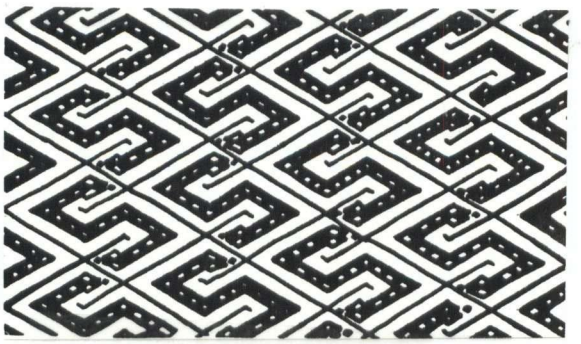


Fig. 23 Interlinked sprang hood from Ocucaje with design of double-headed serpents in a complex grid (AMNH 41.2/5982, photo courtesy of Alan Sawyer)

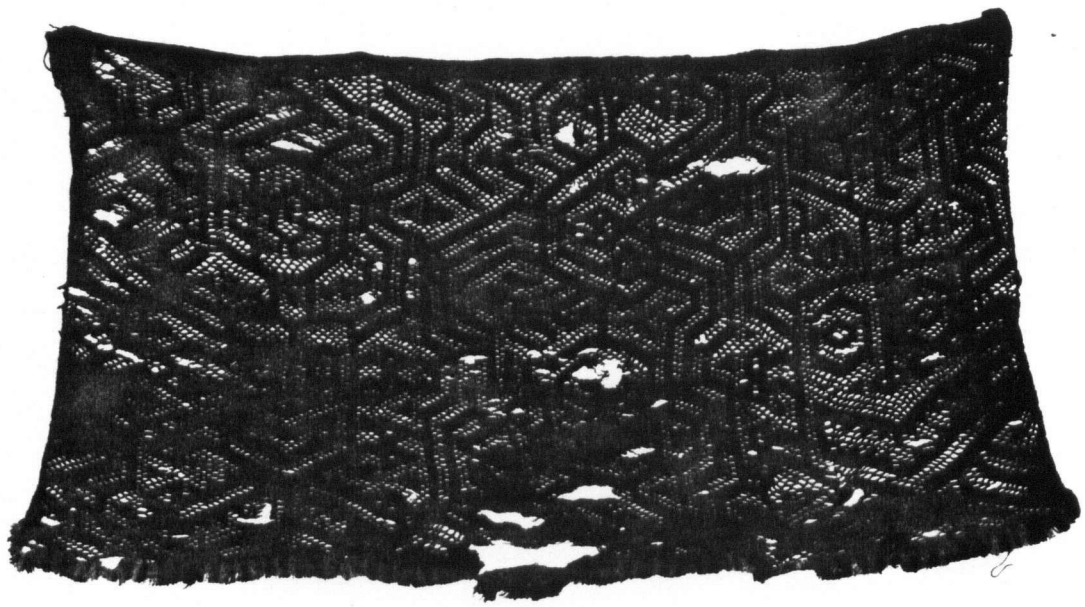


Fig. 24 Interlinked sprang hood from Ocucaje with "Oculate Being" imagery (TM 91.895, Textile Museum photo, courtesy of Ann Rowe)

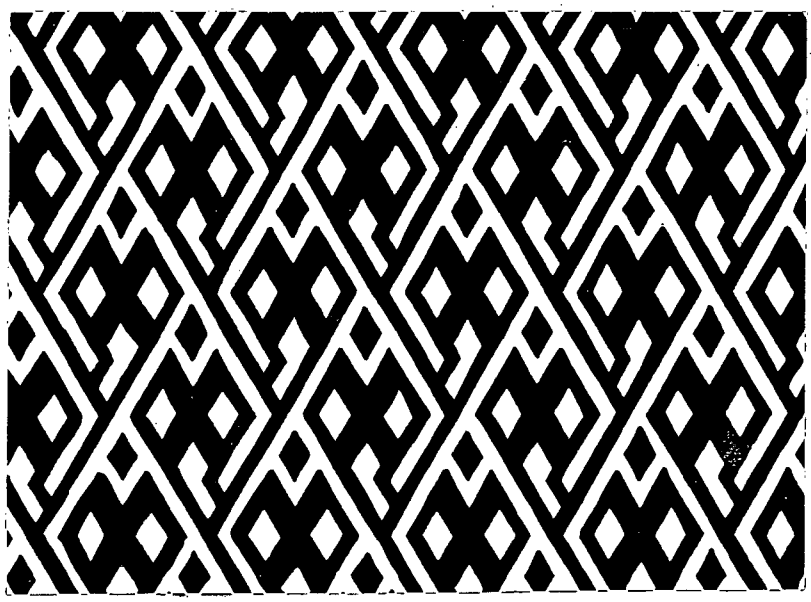


Fig. 25 Branching serpentine design on a fragmentary interlinked sprang fabric from Ocucaje (after King, 1965, Fig. 78g).

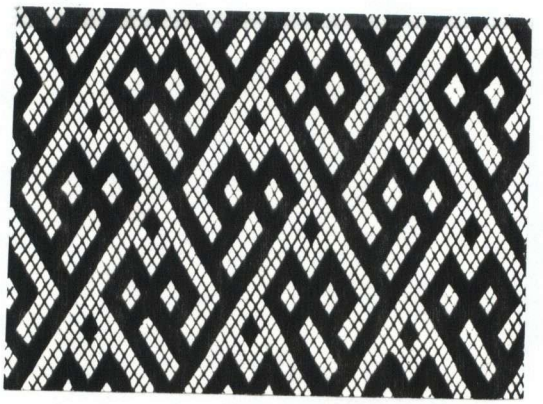


Fig. 26 Interlinked sprang hood with branching serpentine design from the collection of Paul Truel, Ocucaje

an irregular diamond grid (Fig. 27). This hood is in the American Museum of Natural History but it was a much later acquisition from Mr. Landman than the hoods in the Ocucaje collection studied by M.E. King (p.c. Barbara Conklin, 29/1/82). Mr. Landman acquired the hood from a New York dealer who regularly handled Peruvian fabrics (p.c. Alan Sawyer). The technical and constructional similarities between these two hoods and the others from Ocucaje that it is not surprising that they too originated there. Sprang hoods have, so far, not been reported from other sites.

King's sample includes a fragment, #534, of simple linking which she tentatively calls a bag (p. 507). She identifies the technique as sprang although she notes that no loom ends or centre area are present. I have not been able to study this fragment but a sketch of the piece by Barbara Conklin and a photograph by Alan Sawyer confirm King's tentative position as to what it is and how it was made. It is too fragmentary to have absolute proof of the sprang technique, yet its similarity to other complete pieces suggests King is correct.

According to M.E. King (1965, p. 238) and Jane Dwyer (p.c.), there are at least three more examples of interlinked sprang in the Museo Nacional, Lima. King refers to MNAA 13/152 and 89-43 and Jane Dwyer showed me a slide of MNAA 12/5486. None of these pieces, nor those that Nobuko Kajitani supplied numbers for, could be located by staff when I visited the museum in 1978 because they were in the process of re-housing textiles in a new storage facility. Jane Dwyer also had a slide of an interlinked sprang fabric in the Truel collection (0-9425) but it could not be located when I was shown that collection. MNAA 12/5486 and PT 0-9425 both have Oculate Being iconography, rather than

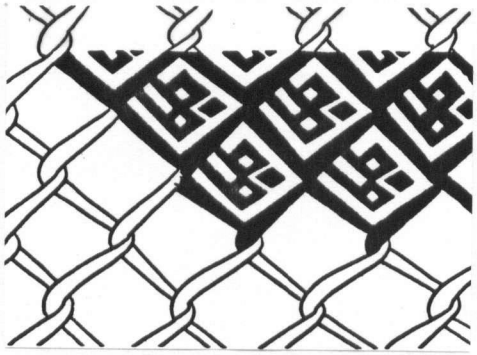


Fig. 27 Interlinked sprang hood with serpent head design (AMNH 41.2/5346, Landman)

serpent-derived designs. MNAA 89-43 has an elaborate design of birds but King is not sure the technique is sprang although the structure is that of the hoods (1965, p. 240). King does not specify the iconography of MNAA 13/152.

The sample of interlinked sprang fabrics located for this study is made up primarily of headcloths used in burials. Hammock-shaped turbans are associated with Paracas burials while hoods are associated with Ocucaje burials. No examples run contrary to this, although some turbans are without secure provenience. Small interlinked sprang bags are also associated with Paracas and Ocucaje burials. Several fabrics are of indeterminate use.

Iconography of Interlinked Sprang Openworks

The iconography of the interlinked sprang fabrics falls into several broad categories. The group that uses repeating serpentine patterns is the largest. Geometric patterns and renditions of the Oculate Being are less numerous.

The serpentine patterns can be further grouped. The branching serpent design occurs on five fabrics, including hoods, turbans and one possible mantle, from Ocucaje and Paracas sites (Fig. 28). Minor variations in the interior open areas and space-filling shapes in front of the mouth occur within the group. All are depicted with two eyes, a rhomboidal or obtuse-angled head and smooth (non-serrated) outlines in a configurative arrangement that uses slide symmetry (Shepard, 1948).

This pattern appear on other fabrics, like an Early Horizon 9 poncho shirt from Ocucaje which also has horizontal bands of twisted elements. The branching serpent design appears to derive from

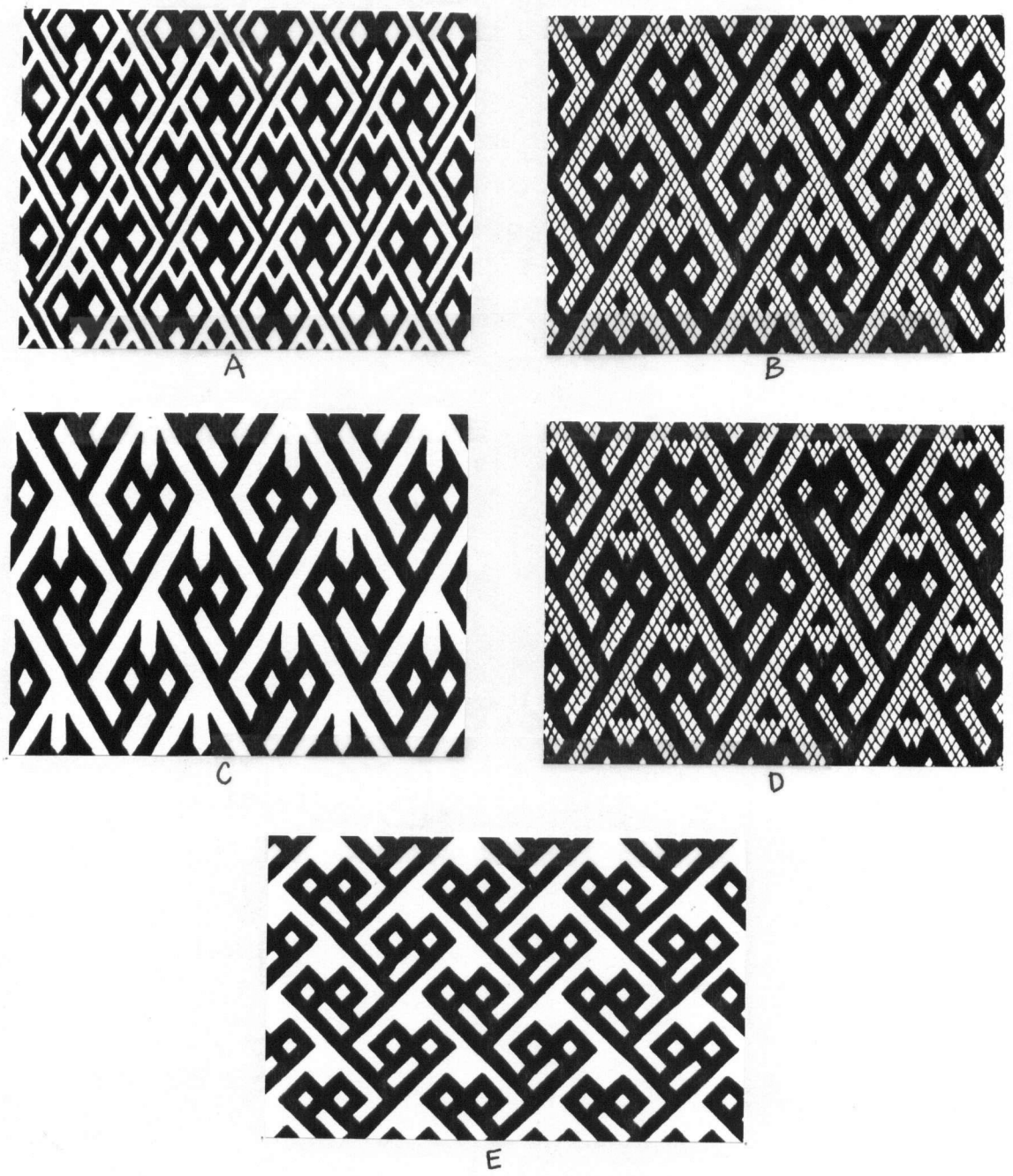


Fig. 28 Five variations of the branching serpent design on interlinked sprang fabrics
A. Ocucaje (King, 1965, Fig. 78g, #66)
B. Ocucaje, collection of Paul Truel
C. Paracas Cavernas, MNAA #8509
D. Cabeza Larga, JCTM, no number
E. MNAA Lima 106.

depictions of the three strand braid as a diagrammatic comparison illustrates (Fig. 29). A further example of an earlier, painted fabric illustrates another three strand braid image (Fig. 30). In this instance, the serpent belt of a major Chavinoid deity is represented as braided. The interlaced image is clearly related to serpentine bodies. There are numerous other examples in Early Horizon Chavinoid art of fabric structure imagery - links, braids, twisted strands - which have been grouped together under the single term 'guilloche' (J. Rowe, 1962). In Chavinoid art, the images are cursively rendered and more readable because they are painted on fabric or carved into a surface. The Early Horizon 9 fabrics, like those from Paracas Cavernas and Ocucaje, generally are patterned through structural manipulations during fabrication and are therefore more geometric and less easy to read.

A single hood (AMNH 41.2/5346) has a serpent head in a different configurative pattern. It has the same obtuse-angled head and smooth outline but it is repeated in translation symmetry within the interstices of a roughly diamond grid. It may be significant that the thickness of the grid lines vary. Because it would have been easier to make an utterly regular diamond grid in this structural technique, it is suggested that the varying thickness of the grid lines is purposeful, that it may be an attempt to represent another fabric image. In Fig. 31, the diagram shows the relationship between the hood design and the image of a linked structure. Images of linking occur on earlier Chavinoid fabrics and on Early Horizon 7 tapestry fabrics from Chucho (N. Dwyer, 1979) so the survival of the image into Early Horizon 9 is possible, even expected (Fig. 32).

There are three examples of a broken grid pattern where the lines of the grid are the bodies of double-headed serpents (Fig. 33). Of the

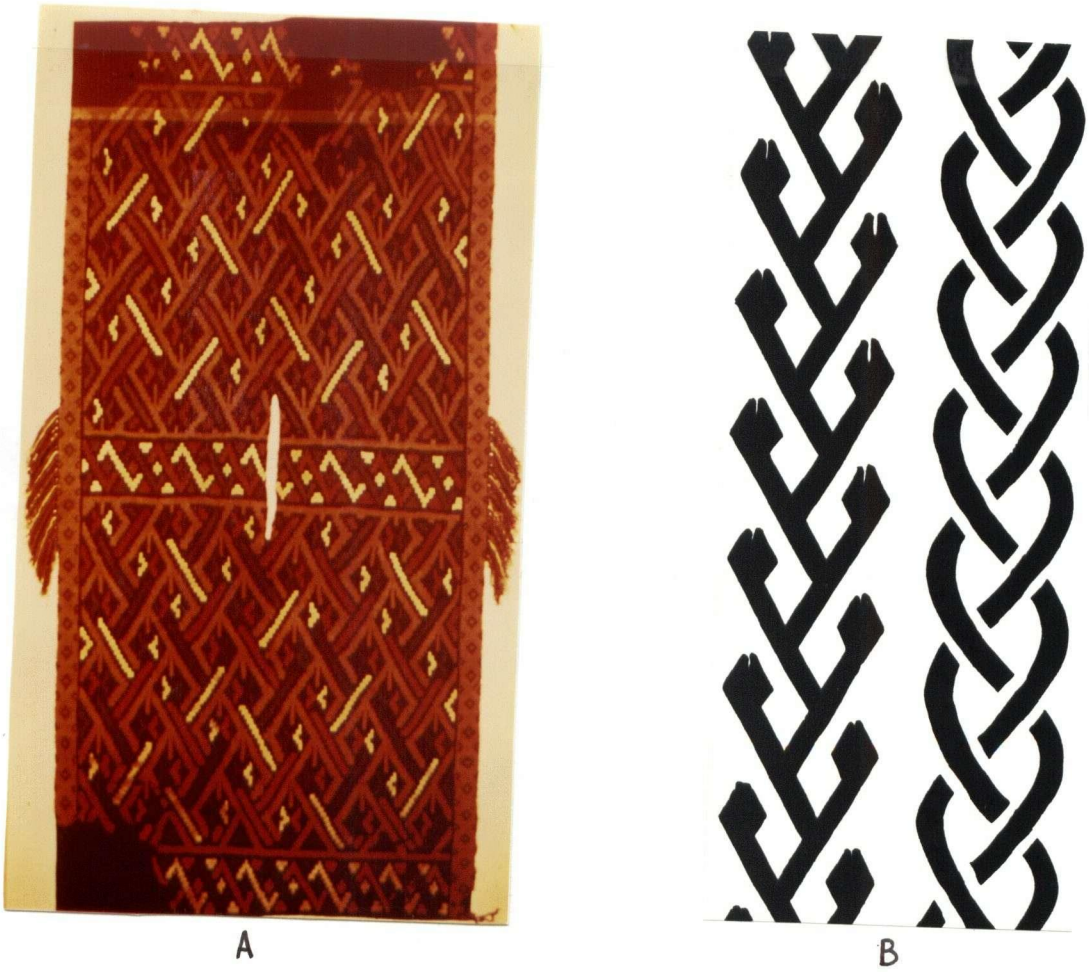


Fig. 29 Branching serpent designs and three strand braids
A. Discontinuous warp poncho shirt with branching serpent design, Ocucaje TM 1959.11.1 (photo courtesy of Alan R. Sawyer)
B. Derivation of the branching serpent design from the three strand braid

Fig. 30 Braided serpent belts on a Chavinoid painted textile, Phase D
(Sawyer archive photo, originally from Peter Roe; textile on loan to Amano Museo, Lima)

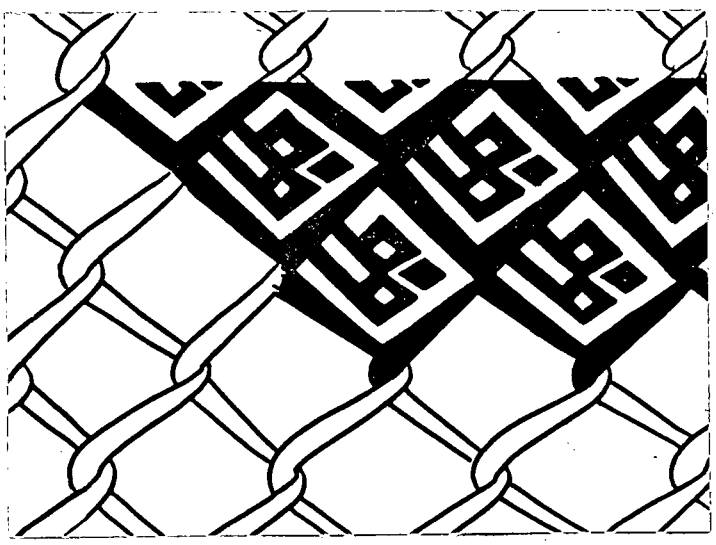
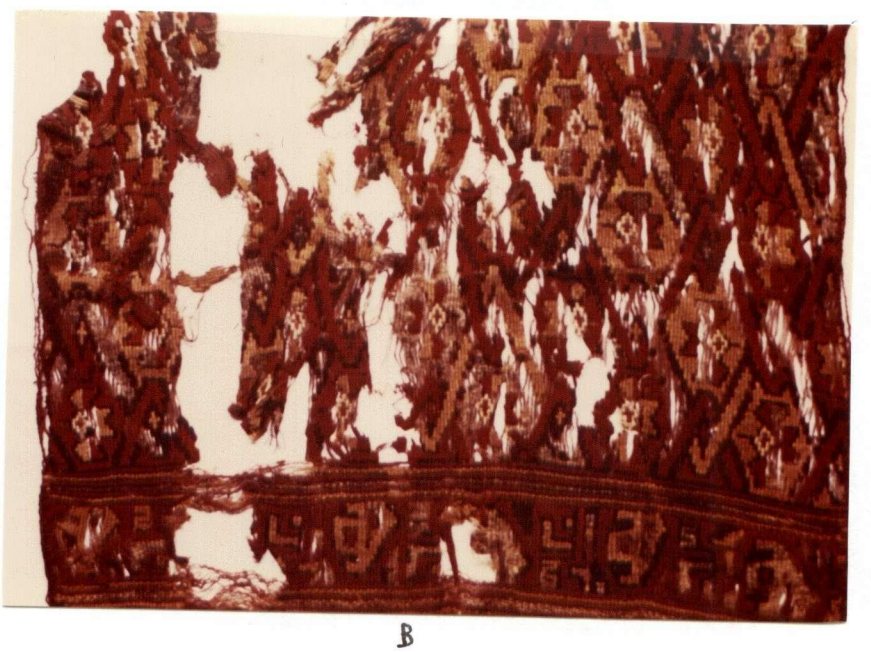


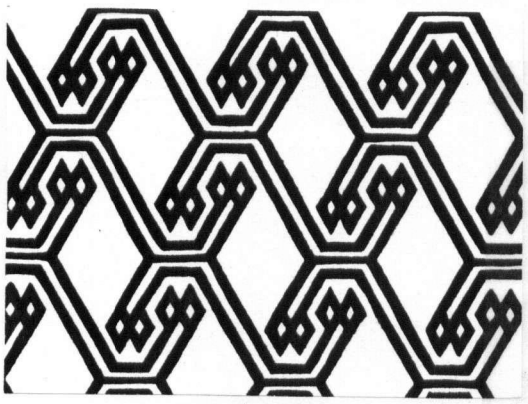
Fig. 31 Possible derivation of serpent design from a linked structure (design from hood, AMNH 41.2/5346)

A

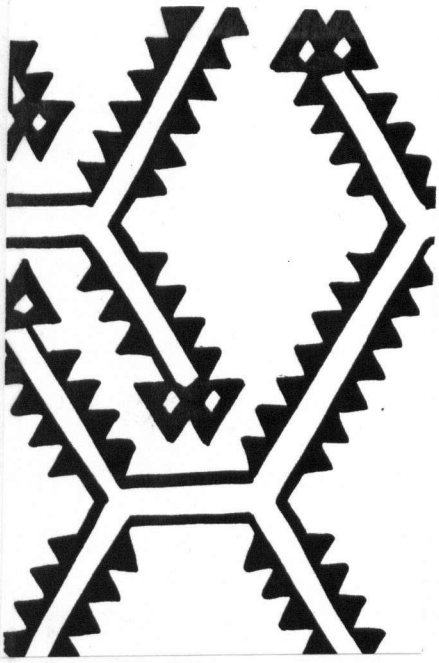


B

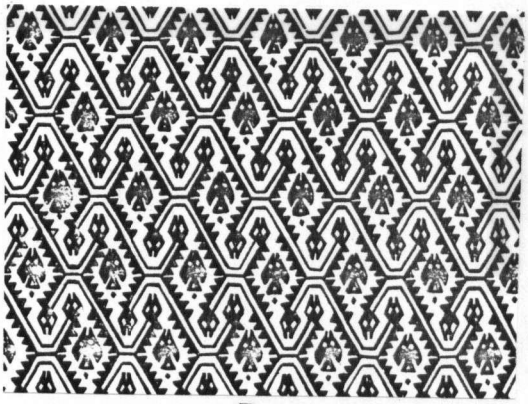
Fig. 32 Images of linked structures on other fabrics
A. Painted Chavinoid fabric, Phase D
(photo by A. Rosenschweig, courtesy of A. R. Sawyer)
B. Chucho tapestry, Early Horizon 7
(N. Dwyer, 1979, Fig. 8)



A



C



B

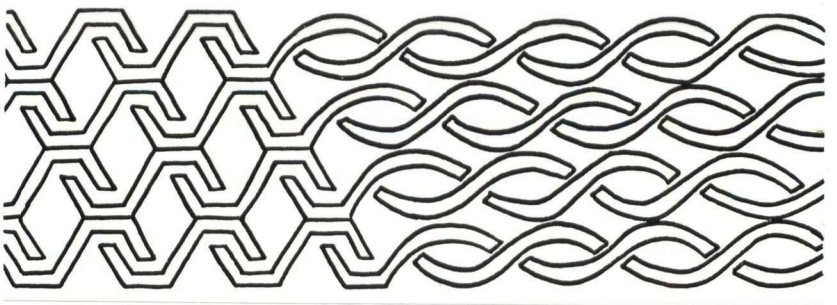
Fig. 33 Serpentine grids on interlinked sprang openworks
A. MNAA Lima 98 and 112
B. MNAA #8430
C. OAG H5

three of this type, one example has an obtuse-angled head and a smooth outline (A). The second one has an obtuse-angled head and a jagged border of small triangles (B). The third has an acute-angled head and a serrated outline (C). One of the three, (B), clearly has another design component (bird?) in the interstices of the grid. The other two may also have a similar component but the photographs are not clear enough to determine this. It seems probable that this elegant repeat derives from images of adjacent (and touching) pairs of twisting strands, such as those seen in a tapestry woven fabric (Fig. 34A). The relationship between the tapestry version of adjacent twisted strands and the broken grid of serpent bodies on the sprang fabrics is clearer when colour contrast is eliminated and when the design is angularized (Fig. 34B). The angularization of the image may be a direct result of producing it by structural patterning.

Another broken grid pattern besides this one appears frequently on gauze weave fabrics of this period. It is mentioned in passing because its derivation is very close to the one in Fig. 34. It appears that it also originated in images of adjacent and touching twisted strands, but strands that alternate in twist direction (Fig. 35). Interlinked sprang fabrics which were not located for this study could very possibly have this pattern as it appears so frequently on contemporary gauzes.

Two examples in the interlinked sprang sample have full-bodied, double-headed serpents arranged within a complex grid. The heads are obtuse-angled and the outlines are smooth. Though one of these two is on a narrow fabric and only part of the repeat is used, a comparison of details shows they are the same pattern. An openwork tunic of unspecified structure from Paracas Cavernas also has the same design (Carrión Cachot, 1931, Fig. 4h). This serpent configuration may be related to images of twisted strands, such as those in the horizontal bands of the

A



B

Fig. 34 Twisted (or twined?) strand image
A. curvilinear image on tapestry (photo courtesy of Alan R. Sawyer, originally taken by J.B. Bird)
B. Derivation of angular grid from twisted strands (all S twist)

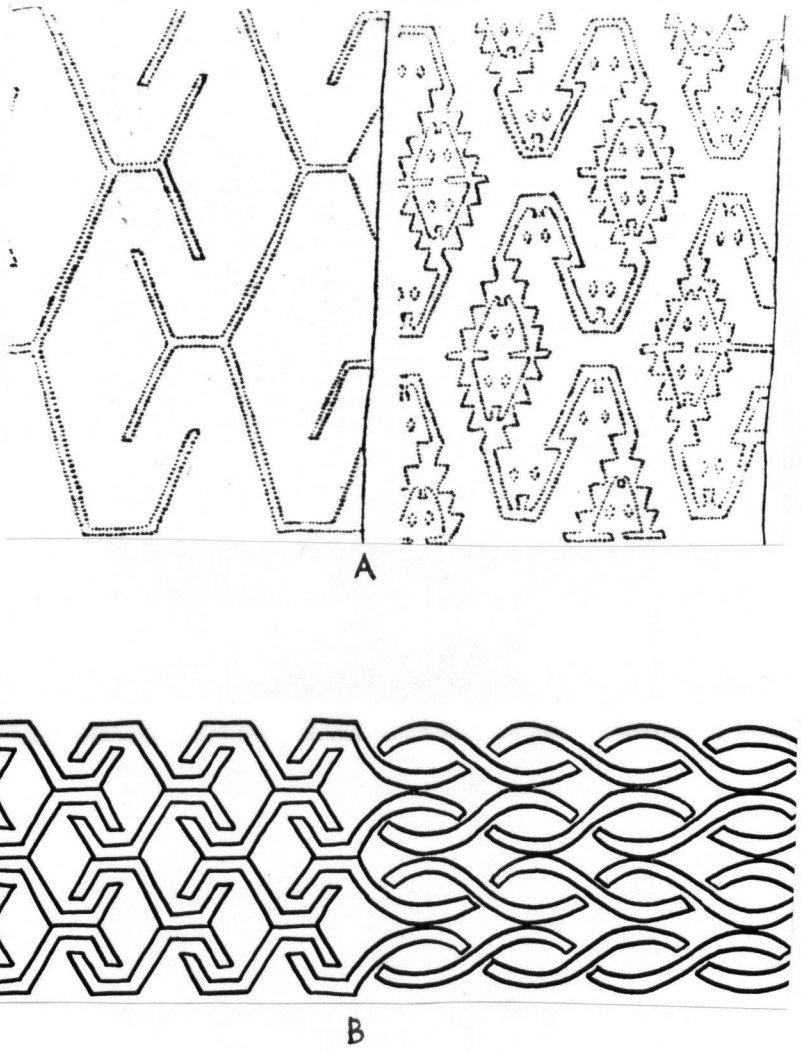


Fig. 35 Twisted (or twined?) strand image
A. Diagram of gauze fabric design with underlying grid (O'Neale, 1948, Fig. 7a,b)
B. Derivation of angular grid from twisted strands (alternating S and Z twist)

poncho shirt in Fig. 29. The heads do not overlap and interlock, yet there is a tenuous relationship to images of twisted strands (Fig. 36).

Besides serpentine patterns, the interlinked sprang fabrics also have geometric patterns. A small bag in Fig. 19 simply repeats horizontal zigzags. Although it does not have overt serpentine characteristics, there is room to suggest that the zigzag is a more abstract rendering of the undulating serpent body.

Serpentine patterns predominate on the interlinked sprang fabrics and they appear to derive from images of fabric structures. The coupling of serpents and fabric structure images occurs in the Chavinoid style on gourds, goldwork, stone and ceramics as well as on fabrics (J. Rowe, 1962, 1967; P. Roe, 1964). Only a few examples on fabrics have been used to illustrate the connection between the more geometric versions on the sprang headdresses and the earlier, more cursive examples.

Although some of the images found in Chavinoid art continue, there are several innovations in style in the Early Horizon 9 fabrics in this study. The serpent head is generally rhomboidal and shown from a dorsal point of view with a slot-like mouth. The angularity of serpent motifs and the use of structural patterning differs from the curvilinear Chavinoid serpents. The designs tend to be repeated regularly over a field in Early Horizon 9 sprang in contrast to the more varied and smaller scale use of the serpentine designs in Chavinoid examples. The use of multiple serpent heads in the Early Horizon 9 fabrics is innovative. In Chavinoid art, the serpentine body is emphasized, often appearing in fabric structure images without a head or with only a single head, which may combine feline and serpent attributes. In Early Horizon 9 sprang fabrics, serpent heads are used as a device that signals depth or overlap. When two or three strands twist or braid, strands must move behind

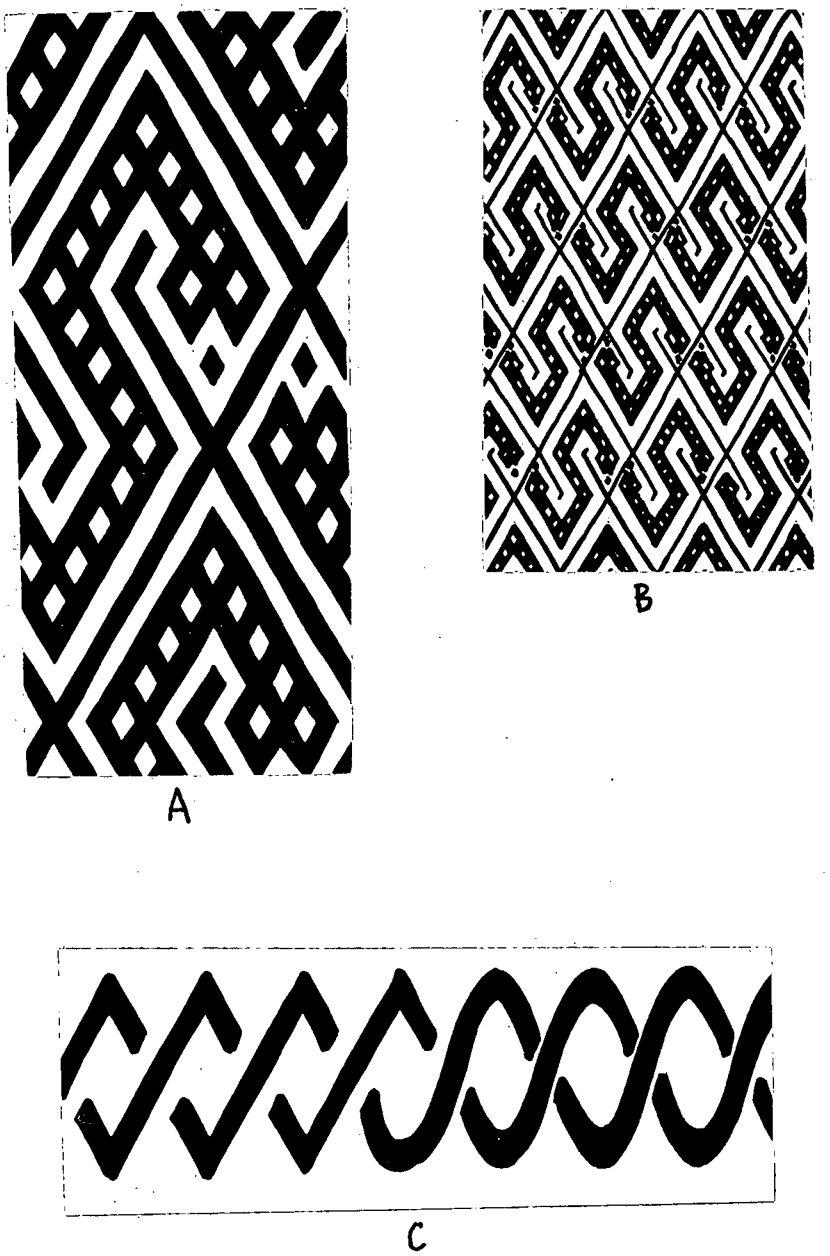


Fig. 36 Double-headed serpents within a complex grid
A. Partial repeat from a narrow sprang fabric (MNAA Lima 106)
B. Same design, repeating fully (AMNH 41.2/5982)
C. Distant relationship with angular version of twisted strand image

other strands to make an accurate representation of the structure in two dimensions. In Figs. 28 and 33, the serpent head is consistently capped on any strand moving behind another strand. These stylistic innovations suggest that the iconography of the sprang headdresses may not evolve directly out of Chavinoid precedents. The sprang fabrics are associated with textiles and pottery that have considerable non-Chavinoid iconography. The south coast iconography, referred to as trophy head cult by Alan Sawyer (1966, p. 111), includes the Oculate Being, trophy heads, knives and various jungle creatures like parrots and monkeys as well as the more geometric serpent with the slot-mouth. The trophy head cult imagery may have been imported to the south coast from the interior but it, too, appears to have some Chavinoid roots, especially in the serpent-fabric structure imagery.

One interlinked sprang hood has representations of the Oculate Being. The Oculate Being first appears in Early Horizon 8 (Menzel, Rowe and Dawson, 1964) and the saucer-eyed smiling being seems to replace the fiercely fanged deity of Chavinoid art. It is interesting that the Oculate Being shares serpentine attributes (hair, belt) with the old Chavinoid gods but sprouts new ones too, as appendages to the face and body.

The iconography of the interlinked sprang fabrics is a mixture of secondary Chavin-derived images of serpents and fabric structures and a new major mythical being. The predominance of serpent imagery on a sample that is mostly headdresses may relate to the metaphoric treatment of hair as serpents, a practice that goes back at least to the time of Chavin (J. Rowe, 1962).

Dating of Interlinked Sprang Openworks

Several of the headdresses in this cohesive group of interlinked sprang fabrics have a Paracas Cavernas provenience (MNAA #8430 and 8509, Yacovleff and Muelle, 1932). The Cavernas material, including the structurally patterned sprang headdresses, correspond to Epoch 9 of the Early Horizon, c. 600-500 B.C. Jane Dwyer, who has made the most detailed study of the Paracas textiles, cites stratigraphic evidence and ceramic association to support her placement of the Cavernas material in Epoch 9 (1979, p. 107). On iconographical and technical grounds, the interlinked sprang from other sites or unknown sites appears to be contemporaneous.

The sample of interlinked sprang is extensive enough to attempt at least some internal sequencing. In grouping the serpentine patterns for the iconography discussion, the features of head shape (obtuse-angled or acute-angled) and outline (smooth or jagged border of small triangles) have been noted. These features are isolated by Lawrence Dawson in his stylistic seriation of painted mummy masks from Early Horizon 9 and 10 (1979). In his trait table (Fig. 37), the obtuse-angled head on serpents is an earlier trait than the acute-angled head. The jagged border of small triangles on serpent bodies is a late trait. If the stylistic evolution of structurally patterned fabrics, like interlinked sprang, parallels the evolution in painted fabrics, then these traits can be used for ordering this group. Most of the serpent patterned fabrics have the conservative Epoch 9 traits of the obtuse-angled head and smooth outline - the five in Fig. 28, the two in Fig. 36 as well as Fig. 31 and 33A. The single late trait of a jagged border of small triangles appears in Fig. 33B while both late traits, the jagged border and the acute-angled

SERIATION OF FEATURES OF CLOTH MUMMY MASKS

Derived from associations on individual cloths

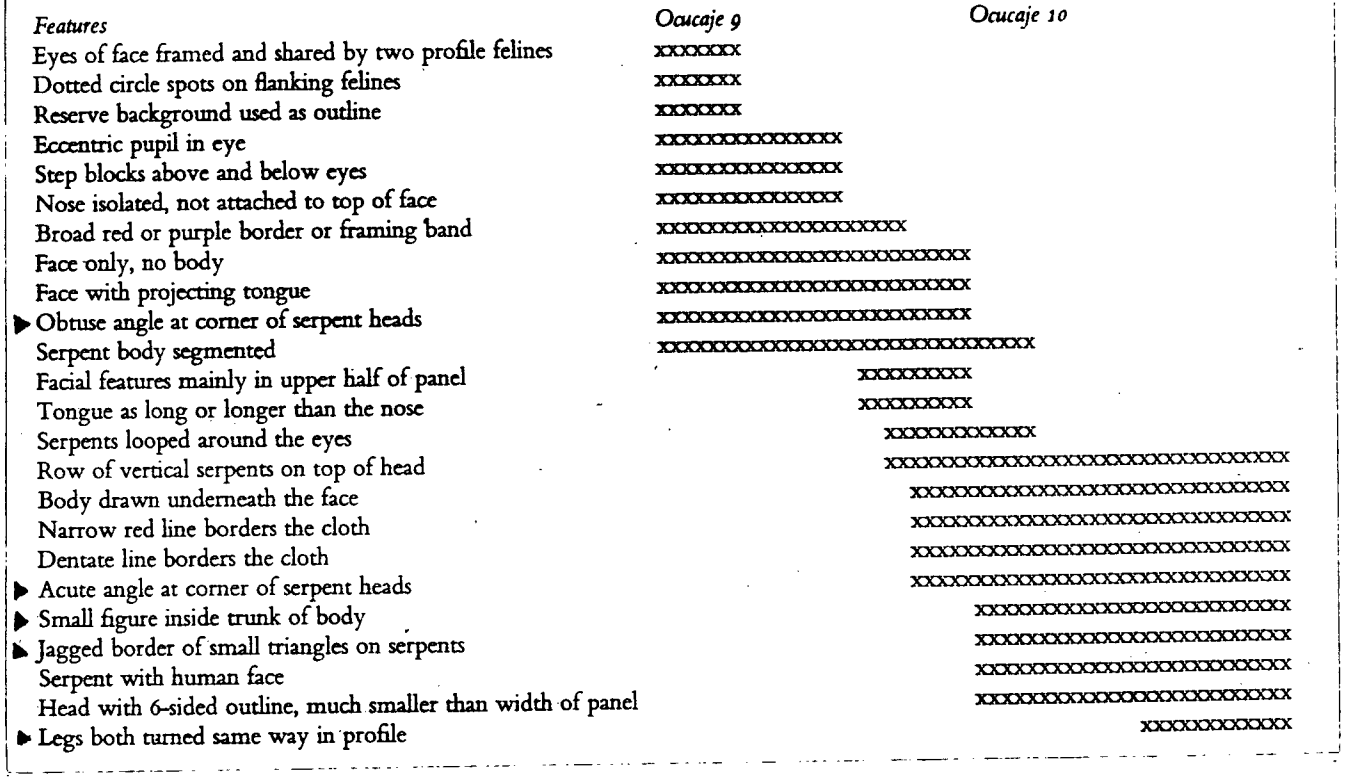


Fig. 37 Stylistic features of painted mummy masks from Ica (L. Dawson, 1979, p. 85)

head, appear in Fig. 33C. The majority of the interlinked sprang fabrics with serpentine patterns would then be placed near the beginning of Early Horizon 9 with those represented in Fig. 33B & C falling at the end of that phase. This agrees with Dawson's dating of a gauze mummy wrapping, which resembles the advanced sprang examples of Fig. 33B & C, to the end of Early Horizon 9.

There is no clear correlation between garment type or site and conservative/advanced features. The two advanced examples are turbans and one is from Paracas Cavernas, the other is without provenience. The conservative examples include all garment types and known sites. One implication of this sequencing which requires further study is for the two Paracas Cavernas turbans with grave association. Fig. 33B from Tomb 2, Terrace III has a later stylistic trait than Fig. 28C from Tomb 3, Terrace III.

The single geometrically patterned bag might be considered to belong with the conservative group of Early Horizon 9 sprang, if the zigzag is interpreted as a serpent body with a smooth outline.

A photograph of one hood with Oculate Being imagery has been obtained for this study. I have seen photographs of two others among slides of Jane Dwyer's but was unable to obtain copies of them for this study. Dawson's seriation of painted mummy masks isolates many features of the Oculate Being. The design of the sprang hood from Ocucaje (Fig. 38) has a number of the more advanced traits, such as the full-bodied representation, the small figure inside the trunk of the body, the legs both turned the same way in profile, the acute-angled serpent heads and the jagged border on serpents (Fig. 37). Conservative traits, like obtuse-angled serpent heads and smooth serpent bodies, also appear on the hood.

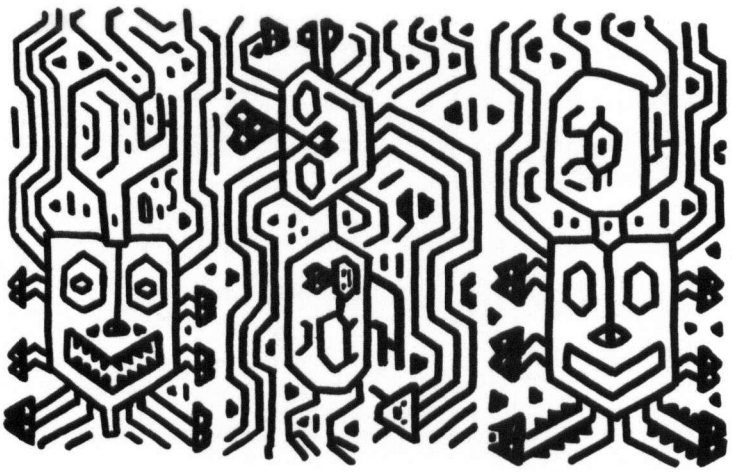


Fig. 38 Three versions of the Oculate Being on an interlinked sprang hood from Ocucaje (TM 91.895)

Dawson feels that the mixture of advanced and conservative traits accord best with transitional 9-10 (Early Horizon) developments in the painted masks (1979, p. 101). This hood would then be the latest in the total interlinked sprang sample.

If features isolated for the seriation of painted mummy masks apply to this group, then interlinked sprang appears to have been used most widely toward the beginning of Early Horizon 9. The conservative serpentine patterns are most numerous while the serpent patterns and Oculate Being with more advanced traits are less numerous. This may indicate a diminishing use of interlinked sprang for openwork fabrics toward the end of Early Horizon 9 and transitional to 10, if this sample is representative.

Another openwork technique, a combination of gauze and plain weave, is used for headdresses like the interlinked sprang ones as well as for many larger cloths that might have been mantles or mummy wrappings (Fig. 39). The range of iconography on the gauzes is similar to that on the interlinked sprang fabrics. There are conservative Phase 9 serpentine patterns (J. Dwyer, 1979, Fig. 1) and advanced Phase 9 serpentine patterns (O'Neale, 1942, Fig. 11 and Pl. 1; Carrión Cachot, 1931, Fig. 2; Dawson, 1979, Fig. 16). Other gauzes have Oculate Being representations which are transitional to Early Horizon 10 (O'Neale, 1942, Fig. 6; King, 1965, Fig. 27) and others which are more advanced in 10 (King, 1965, Fig. 49; Bird and Bellinger, 1954, Pl. 71; two unnumbered pieces from the Truel collection in the Sawyer archive). While the gauze weave variant (Fig. 40) and interlinked sprang are obviously used concurrently, the conservative sprang fabrics are more numerous while the gauze weaves that are transitional to Phase 10 are more numerous. Also, there are many more large

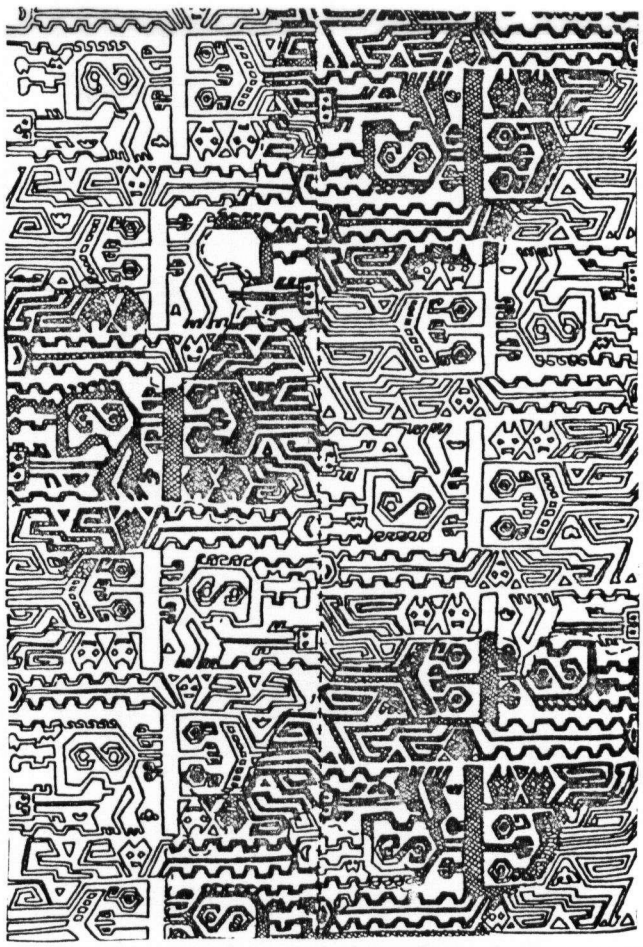


Fig. 39 Gauze mantle from Paracas Cavernas: Oculate Being imagery transitional to Early Horizon 10 (O'Neale, 1942, Fig. 6)

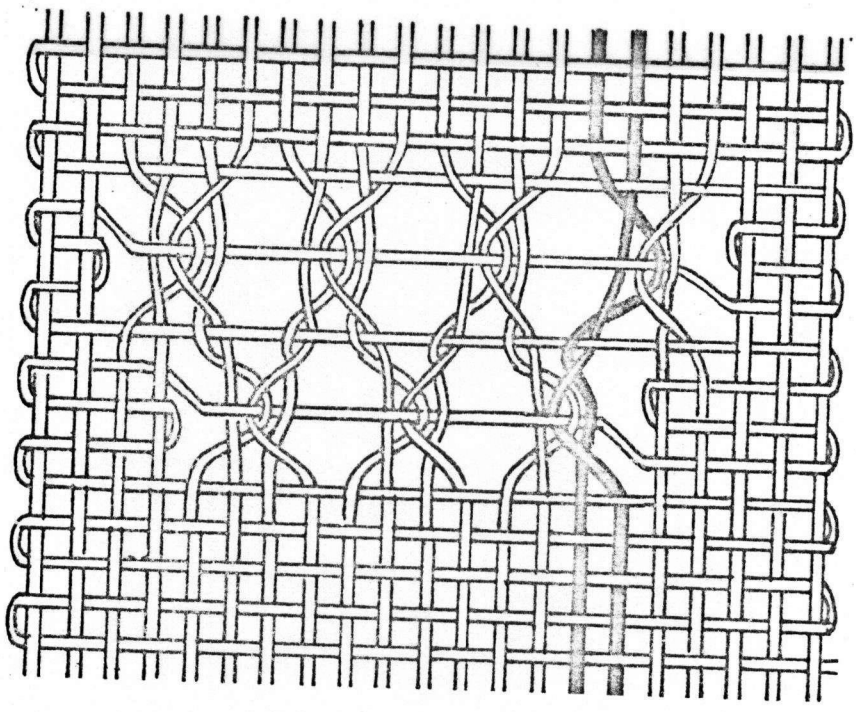


Fig. 40 Gauze and plain weave structure contemporaneous with interlinked sprang openworks

size gauze weaves. It appears that interlinked sprang may be gradually displaced by gauze weaving. Interlinked sprang openworks do not appear in this sample after the beginning of Early Horizon 10, while this particular gauze weave continues to be used in the Early Intermediate Period (O'Neale, 1948, p. 157 and Pl. 22b).

In extensive experimentation with both the gauze weave variant and interlinked sprang, I found there was no speed advantage in gauze weaving this variant, even using a heddle to the full extent possible. Sprang still kept pace by virtue of its duplicating action. The major advantage of this gauze weave over interlinked sprang may be that a greater length of warp can be conveniently worked, because the fabric is worked from one end only, unlike sprang which grows from both ends of the warp simultaneously. The increased emphasis on gauze weave may be related to a greater use of large openworks for mummy wrappings and a lessened use of smaller openworks for mummy headdresses. This conjecture is supported by the greater number of large size gauze weaves that have been published, (an indicator that may not be a reliable reflection of the actual case).

In any event, interlinked sprang openworks do not reappear in the course of Peruvian pre-history, according to my current research. This suggests that the technical identification of interlinked sprang fabrics with openwork patterns, that are 'orphans' in Peruvian collections, can date the fabrics to Early Horizon 9, possibly transitional to 10.

Interlinking: Striped Sample

I have received information on two interlinked sprang fabrics that are reputed to be from Paracas. Both are made of dyed yarns and their only patterning is an arrangement of stripes in the warp.

One that is definitely from Paracas is in the Peabody Museum, Harvard (Fig. 41). It is a small bag, 0.17 (x2) M x 0.14 M, and it is from a Paracas Necropolis mummy bundle given to the Peabody, Harvard by Julio C. Tello and Nelson Rockefeller and opened there. The cotton yarns are Z spun, 2 ply and the stripe arrangement alternates yellow between brown and green. Though it is disintegrated, the interlinked structure and evidence of the sprang technique, in the form of a central hold line, is present (p.c. Jill Mefford, 12/6/81).

The garments from the mummy bundle have both the geometric style and the more curvilinear, thick line style of embroidery (p.c. Jill Mefford, 18/7/82). The style of the garments spans Early Horizon 10 and Early Intermediate Period 1, using Jane Dwyer's stylistic seriation (1971, 1979). This situation may indicate that styles of embroidery are more overlapping than the Dwyer study suggested. Some of the garments from the Tello-Rockefeller mummy bundle are published in W.C. Bennett, 1954,

The second example of striped, interlinked sprang is in a private collection in New York (p.c. Daniel Rifken, 29/10/80). He believes it is a "Paracas hood". Aside from the striping, it has no iconography. If it is a hood, it may be from Ocucaje, as hoods have not been reported from other sites. I have not been able to study this piece so far.

Plain interlinked sprang with stripes has not been reported in the literature, due to chance and selection. It is quite possible that many more unprepossessing examples lie unidentified in museum collections. The Peabody example which is from a Paracas Necropolis burial is the latest occurrence of any kind of interlinked sprang that my research has turned up.

Fig. 41 Detail of a striped, interlinked sprang bag from Paracas Necropolis (PMH 38.28.30/4114; photo courtesy of Alan R. Sawyer)

Interlacing: Small Bags

Two small bags made of 2:2 interlacing were photographed at the Museo Nacional, Lima by Nobuko Kajitani who supplied the pictures in Fig. 42. The two bags retain Tello's original numbering but the prefix number 12, according to staff at the Museo Nacional, was a number given to fabrics from Paracas and does not indicate a particular site (p.c. Adriana Soldi, 27/5/82). A sprang turban described earlier (Fig. 16) has a 12 prefix to its number and it relates closely to Paracas Cavernas sprang. The possibility that these bags are also from the Early Horizon 9 site of Cavernas exists, but it is by no means certain.

Both bags are made of dyed alpaca yarns which are arranged in stripes of several colours. The diamond pattern on the bags is a simple result of obliquely moving threads in one colour crossing differently coloured threads. The bags have a centrally positioned chained hold line (p.c. Nobuko Kajitani) and the attendant features of a fabric worked in the sprang technique. Warp loops are visible in undeteriorated areas around the bag mouth. Surface floats of the 2:2 interlaced structure line up in horizontal wales (Fig. 43). A straight forward method of interlacing in rows against a transverse fabric fell by alternating two sequences of thread movements is sufficient to produce this kind of fabric. Precise details of this technique are given in Collingwood (1974, p. 185-6) who also points out that identical fabric can be made in sprang by repeating only one set of thread movements and reversing the frame or warp support after each row.

The bags are constructed from a rectangle of fabric folded transversely in the area of the hold line and sewn together along the side selvedges. One bag, which is filled with small balls of dyed alpaca

A

B

Fig. 42 Two interlaced sprang bags from Paracas
A. MNAA Lima 167
B. MNAA Lima 173
(photos courtesy of Nobuko Kajitani)

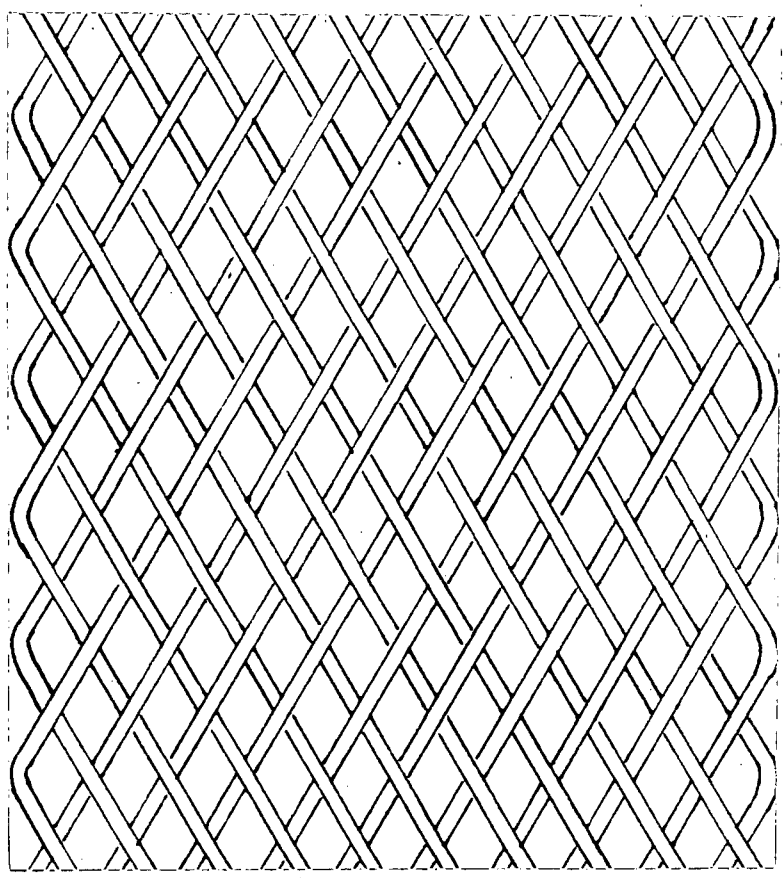


Fig. 43 Over two, under two (2:2) interlaced structure of the bags in Fig. 42

yarn, appears to have a cord threaded through the undeteriorated warp loops at the bag mouth. The other bag has a sewn strap of loosely twisted and folded yarns.

The presence of these modest little bags, which have not been reported in the literature, suggests the use of the sprang technique may extend to other homely items. It is quite possible that sprang was used more widely than this paper reflects because the sample may be largely comprised of more elaborate fabrics that have been selected for publication or museum acquisition. The smallness of this sample and the lack of association make it difficult to even suggest the temporal extent of this type of interlaced sprang.

Interlacing: Bags from the Early Intermediate Period

A group of four interlaced sprang bags which share many technical features have been located in various museums. These bags are larger than those in Fig. 42 and have a decorative seaming and edging stitch. The same colours used in the body of the bag are generally alternated in the tubular seam or edging which is worked in the cross knit loop stitch and the bottom of the bag is fringed. These interlaced sprang bags are considered to be roughly contemporaneous because of the finishes and the general form. The features are illustrated in the bag in Fig. 44.

The bags are constructed by folding across central unworked warps or a central hold line and sewing the side selvedges and the terminal working edges together. A fringe is made of the unworked warps or a separate fringe is added to the bag bottom. Several have carrying straps and several have indications that a snugly wrapped cord near the mouth of the bag was used for a closure.

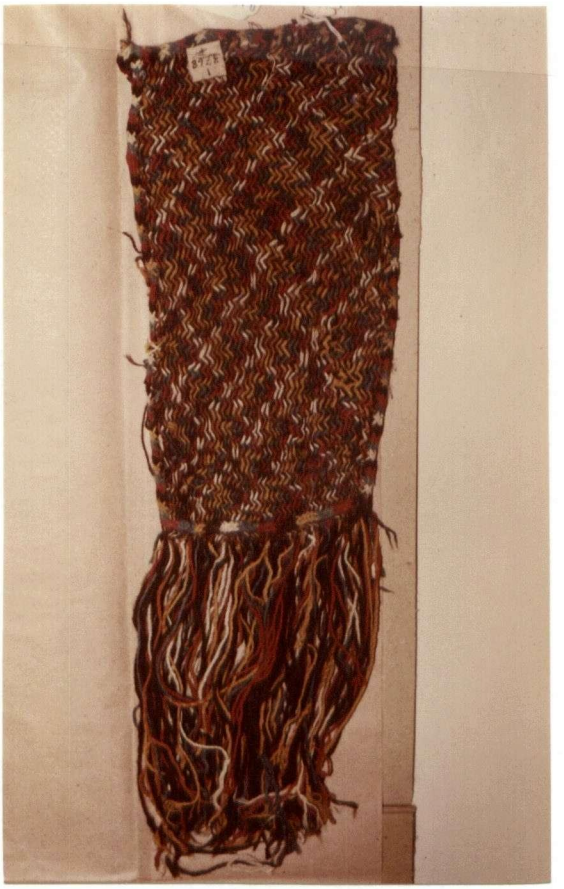


Fig. 44 Interlaced sprang bag from the Early Intermediate Period (MNAA 1.3768)

The evidence of sprang as the method of working varies from bag to bag. All bags are identical on both faces in interlaced structure and colour order. One bag has a symmetrical mistake on the two faces (MNAA 1.3768). One has a fringe with looped ends made of the unworked warps which still join the two bag faces (LM 16.11043). One bag has a hold line with symmetrical fabric on either side (MDH 30.19.445). The fourth bag has no absolute proof of sprang as the technique (MRI, no number) as the hold line area is covered with stitching. However, its structure, form and colours relate it so strongly to the group that it seems unlikely it was done in any other technique.

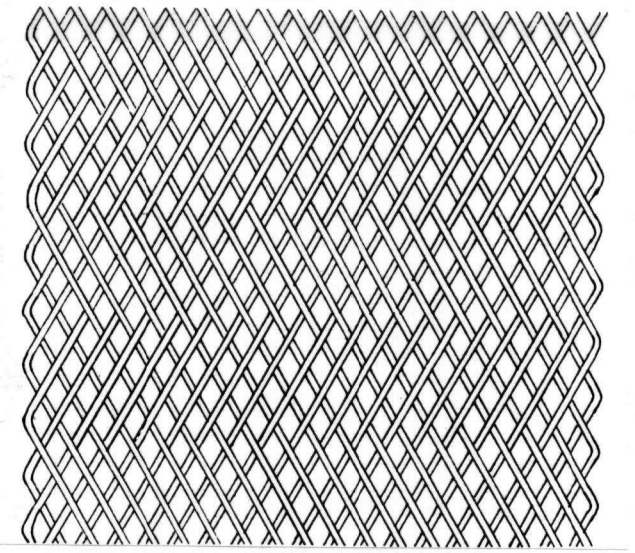
Two of the bags are rectangular products of sprang (Fig. 44 and 45). The bag in Fig. 44 has paired threads of black between pairs of all other colours. The pairs of threads act as a unit throughout and interlace over four, under four (Fig. 46A). The second bag has wider diagonal stripes with dark brown alternating between orange, yellow and blue-green (Fig. 45A). The structure of the bag is over two, under two interlacing. (For oblique interlaced sprang techniques, see Collingwood, 1974, p. 184-190.) The fringe is made from the unworked central warps. The folded threads of the fringe are supertwisted, then re-plied with an adjacent thread by twisting in the opposite direction. The fringe is lengthened by the addition of colour-matched threads, which are also twisted and re-plied, through the loops (Fig. 45B).

The other two bags have a distinctive shape, with three small pockets at the lower edge. One of the bags (Fig. 47, published in d'Harcourt, 1962, Pl. 54a) has the same 4:4 interlaced structure and almost the same colour order as the bag in Fig. 44. However, the shape of the bag requires a special warp set-up, like the one shown in Fig. 48. A warp with

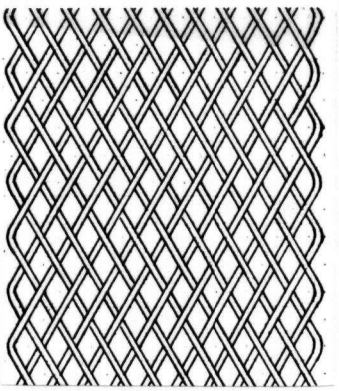
A

B

Fig. 45 Interlaced sprang bag from Poroma, Tunga Valley (LM 16-11043)
A. Overall view
B. Fringe detail: fringe is made of unworked sprang warps and lengthened by yarns added through loops (see arrow)



A



B

Fig. 46 Interlaced structures of sprang bags from the Early Intermediate Period
A. Over four, under four (4:4) interlacing (MNAA 1.3768, MDH 30.19.445 and MRI, no number)
B. Over two, under two (2:2) interlacing (LM 16.11043)

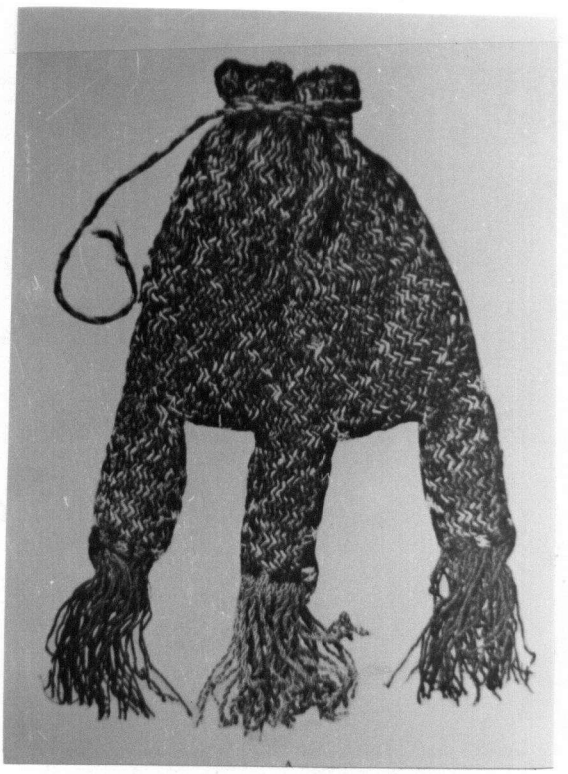


Fig. 47 Interlaced sprang bag with three pendant pockets (MDH 30.19.445; photo taken from d'Harcourt, 1962, Pl. 54)

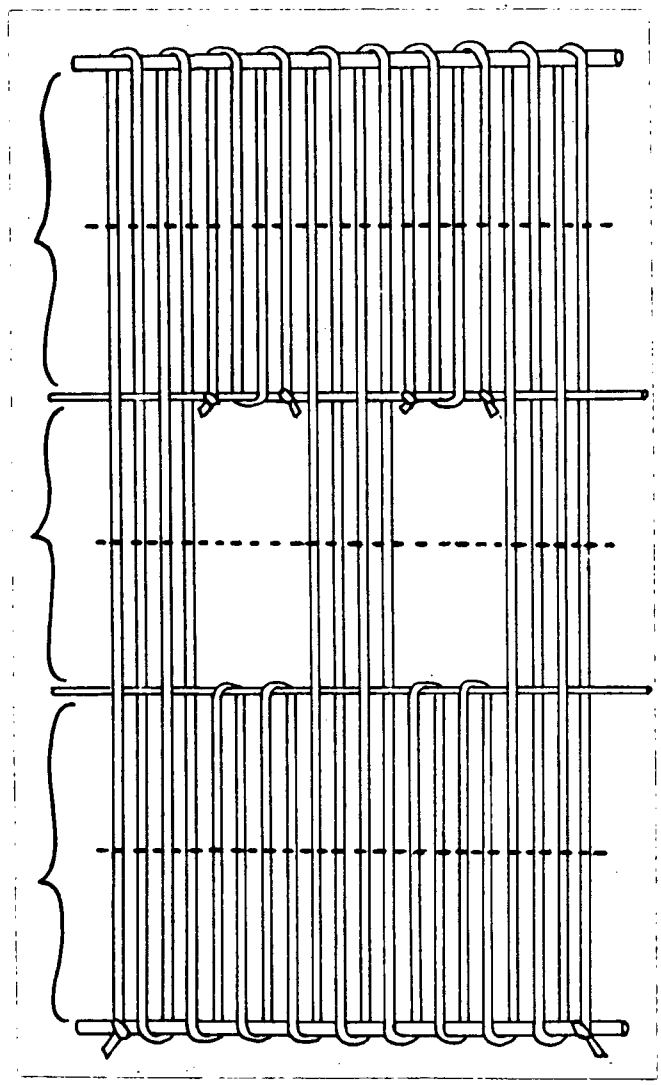


Fig. 48 Discontinuous warp set-up necessary for the Fig. 47 bag. Brackets indicate separately worked sections and dashes indicate the terminal area of each section.

"windows" is necessary to produce this irregularly shaped bag. Two scaffold wefts act like extra loom bars on which warps of different lengths are wound. This discontinuous warping technique has a long history in Peru, from at least Early Horizon 8 (Garaventa, 1981, p. 167) up to the present. This is the only example I have found of discontinuous warping which is used for shaping a sprang fabric. Because some warps do not extend the entire length, it had to be worked in three sections, which are indicated by brackets in Fig. 48. Three hold lines, indicated by dashes, would be found, one in the centre of each separately worked section. In the photograph, one hold line is visible, in the centre of the main body (Fig. 47). The colour movement is, as expected, in mirror-image symmetry on either side of the line. A similar sized section on the lower bag face would have been worked as a section and would have similarly placed hold line. The third section is the pendant pockets. What is now the bottom of the pockets would have been the terminal area of this sprang section. A hold line, wefted or otherwise secured, would be hidden beneath the stitching and the applied fringe. Working a sprang warp in sections is quite rare although it has been found in exceptionally long, intertwined fabrics from Nasca. Its use here is a necessity, once the choice of making a shaped warp is taken. To construct the bag, only the sides of the pockets and the bag proper need to be sewn together after the completed cloth is transversely folded.

The other bag with three pendant pockets (Fig. 49) uses a straightforward warping system with all threads of equal length. Work proceeds normally with the interlaced fabric growing from both ends toward the centre. When the pockets are begun, the warp is divided into three vertical sections and each is worked independently, making slits between the

Fig. 49 Interlaced bag with three pockets shaped by making slits in the sprang fabric (MRI, no number)

vertical sections. Although structurally unnecessary, the threads change direction twice just above the pocket section. This is done by interlinking the threads in two successive rows, rather than continuing to interlace. From the ridges in this area, it also appears that wefts have been put in these sheds. This is not a hold line, because of the lack of symmetry on either side of it. Only one terminal area and hold line would be necessary. It would be in the very centre of the flat warp, that is, under the decorative stitching at the point where the fringe is attached to the pocket bottoms.

The three pocket bag is a standard kind of pre- and post-conquest article in Peru. Ina Van Stan has discussed the technical requirements of six pre-conquest woven bags (1969-70). Some of the bags in her study have pockets at the bottom, others have them positioned part way up the bag face. Bags of the latter sort, with one to five pockets, continue to be made in Peru and Bolivia today (Cason and Cahlander, 1976, pp. 31, 154-9). The bags are generally used for carrying coca leaves and the pockets are used for carrying the lime with which the leaves are chewed (p.c. Market informant, Cuzco, 1978). The bag in Fig. 47 still has coca leaves in it (d'Harcourt, 1962, p. 160) and the Fig. 45 bag also has remnants of dried leaves in it. Coca use has a long and important history in Peru and it seems likely that at least some of the interlaced sprang bags of this size, both with and without pockets, were made expressly for coca use in ancient times as well.

The geographical and chronological placement of these fabrics has to be tentative because there are not many comparative fabrics during the last half of the Early Intermediate Period. Two of the bags are given a general provenience of Nasca (d'Harcourt, 1962, p. 160 and the MNAA catalogue).

The bag in the Museo Regional de Ica had no catalogue information but it is probable it came from the Ica area, like the majority of the collection. The Lowie Museum bag (16-11043) has a provenience of Poroma, Tunga Valley and it is associated with a Nasca 6 ceramic (16-11041a, LM catalogue). A Nasca-Ica locale is indicated for all the bags so far located. The bag that is associated with the Nasca 6 ceramic does differ in colour and interlacement order from the other three which are closely related in these respects. The colours of the three closely related bags support dating them to the latter part of the Early Intermediate Period. They use the primary colours plus black and white. Fig. 47 also has a little green (d'Harcourt, 1962, p. 160) and Fig. 44 has a little orange. According to Ann Rowe, the primary colours and black are the favoured colours of this period (1979, p. 117). The decorative stitching (cross-knit loop stitch, Emery, 1966, Fig. 373) that closes the seams and strengthens the edges is singled out by Lila O'Neale (1934, p. 410) for its use in Late Nasca, although it is used in all periods.

Tentatively, this group of interlaced sprang bags has been assigned to the South Coast area in the last half of the Early Intermediate Period, c. 100-550 A.D. If this is accurate, then they add to a very small group of fabrics that can be placed in the same period. Also, this dating would mean that the three pocket bag has an even longer history than indicated by bags with overt Middle Horizon iconography. Technically, this group of bags is interesting because they illustrate a connection between the technique of sprang and the technique of weaving. Two bags in the group use methods of shaping more frequently applied to weaving, discontinuous warping and slits, to produce articles similar to woven ones. Finishes, like warp fringes with loops and cross-knit

looped seams and edges are also common to this group and to woven articles. These bags may represent the final use of interlaced sprang in Peruvian pre-history as later examples have not been located so far.

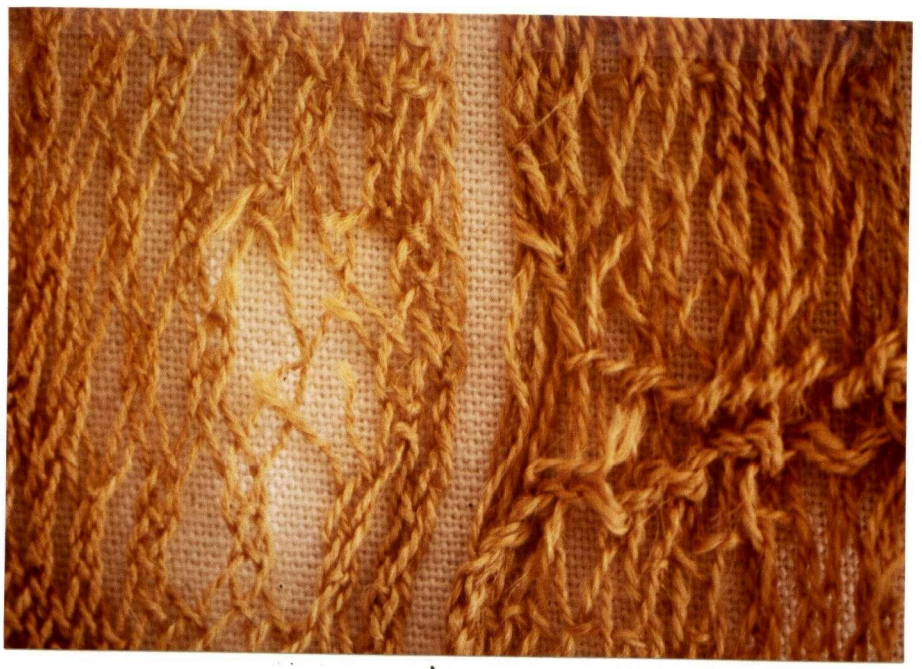
Interlaced Openwork

One example of an openwork in an interlaced sprang variant is in the Museo Nacional, Lima (T 252). It is a long narrow fabric in gold alpaca with slender ties attached to the ends. Its certain use is unknown but its form suggests a belt or headband. The major structure is an unreported variant of interlacing (Fig. 50). Small amounts of 1:1 interlacing in horizontal bands are also present. The hold line is a horizontal chain of interlooping which suggests this article was worked in horizontal rows.

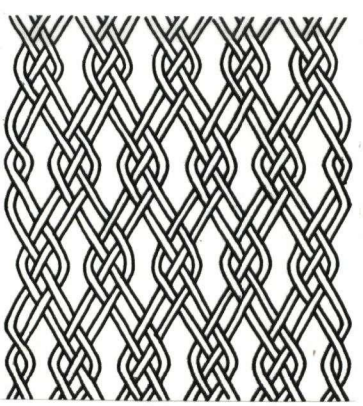
No information on the provenience or association of this fabric is available and, as it is a singular example in form and structure, it is not possible to date it very precisely. Like the other openwork sprang, it probably belongs to the time period between 600 B.C. and 550 A.D.

Interlacing: Garment Ties

The most numerous items made of interlaced sprang in archaeological collections are the ties on embroidered garments from Paracas Necropolis and other south coast cemeteries. The ties occur in pairs or fours on wrap-around skirts, aprons and loincloths in embroidered styles that span Early Horizon 9 and Early Intermediate Period 2. Ususally, the two ties that were made on one warp are cut apart and so direct evidence that they were made in sprang is lost. However, a few unfinished specimens, like the wrap-around skirt in Fig. 51, show that sprang was the technique because the two ties are still joined by the centrally unworked warps. The form (pointed tip), the structure (2:2 interlacing)



A



B

Fig. 50 Interlaced sprang openwork (MNAA T252)
A. Detail with chained hold line
B. Interlaced structure

Fig. 51 Paracas Necropolis skirt with interlaced sprang ties that have not yet been cut apart
(MNAA 0691, mummy bundle 378, specimen 18)

and the positioning of the straps on many of the skirts are very uniform (Bird and Bellinger, 1954, Pl. 10). The uniformity suggests that all the straps were made in the same technique. The evenness and control of the interlacing on large numbers of threads argues that the straps were worked on tensioned or stretched ends, rather than free hanging ends.

Unlike the rest of the sprang fabrics in ancient Peru, these ties are worked in oblique rows, rather than horizontal rows. The triangular point of the tie and the distortion just below the heading cord indicate this (Fig. 52A,B). The interlaced structure is over two, under two. The outer threads interlace to the centre where they cross each other in a 1:1 order of interlacement (Fig. 53). Near the heading of each tie, the first threads lie in near horizontal paths, causing the tie to draw in. After several inches of work, the threads lie on oblique paths which are maintained throughout.

I was puzzled for a long time by the logistics of spranging such an unweildy length of fabric. The straps are commonly 1.20 M long (Carrión Cachot, 1931, p. 81) which means the warp would be over 2.40 M. Not even a Boston Celtic would have the reach to sprang a flat warp that long. In experimenting with the technique, I discovered that the warp could be very conveniently worked if it was folded in half and the two ends were placed one above the other and attached to a fixed point together. Then, with half of the warp loops (caused by folding the warp) in each hand, I could tension the warp and make the interlacing with threads in the top layer (Fig. 54). A convincing aspect of this method of working is the effective way each row is driven into the fabric. By simply spreading my arms, the last row was firmly packed into the top and bottom layer of the fabric at the same time and along neatly oblique

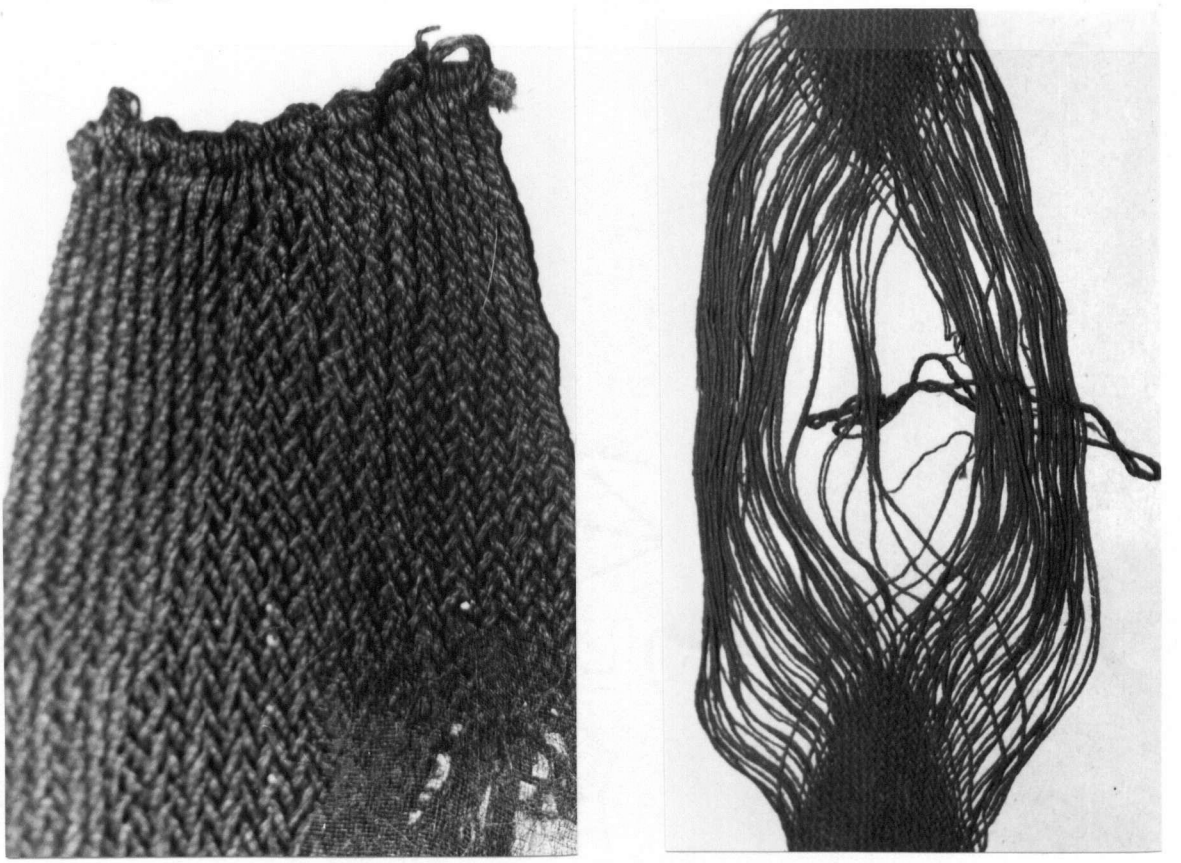


Fig. 52 Details of skirt ties (MNAA 0691)
A. Heading area of one tie
B. Pointed tips of two ties, still joined by the unworked warps

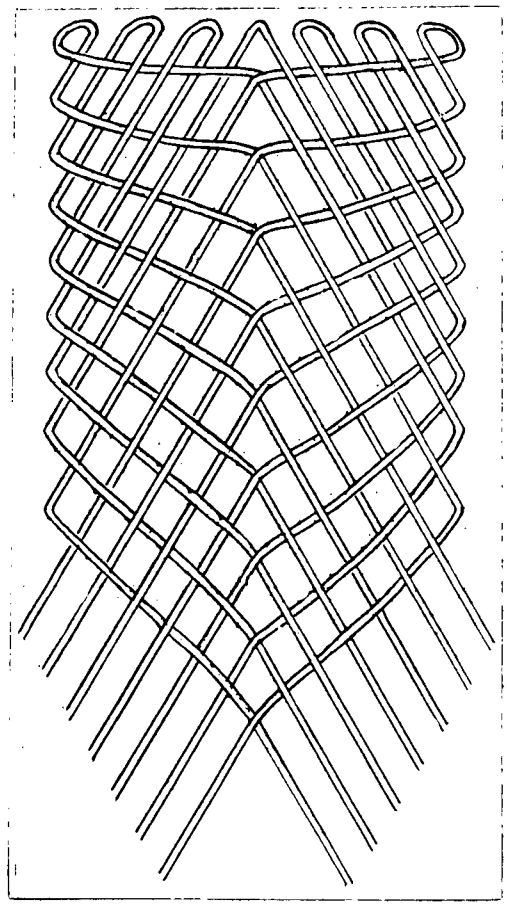


Fig. 53 Structure of interlaced sprang ties, shown with number of threads greatly reduced: over two, under two interlacing along oblique working edges

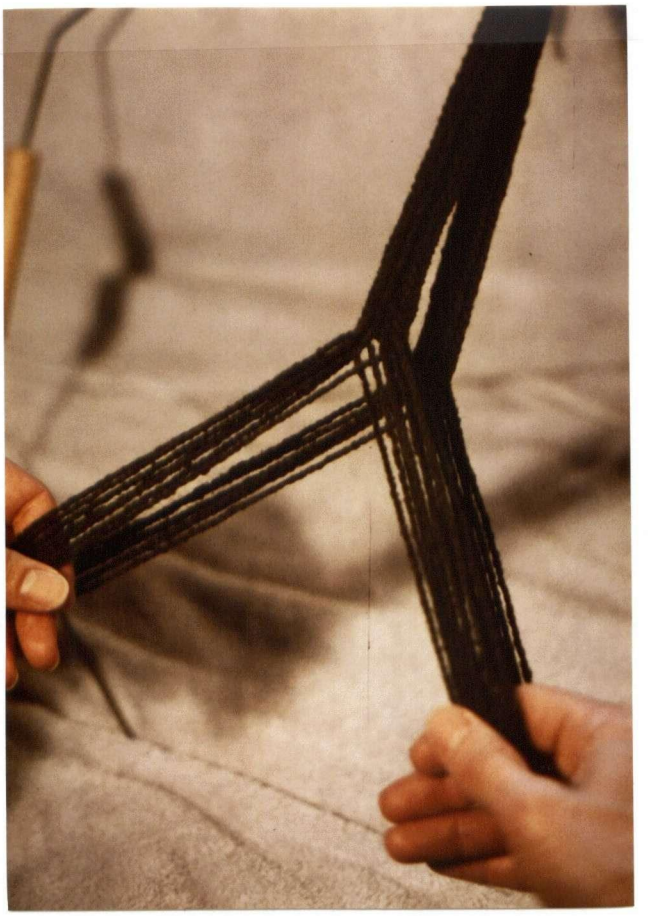


Fig. 54 Method of working two ties simultaneously on a folded warp

lines. This straight forward method is quite feasible for the ties, as it is easily effective over a length of 1.5 M. Furthermore, it keeps the working area conveniently close to the maker, no matter what length the warp is.

The sprang garment ties differ significantly from other ancient Peruvian sprang fabrics in having a oblique working edge. I feel that the method just described applies only to fabrics with an oblique working edge, like the ties. It seems probable that these ties have an evolution related to braiding on free ends as braids generally have an oblique working edge as well. The other Peruvian sprang fabrics appear to have been built up in horizontal rows, like weaving. This technique poses a slight terminological problem as it could be described as sprang or loop-end braiding. As two symmetrical fabrics are produced by interworking a stretched (although not fixed) set of elements, the technique is included in a study of sprang.

Interlaced sprang ties for garments were used over a considerable length of time. Skirts of the linear, geometric embroidery style and ones with the colourful, curvilinear style (Carrión Cachot, 1931, Fig. 19d and 19b) are dated to Early Horixon 10 and Early Intermediate Period 2, respectively, by Jane Dwyer's seriational features (1979, p. 109 and 113). The skirt in Fig. 51 belongs to the Early Intermediate Period 2 style, identified on the basis of the monkey-like foot of the figure (J. Dwyer, 1979, p. 115) and other features. Similar wrap-around skirts from Ocucaje (King, 1965, p. 448-9) and from the Cavernas site at Paracas (Carrión Cachot, 1931, Fig. 4m) have also been published. These two skirts with straps are probaby Early Horizon 9. The design of the Ocucaje skirt, "geometric birds in lozenges" (King, 1965, Fig. 8a, p. 72), relates

to Early Horizon 9 designs in gauze and other techniques (J. Dwyer, 1979, Fig. 1; Yacovleff and Muelle, 1932, Fig. 6). The Cavernas skirt is from the same site as gauzes and double cloths dated to Early Horizon 9 by Jane Dwyer (1979, p. 107-8).

Another garment type probably has similarly made ties. Carrión Cachot illustrates five waras, or loincloths, from the Necropolis site. They are rectangular or triangular cloths with symmetrical straps at two corners of one side (1931, Fig. 20). Two of the loincloths have straps that have large tassel additions at the ends, like the ends on several skirt ties she illustrates (Fig. 19d,f). Another garment from Cahuachi, called an apron by O'Neale (1937, p. 191 and Pl. XXXIVa), has four straps but she doesn't describe the technique. She does say that two ties are one inch longer than the other two. This symmetry in size between pairs could suggest the sprang technique.

Interlaced sprang was used for narrow ties between at least Early Horizon 9 and Early Intermediate Period 2 (c. 600 - 200 B.C.). There are examples on wrap-around skirts and loincloths or aprons from a number of south coast sites, most particularly Paracas Necropolis. The textiles of the succeeding and preceding phases are not very fully known so this technique may have had a longer history.

Several authors have made suggestions about how the skirts and other garments (mantos, waras, esclavinas and llautos) from the Necropolis mummy bundles were worn in life (Bird and Bellinger, 1954, p. 16 and Carrion Cachot, 1931, p. 81). The Museo Nacional, Lima has constructed a human model dressed in a set of matched garments from mummy bundle 421 (Carrion Cachot, 1931, Fig. 13, p. 74). Though the model is large compared to Peruvian median heights, the clothes are still larger. The elaborateness and the pristine quality of most of the embroidered garments

suggest they may have been made expressly for burial. The large size of the interred garments suggests they may have been made for a larger, human substitute, that is, the mummy bundle itself which is constructed in a way that imitates a human, complete with a false head. Although these garments may not have been worn in life, their design may well derive from functional clothing.

Intertwining: Openworks

Intertwining is the most specialized and complex structure worked in the sprang technique. In ancient Peru, it appears to have been used longer and more extensively than interlinking or interlacing and to have been used for several different types of fabric. One fabric type is a very elegant and stable openwork, generally made of monochromatic alpaca with designs that are most frequently geometric (Fig. 55).

The most common intertwined structure of openwork fabrics is shown in Fig. 56. A diagonally moving pair of threads encloses one thread of a pair moving on the other diagonal. Each pair is twisted before repeating the interworking with the pair at the next intersection. The openwork contrast is often produced by coupling this structure with pairs that have been given multiple twists (Fig. 56B).

The proof that sprang was the technique is the presence of a hold-line and mirror-image symmetry of structure and design on either side of it. Many fabrics are fragmentary and retain only a small area of the hold line (Fig. 57). Even more fragmentary pieces have no intrinsic proof of the sprang technique. Both the fabrics with direct evidence of the sprang technique and those that are now too fragmentary to have the proof use the same limited range of structures and designs. Because of

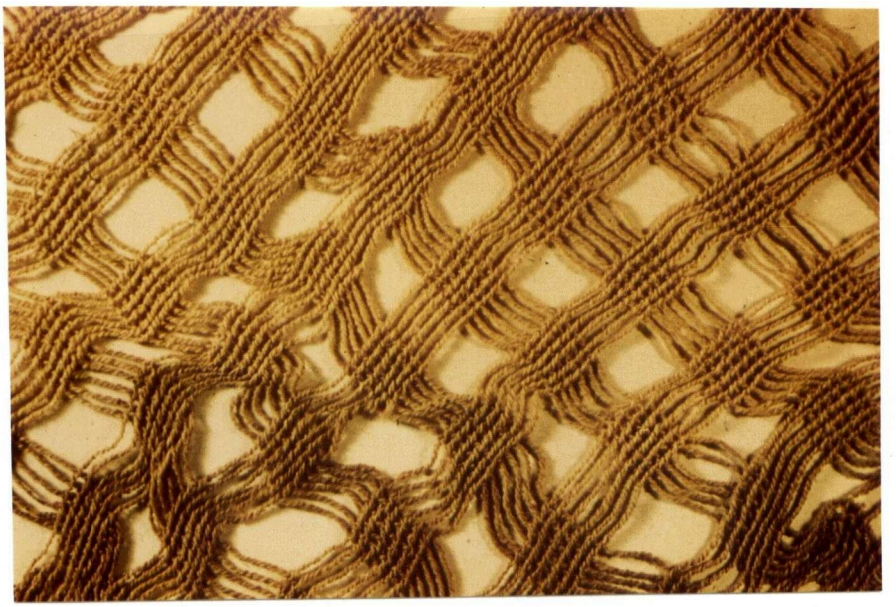
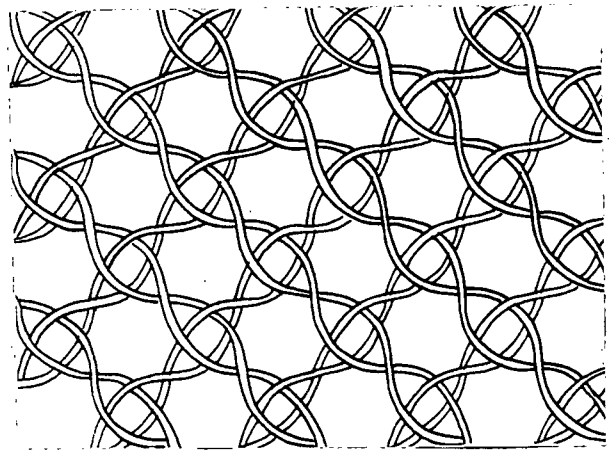
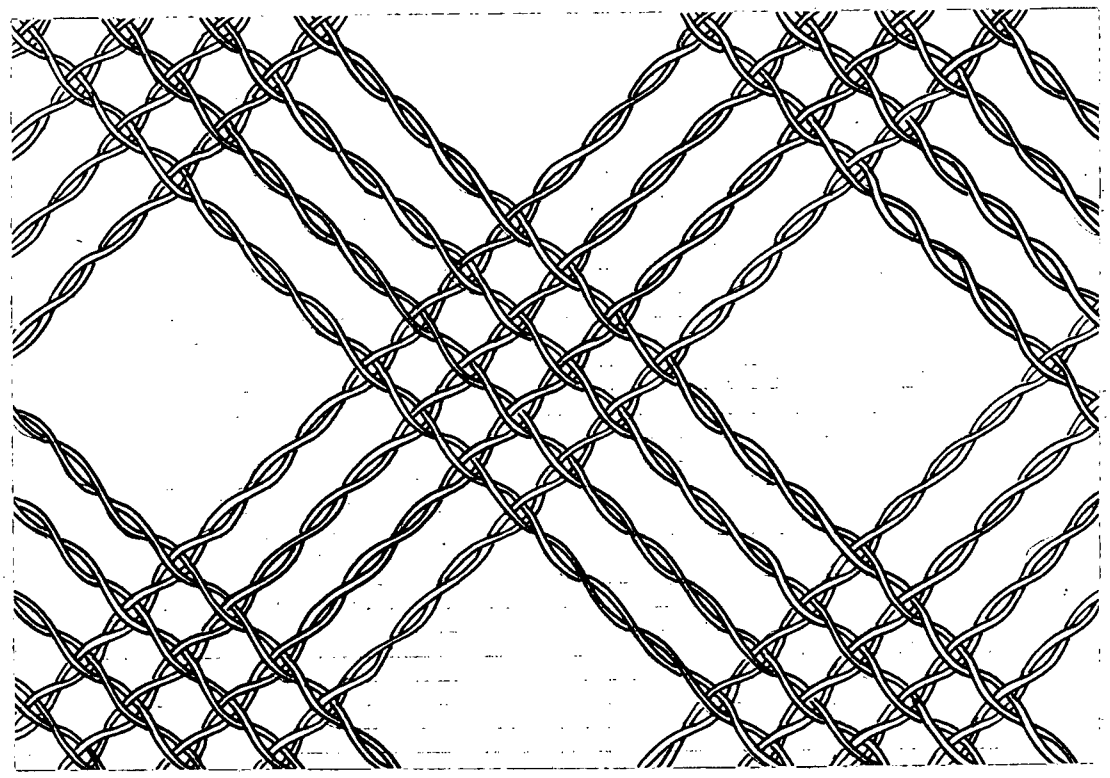


Fig. 55 Detail of an intertwined sprang openwork
(from a MNAA slide, no number available)



A



B

Fig. 56 Intertwined sprang diagram
A. Most common intertwined structure
B. Twisted pairs combined with the structure in A

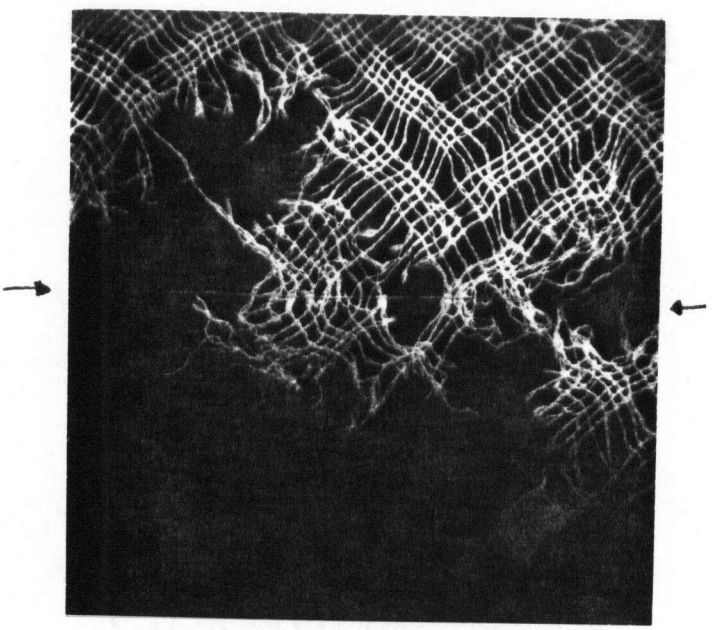


Fig. 57 Fragmentary intertwined sprang openwork with a small section of the hold line, Cahuachi, Nasca Valley, AMNH 41.0/5400
(photo courtesy of Barbara Conklin)

the homogeneity of the group, it is suspected that all intertwined fragments of this general type were made in the sprang technique. The conservatism in ancient Peruvian techniques as well as the great advantage in doing intertwining in sprang (the duplicating capacity and the fixed ordering of tensioned threads) support the contention that even the fragments were products of the sprang technique. For these reasons, intertwined fragments without absolute evidence of the sprang technique but which relate closely to fabrics that have the evidence will be included in the sample of intertwined sprang openworks.

Several fragments of intertwining which were too incomplete to contain direct proof of the sprang technique have been published and they are included in this study. D'Harcourt classifies Plate 54b under "Plaiting of Yarns with the Lower Ends Left Free" (a non-sprang technique), yet he also acknowledges that "this method was also used in plaited specimens in which the yarns were held fast at their extremities" (1962, p.74-6). The latter quote amounts to a description of the sprang technique. O'Neale describes the intertwined piece she twice published as "twine plaiting", a term she seems to use for all fabrics with diagonally twining pairs, irrespective of whether they were done on fixed ends (sprang) or free ends (O'Neale and Kroeber, 1930, Pl. 7a, O'Neale, 1937, Pl. LIV).

Two unfinished sprang warps in the Lowie Museum, Berkeley give some insight into the manner of working intertwined sprang. Both have continuously wound warps with heading cords inserted in the first sheds at either end of the warp. One warp has only the heading cords and the other has a few inches of fabric at both ends. The more advanced warp has clearly been worked in horizontal rows from a shed with alternate threads raised and lowered, as the termination of work and the shed cord indicate

(Fig. 58). It seems most plausible that the warp was stretched flat between bars or supports and horizontal rows of interworking were carried to both ends of the warp. Collingwood describes in detail a method for this way of working (1974, p. 209-10). The unfinished fabric was probably prepared for burial by removing the re-usable equipment and tying the bunched ends with cord. It is likely loom bars and possibly shed sticks, for carrying the rows of intertwining to the far end of the fabric, were used. The dimensions of the piece, 1.10 M x 0.50 M suggest some auxiliary tools were used.

The precise uses of the intertwined cloths are not known. There are, however, at least two sizes represented among those with intact edges. The largest (Fig. 59) has a width of 0.88 M and an original length of at least 4.00 M, calculated from the placement of hold lines. Other pieces, like Fig. 57 and examples in the Museo Nacional, Lima and the Peabody Museum, Harvard are about a metre wide but fragmentary in length. Cloths of this size may have been wrappings for mummies. The regular deterioration in the Fig. 59 fabric is consistent with being used as a shroud.

There are also narrow fabrics of varying lengths from 1.10 M (Fig. 58 and LM 16-10154) to 3.20 M (OM C50). The size suggests they may have been headdresses. Although none of the fabrics examined in museums were found on bodies, a photograph (Ubbelohde-Doering, 1967, 191) shows two trophy heads from a Potrero grave, near Cahuachi. The upper head appears to have an intertwined cloth wrapped around the head. The knob of excess fabric was placed on the forehead, although the entire headdress has slipped down over the eyes.

The other intertwined fabrics are of indeterminate size due to disintegration. It is worth noting that the openwork cloths of

A B

Fig. 58 Unfinished intertwined sprang warp
A. LM 16.10153, Changuillo, Ingenio Valley
B. Detail of transverse working edge and shed cord

Fig. 59 Large intertwined sprang fabric that may have been a wrapping for a mummy, MM 1954 W605 97492

Early Horizon 9 were also used as headdresses and wrappings for mummies.

Most of the intertwined openworks in this group are monochrome wool, probably alpaca. White, various shades of yellow, red and green are present. There is a small range of mostly geometric designs that follow the structural diagonals of the intertwining pairs. The geometric designs of the intertwined sample are summarized in Fig. 60A-G. Diamonds and zigzags are the primary motifs and they are frequently combined in the same piece. One of the designs (G) which has been published is referred to as "serpentiform" (Tello and Xesspe, 1979, p. 126). I agree with this interpretation but include it with geometric designs on the arbitrary grounds that there are no eyes.

Three examples of more representational motifs appear in the sample as well (Fig. 61). One is clearly a serpent head design (A) while another is a quadruped with a tail (feline or monkey?). The final design resembles some representations of trophy heads with hair streaming out behind. To see this design as a trophy head, it is necessary to accept the convention that the outline is in profile and the eyes are frontal (C). In the range of designs on intertwined openworks, presented in Fig. 60 and 61, the numbers are weighted more heavily toward the geometric designs.

Although diamonds and zigzags are described as geometric motifs, I do not consider them to be without meaning. The zigzag in Peruvian art frequently has a serpent head or a feline-serpent head attached to it. Diamonds often fill the interspace between two opposing zigzags and this combination of markings frequently covers the body of an overt serpent representation, like the Paracas braid in Fig. 62. This braid has a whole series of serpent heads attached at intervals along the length

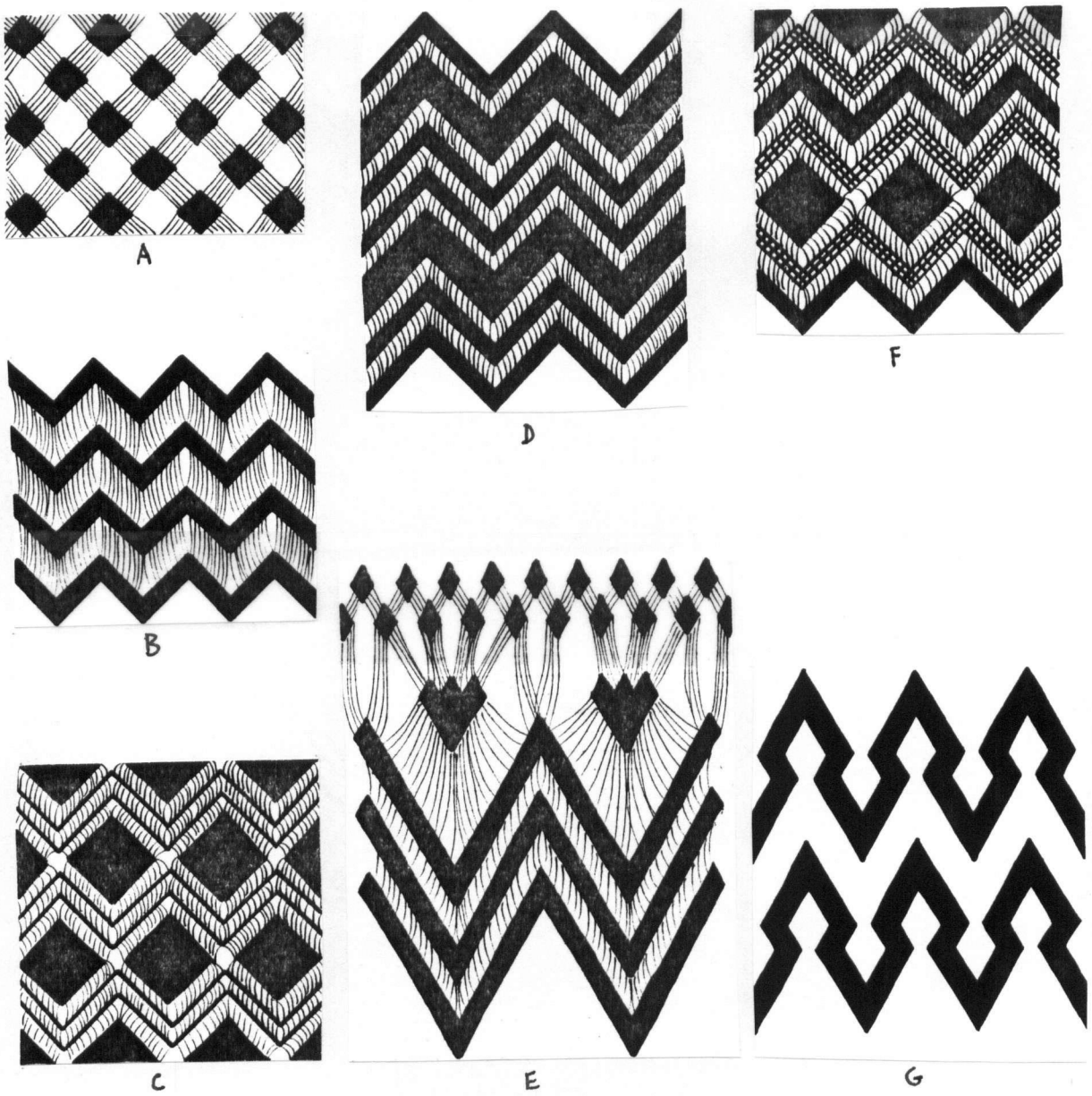


Fig. 60 Geometric designs on intertwined sprang fabrics
A. Fig. 55; TM 1960.1213A; FI 7113; PMH, no number available
B. MM 1954 W605 97492
C. LM 16-10153
D. AMNH 41.0/5400
E. LM 4-8843
F. LM 4-8537
G. MNAA 12/6545

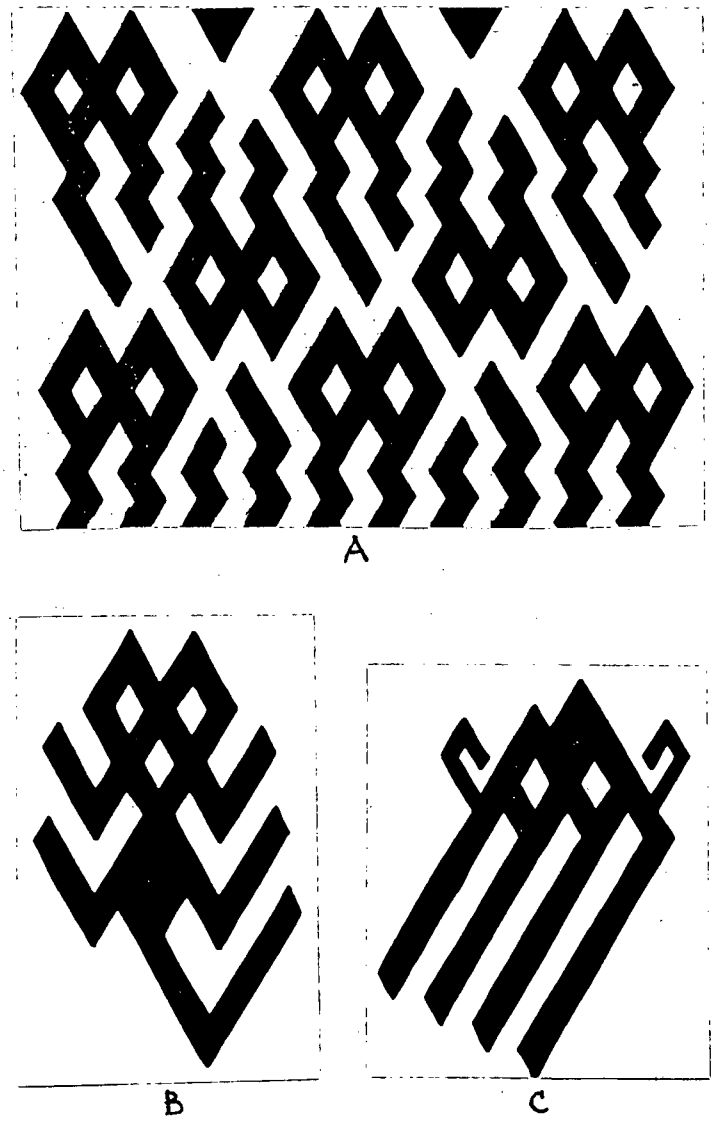
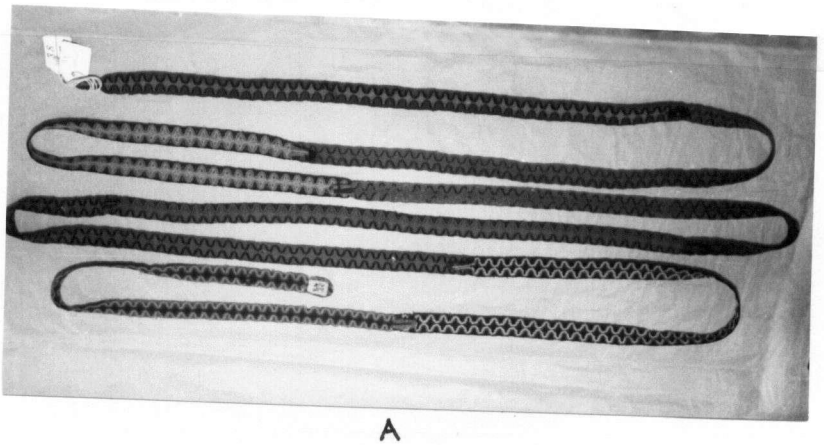
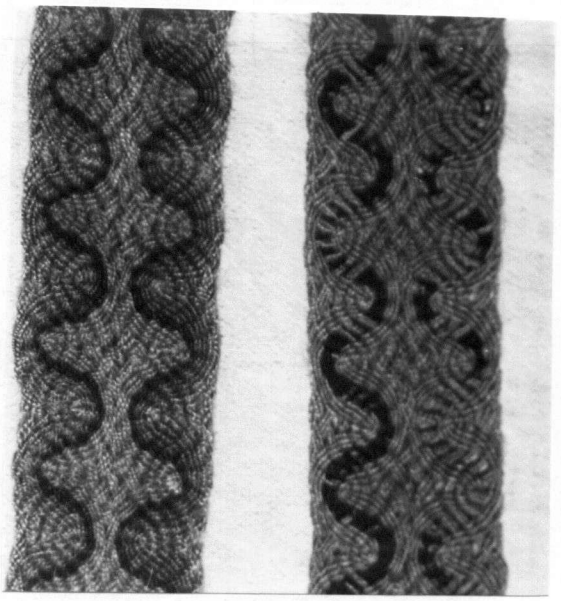


Fig. 61 Figurative designs on intertwined sprang fabrics
A. Serpent heads OAG C52
B. Quadruped (feline or monkey?) MNAA 06005 and MNAA 02293
C. Trophy head? MNAA 02293



A



B

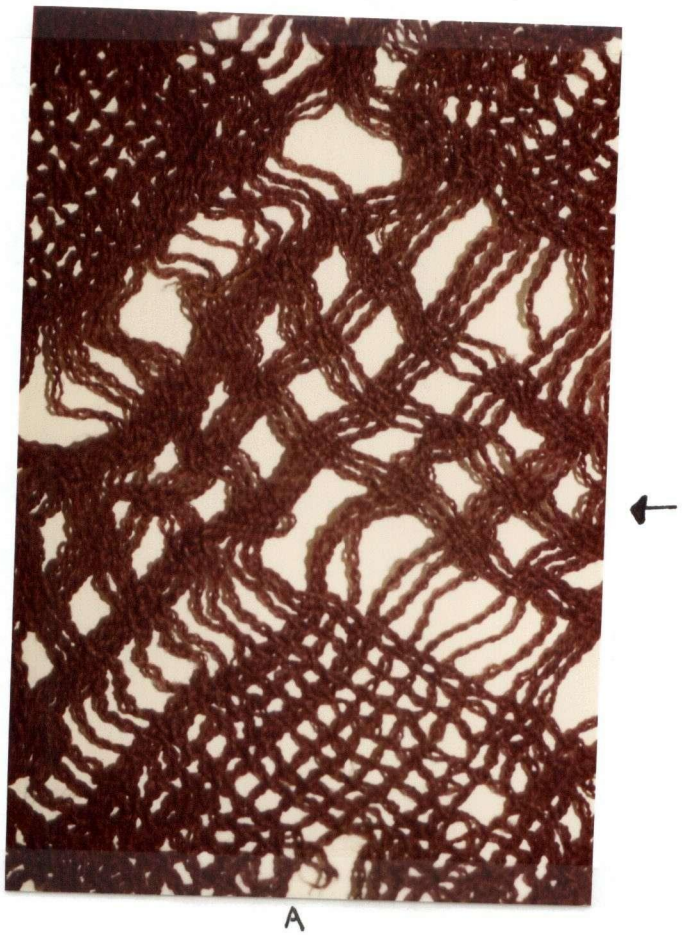
Fig. 62 Serpent braid with geometric markings
A. MNAA 01875, Paracas Necropolis mummy bundle 38, specimen 43
B. Detail of diamonds and zigzags on braid

of the zigzag and diamond braid. This is, by no means, an isolated example. For instance, the feline-serpent effigy vessels of Pashash have a similar range of geometric designs along the coiled, serpentine bodies of the vessels (Grieder, 1978, Fig. 57, pp. 195-7). The zigzag may refer to the undulating aspect of a snake and both the diamond and zigzag seem to refer to the markings on snakes.

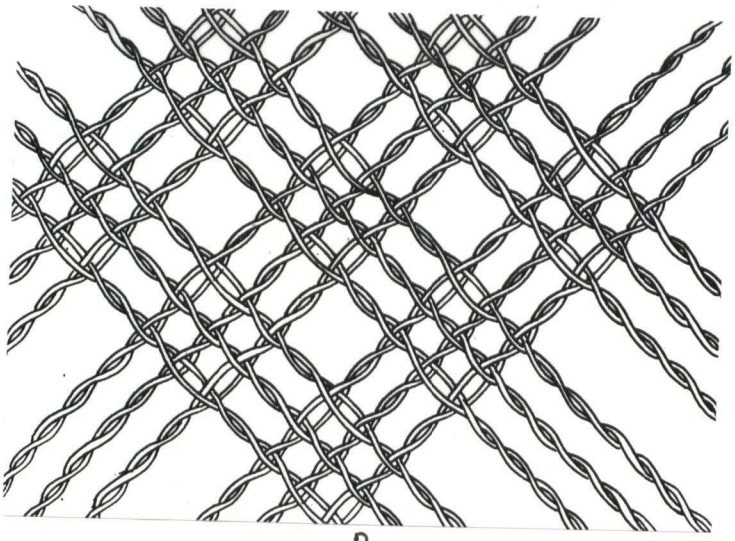
The structures of most of the geometrically patterned intertwined fabrics are like those shown in Fig. 55A,B. However, a number of minor variants in structure were found. The fragment in Fig. 63A has another structure as well, in the small dark diamonds that make up several zigzags. This structure diverges from the usual one in the selective omission of twists between some interworkings and the addition of a twist between the groups of interworkings (ie. the small diamonds), as shown in the diagram in Fig. 63B.

Another variant occurs in two large fabrics with figurative designs (Fig. 64A,B). The same principles of omitting some twists between intersecting pairs and adding a twist between groups of intersections are used. Only the precise placement of twists differ (Fig. 64C). In these fabrics no twisted pairs are used. Three other openworks from the Ohara Art Gallery in Kobe, Japan (C50, C52, D33) may have the same structure but the available photographs are not quite detailed enough for certain identification.

A final variant of intertwining produces the open areas in a fragment that was studied at the Textile Museum (Fig. 65A). The open areas simply double the threads involved in each interworking and then separate each interworking with an extra twist. So, two pairs on one diagonal intertwine with two pairs on the other diagonal. Although two pairs act

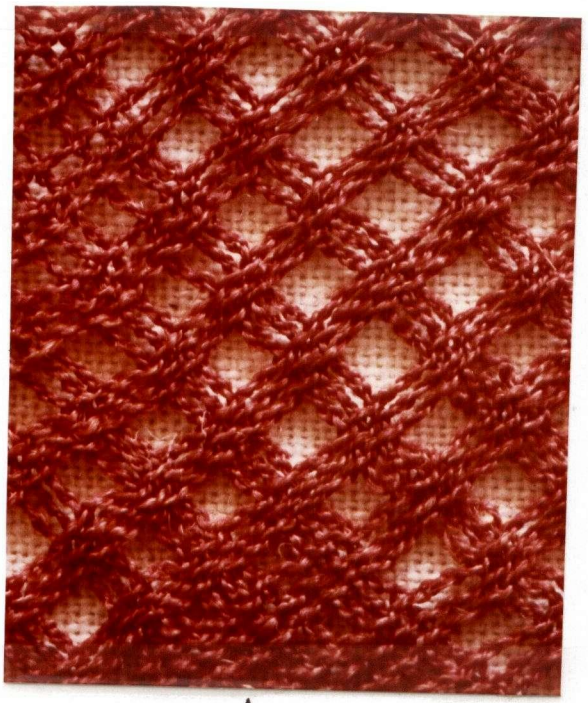


A



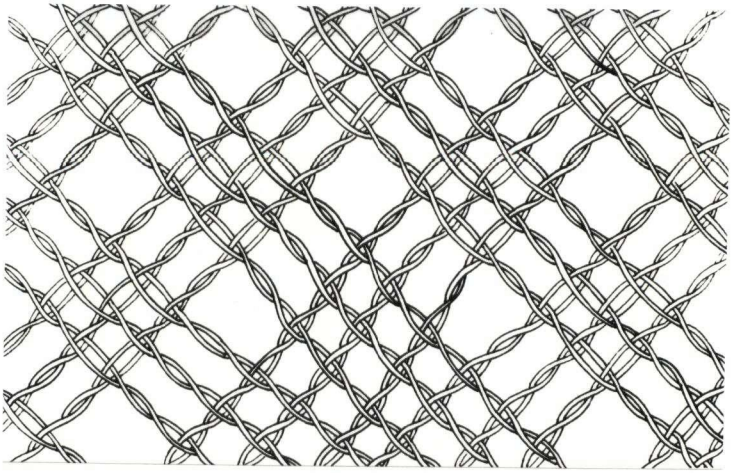
B

Fig. 63 Intertwined fragment with a variant structure, in addition to the usual structures in Fig. 56
A. LM 4.8537
B. Diagram of variant form of intertwining that appears in the small diamonds (see arrow)



A

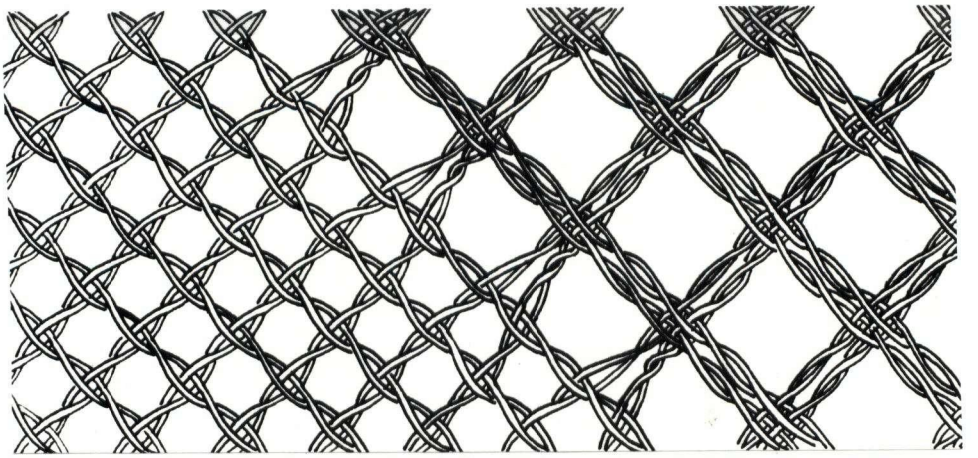
B



C

Fig. 64 Intertwined fabrics with a variant structure; no twisted pairs used
A. MNAA 02293
B. MNAA 06005
C. Diagram showing two types of intertwining used for contrast in A and B

A



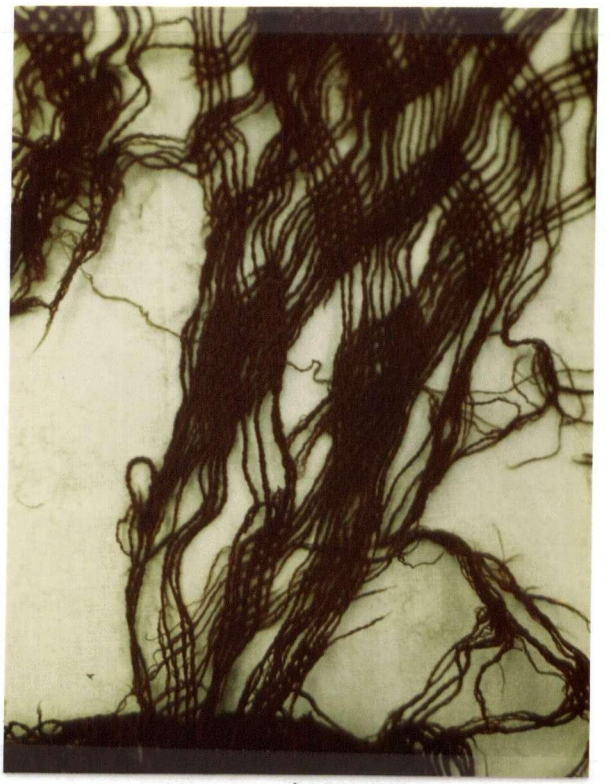
B

Fig. 65 Intertwined fabric with a variant structure; no twisted pairs used
A. TM 1966.99.35
B. Diagram showing two types of intertwining used for contrast in A

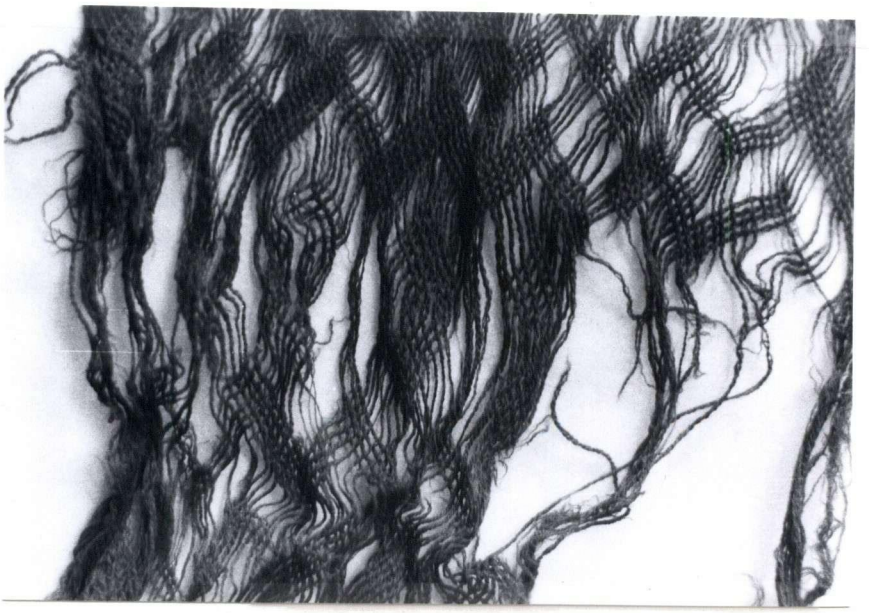
like one pair at the intersection, each thread twists only with its original partner in between intersections (Fig. 65B).

Very few intertwined openworks have been published, yet fragments are encountered not infrequently in museum collections. It is quite possible that there are more variants in structure than the ones just described.

An extraordinary piece of openwork intertwining does deserve special attention. The large, red fragment in Fig. 59 has unmistakable signs that an unusual method was used for fabricating an inconveniently large fabric. The over-all design of horizontal zigzags is interrupted by three horizontal rows of diamonds. A partial row of diamonds can be found at each fragmentary end (Fig. 66). The design and the structure (direction of twining twist and the diagonal direction of the surface pair) are mirror-imaged at the exact, transverse centre of these diamonds. At one end, a fragment of a wefted hold line is still in position. There must have been a similar hold line at the other end to have kept the section from unravelling but only the course for it now remains. The mirror-imaging of design and structure indicate that both of these now fragmentary rows of diamonds were terminal areas of construction and that the fabric must have been worked in at least two separate sections. The third row of diamonds in the approximate centre of the fragment is, on close examination, quite different. Structurally, there is no change of twining twist at the centre of the diamonds and the uppermost pair continues on the same diagonal (upper left to lower right) across the entire diamond (Fig. 67). This could not be an area of terminal construction because the structure is not in mirror-image. Rather, the central row of diamonds in Fig. 67 is the line along which the two separately worked sections meet.



A



B

Fig. 66 Large size intertwined sprang fabric worked in two sections (MM 1954 W605 97492)
A. Detail of terminal area of construction with hold line
B. Detail of second terminal area of construction: hold line no longer in place

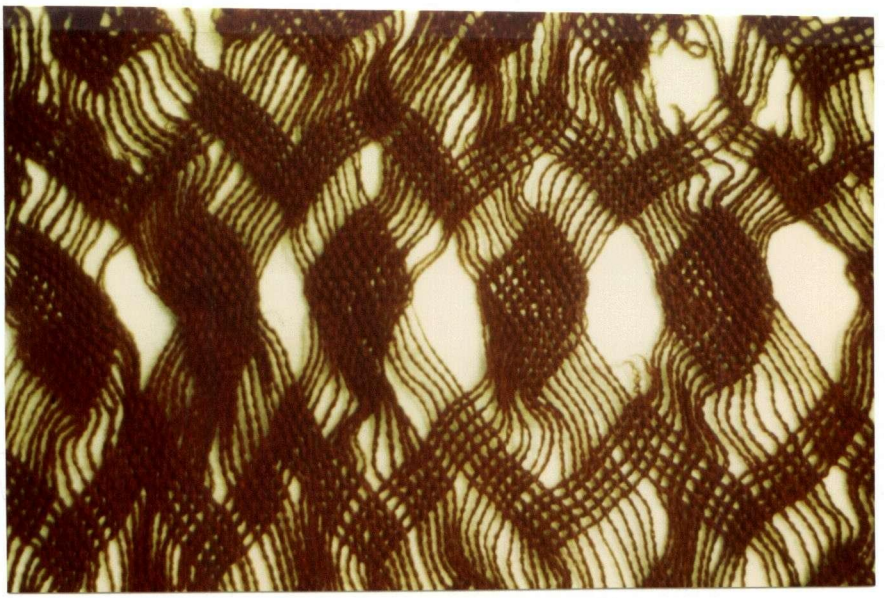


Fig. 67 Detail showing where two separately worked sections abutt (MM 1954 W605 97492)

A diagrammatic reconstruction of the whole fabric (Fig. 68) shows that the original fabric must have been almost twice as long as it presently is. The present length is indicated by the heavy irregular lines. The brackets (left) enclose the separately worked sections. The row of diamonds in the centre of each bracketed section is the area of terminal construction (solid lines). The dotted line shows where the two sections abutt. Originally, the cloth must have extended an equal distance in each direction from the areas of terminal construction. Calculations based on measurements taken from the fragment indicate that the cloth was originally about 4.00 M long and was worked in 2.00 M sections. There is a possibility that the cloth was even longer, that it was worked in three or four sections, but there is only evidence of two sections.

A study of the twist of the two sections suggests the warp was worked from both ends. If craft habits are fixed, and it is suggested that they are, then the maker worked one section from one end with the S twist intertwining nearer the body and then worked the second section from the other end of the warp, again with the S twist intertwining nearer the body. Done in this way, the worker's hands make the same set of motions for both sections.

No insight into the suspension and tensioning of the sprang warp was gained from this piece which has fragmentary warp selvedges. The length and width seem prohibitively large for a body-tensioned loom. A horizontal staked-out loom is a possibility, although each section is about two metres long and some system of carrying sheds (on sticks?) beyond the maker's reach would need to be employed. Since studying this piece, I have encountered two more fragmentary fabrics that were worked in at least two sections (MNAA 06005 and MNAA 02293) and have seen slides of another

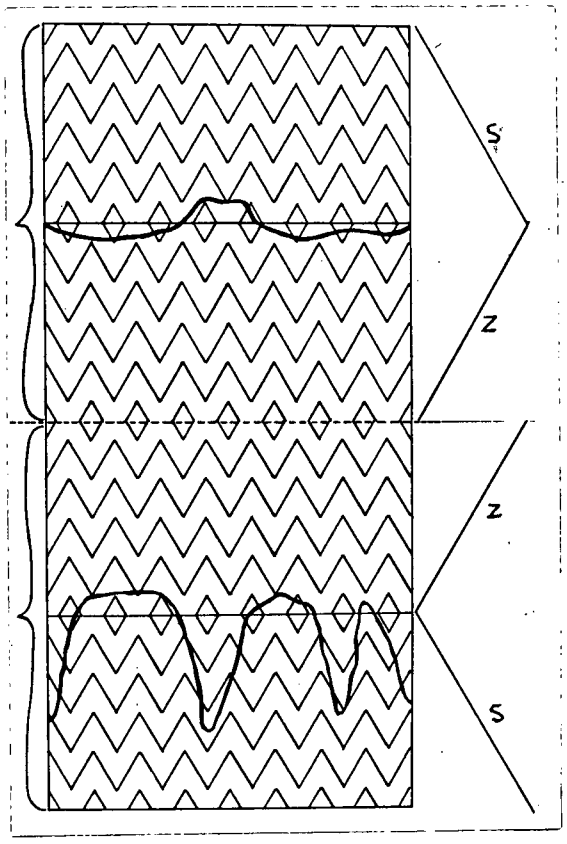


Fig. 68 Schematic drawing of the reconstructed fabric in Fig. 59. The brackets indicate the separately worked sections and the solid lines the areas of terminal construction. The heavy, irregular lines show the present extent of the fragmentary fabric. The oblique lines at the right show the direction of the twining twist.

in the Peabody Museum, Harvard (no number available). The same problem of fragmentary warp ends occurred in the two I was able to study.

The knowledge of pre-Columbian looms is still very incomplete and many woven fabrics of incredible length from the Necropolis burials still perplex researchers. James Vreeland (1977) has reviewed the evidence for suggesting a vertical loom was in use and, while his findings were not conclusive, it may be another possibility. For now, the exact method of making huge fabrics remains another puzzling accomplishment of the ancient Peruvians.

The intertwined openworks that have provenience are mostly from the valleys of the South Coast: Changuillo, Ingenio Valley (LM 16-10153 and LM 16-10154), Nasca Valley (AMNH 41.05400), Cacatilla, Nasca Valley (LM 4-8537), Nasca Valley (LM 4-8843, LM 4-8844). The only intertwined openwork said to be from outside of the south coastal area is one illustrated in d'Harcourt (1962, Pl. 54b) which is said to come from the central coast region. Early Intermediate Period textiles from the central coast are incompletely known at present, which may account for the single attribution of an intertwined openwork to a central coast locale.

It is difficult to assess the time period of the intertwined sprang openworks. A photograph of a yellow intertwined detail (Fig. 55) was purchased at the Museo Nacional, Lima and it had a Paracas Cavernas Culture label (Early Horizon 9). Another fabric from Paracas Cavernas, described as "calada", or openwork, technique, is sketched in the recently released book, Paracas, II Parte: Cavernas y Necropolis (J.C. Tello and T.M. Xesspe, 1979). Although the sketch is not absolutely precise, it does appear to be intertwining (Fig. 69). The twisting pairs, the oblique emphasis and the "serpentiforme" design (p. 126) do support the identification as

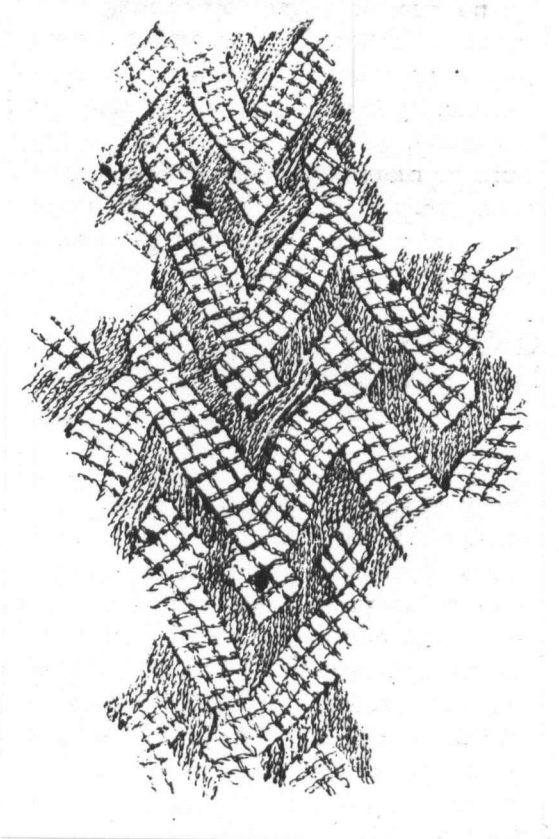


Fig. 69 An openwork fabric, probably intertwined sprang, from Paracas Cavernas, MNAA 12/6545 (Tello and Xesspe, 1979, p. 126)

intertwining. O'Neale places a Cacatilla fragment (Fig. 63, LM 4-8537) in Early Nasca (first part of the Early Intermediate Period) on the basis of stylistic similarity but not on associated pottery (O'Neale and Kroeber, 1930, p. 25, Footnote 9). The other intertwined fabrics in this study have no ceramic association either. Some slight, indirect evidence for dating comes from Nasca ceramic designs from the middle of the Early Intermediate Period. A few ceramics in the Lowie Museum (4-8572, 4-8583, 4-8751, 4-8745) have bands of textile designs that resemble intertwined fabrics but they are very generalized. The trophy head, illustrated by Ubbelohde-Doering (1967, 191), that appears to have an intertwined headdress is dated to that period between the "Old Nazca Culture and Coastal Tiahuanaco" (p. 142). In Rowe's chronology, this would be approximately Middle Horizon 1, c. 600 A.D. If various identifications can be relied on, intertwined sprang openworks may have been made from Early Horizon 9 until Middle Horizon 1 (600 B.C. - 600 A.D.).

Within the sample of intertwined sprang openworks, two groups can be separated on the basis of structure: those that use twisted pairs and the basic intertwined structure (Fig. 56) and those that use two varieties of intertwining (Fig. 64, 65) for the openwork contrast. Those that belong to the first group have geometric designs (Fig. 60). All three fabrics with figurative designs belong to the second group (Fig. 61). There is too little information on grave context to be certain that any time difference is represented by the differences between the groups in structure and iconography. However, several of the geometrically patterned fabrics that use twisted pairs do have earlier associations (Fig. 69, MNAA 12/6545; Fig. 63, LM 4-8537). The fabrics that use two varieties of intertwining for openwork contrast (and do not use twisted pairs) have intertwined

structures that relate more closely to the intertwined sprang tassels of the Middle Horizon which will be described in the next chapter. It is possible that the less common varieties of intertwining with the figurative designs are later as they provide a smoother transition, structurally, to the figurative tassels of Middle Horizon 1B.

Summary

The most frequent and varied use of the sprang technique occurs between Early Horizon 9 and the beginning of the Middle Horizon. The three basic structures of interlinking, interlacing and intertwining are found primarily in the south coastal area. The geographical distribution could be far wider but the fabrics of the highlands and many parts of the coast are simply not known because conditions for fabric preservation are so particular. From the present sample, which may be skewed toward the more showy fabrics, it appears that interlinking was used early in this time span while interlacing and intertwining were used for longer and for several varieties of fabrics. Interlacing appears mostly in firmly worked fabrics, like garment ties and bags, that are unpatterned except for colour striping. However, one example of an interlaced openwork was located. Interlinking and intertwining appear almost exclusively in openwork fabrics. The size, the material (alpaca) and the iconography of the openwork sprang fabrics suggest that these were high status fabrics and their probable use as headdresses and shrouds supports this.

The predominance of serpentine iconography in the form of fabric structure designs on the interlinking and in the form of zigzag/diamond motifs on the intertwining is an interesting example of the layering or underlining of meaning. Serpents, in early Chavinoid art on stone, are

the metaphor for natural body coverings, like human hair, animal pelts and bird feathers (J. Rowe, 1967, Figs. 15, 17 and 21). Throughout the Chavinoid phases, the serpent is also associated with images of fabricated body coverings, like belts and headdresses, and the images of fabric structures themselves. In early Horizon 9, fabrics that are structurally patterned are especially favoured and many are adorned with serpentine patterns (Carrión Cachot, 1931). It is as if the twisting movements of the threads portray the same meaning as the serpentine structures that appear as designs. That this moiling mass of serpents then wraps the heads and bodies of the dead seems to trebly enforce the association of serpent iconography with body covering.

Serpents are natural analogues to body coverings in several ways. The sloughing of an intact skin is an impressive event in nature which parallels the exterior, or covering, aspect of serpent imagery in the art. The linear and flexible body of the serpent is a physical analogue to the hair, fur and feathers of natural body coverings. The serpent is also physically analogous to the fibres and the threads of fabricated coverings. Not only animal sources of fibres, but the cotton plant as well (Cordy-Collins, 1979, Fig. 3) are given serpentine aspects in Chavinoid art. Fabrics are related to serpents in both their body covering role, and as interworkings of linear, flexible elements. The most convincing illustration of the connection between serpents and fabrics is in the "macro" images of fabric structures rendered as serpent bodies. In these designs, the structure or the very substance of fabric is given an iconic significance through its association with the image of serpent. The serpent has a wider set of references than body coverings in Peruvian art. Nevertheless, the association with fabrics is very apt as the metaphor

works on a number of levels simultaneously. The transluscence of the openwork headdresses and mantles in this study may relate to another aspect of serpents. Like the transparent skin sloughed by a serpent in the process of growth, these semi-sheer fabrics enshroud the mummy in the transforming surroundings of the tomb.

The stimulus for the extraordinary range and beauty of ancient Peruvian fabrics may well have been that the substance and process of fabric making were as integral to the ritual and art as the images. In the narrow terms of this paper, that may explain why there is such a diversity of sprang openworks in the nascent, then flourishing textile art of Paracas and Nasca.

The fourescence of structural explorations in fabric making on the south coast does continue briefly into the Middle Horizon, along with other Nazcoid cultural elements. The most intricate and flamboyant sprang fabrics date to approximately Middle Horizon 1B (p.c. Lawrence Dawson) and are the subject of the next chapter.

FOOTNOTE

[1]Wallace is not in complete agreement with Rowe, Menzek and Dawson (1964). He dates this fabric, through ceramic association to Ocucaje 7 (upper valley) but feels it is contemporaneous with Ocucaje 8 (lower valley) in their system. He sees their temporal distinction between Ocucaje 7 and 8 as a contemporaneous geographical distinction, i.e. upper valley and lower valley, respectively (p.c. Dwight Wallace, 21/12/79).

CHAPTER IV

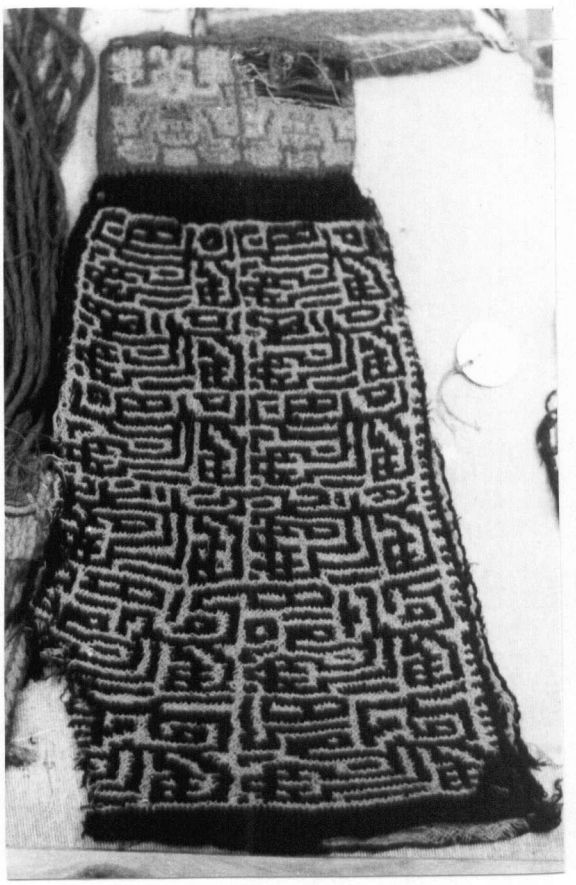
THE MIDDLE HORIZON

Tassels

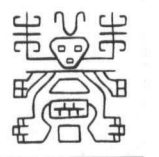
In the last throes of the south coast Nasca culture, the art style on ceramics and fabrics becomes frenetically active. Figures are not isolated in space but appear to be ensnared in tendrils of rays and volutes. Often the figure is almost lost in the encroaching mass of repetitive secondary motifs. Fabric making also goes into convulsive complexities and the tangle of interpenetrating sets of threads coincides, perhaps echoes, the highly worked style of the images.

A number of south coast fabrics from near the beginning of the Middle Horizon have continued to defy technical analysis. One notable group is a series of bell-shaped tassels which are usually made in intertwined sprang (Fig. 70). The patterning of the tassels most often uses the double cloth principle of interpenetrating two layers of fabric of contrasting colours although one example of triple cloth (J. Bird, p.c. and 1963b, p. 58) and one example of quadruple cloth (d'Harcourt, 1962, Pl. 58) have been reported.

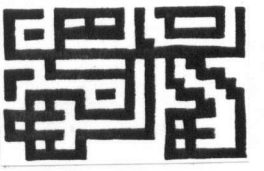
These extraordinary tassels have fascinated other writers and they have been published a number of times (Lehmann, 1924, Pl. 1; d'Harcourt, 1962, Pl. 57, 58; O'Neale and Kroeber, 1930, Pl. 21; Bird, 1963b, Pl. 10; Kanegafuchi, 1956, Vol. 1, No. 10 and Vol. 8, No. 76; Lothrop, Foshag and Mahler, 1957, Pl. CXLII; A. Rowe, 1973, No. 38, p. 4 and Collingwood, 1974, Pl. 43). However, accompanying information on structure has been incomplete as the denseness of the cloth has impeded analysis. The iconography has been and continues to be less than



A.



B



C

Fig. 70 Intertwined sprang tassel, Middle Horizon 1B
A. MM 1954 WCh. 5 599
B. Figure on warp cover
C. Figure on tassel body, repeated twelve times

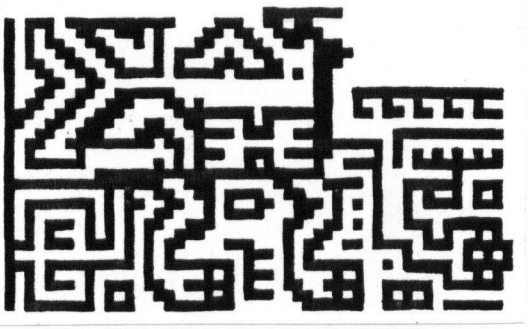
well understood. Even the use to which the tassels were put is a matter of conjecture.

My research adds to the existing information on technique and, in particular, provides an analysis of the structures of the intertwined sprang tassels. Also, by drawing together a large group of tassels which are technically homogenous, the record of the iconography of the style is enlarged. The more recent research of others on the style and iconography is applied, to some extent, to the sample for dating.

The association of the tassels with other artifacts or with a mummy has not been reported. Almost all the tassels located in museums appear to be the result of huaquero (grave looter) activity so that even provenience is rare. However, one tassel or fragment (Fig. 71) in the Field Museum comes from Kroeber's work at Cahuachi in 1925 and 1926. It is unclear whether this piece was surface gathered or whether it came from an excavation with or without associated pottery (Kroeber and O'Neale, 1930, p. 24). Kroeber and O'Neale assigned it to the Epigonal style. A letter to the Field Museum regarding specific associations has remained unanswered. The tassels in the Musée de l'Homme (d'Harcourt, 1962, Pl. 57, 58) are given a provenience of Nazca (p. 161) but no information on the source of the attribution is given. Although provenience information is scarce, none contradicts a south coast locale, which is supported by stylistic and iconographic affinities to textiles of secure provenience (O'Neale and Kroeber, 1930, Pl. 16, Trancas and Pl. 19, Cacatilla).

As no tassels are reported to have been found in situ, the manner in which they were worn is unclear. Identical and nearly identical pairs of tassels are in museum collections (Fig. 72). Some pairs are still joined by a long, thin strap (TM 1959.11.3 and MDH 34-145-2). Some single

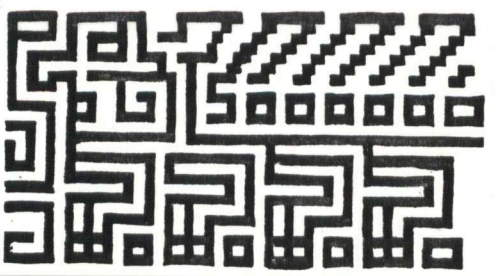
A



B

Fig. 71 Intertwined sprang tassel from Cahuachi
A. FM 171134; photo taken from O'Neale and Kroeber, 1930, Pl. 21.
B. Figure on tassel body, minus the head which is not shown in the photograph

A



B

Fig. 72 Pair of tassels
A. TM 91.537, photo courtesy of Alan R. Sawyer
B. Figure on the tassel body, repeated four and one half times

tassels have remnants of sewing thread that suggest they, too, were originally joined to a similar strap. The pairing and collocation of joined parts suggests that the sprang parts hung, tassel-like, from the long cord which may have been wrapped around the head or even the waist. Their construction and suspension makes it clear they were not used as containers as the opening falls downward, away from the suspension point. A rare, modelled scene from the south coast area in the latter part of the Early Intermediate Period shows in detail elaborate headdresses and simple clothes on Nasca style male and female figures (Tello, 1931, Fig. 1,3,4,5,6,). Although no parts of the headdresses shown correspond very closely to the tassels, the emphasis on the headdress suggests a stronger likelihood they were incorporated there rather than over the austerely simple tunics and loincloths that cloth the figures. The tassels have been called "neck coverings" by d'Harcourt (1962, p. 82). Although he didn't explain why, he obviously felt they were worn on the head and hanging down over the neck.

The style of the majority of the tassels has been identified as the Chakipampa B style (p.c. Lawrence Dawson). The Chakipampa B style is the local, secular style of the Ayacucho-Huari area (Highlands) in Epoch 1B of the Middle Horizon (Menzel, 1964, p. 68).

The Chakipampa style has a very distinctive appearance but its origins, extent and evolution, particularly in textiles, is incompletely understood. In describing the style for ceramics, Menzel says it draws on themes from the Nasca tradition, both Nasca 7 and 8, and related features of the Huarpa style (the Ayacucho highland style just prior to the Middle Horizon) as well as new influences from the Nasca 9 style (which is restricted to the coast during Epoch 1 of the Middle Horizon). She

also says there are innovating features present whose antecedents are not now known (1964, p. 10).

Although the tassels are believed to have come from the coast, their style is a highland one which has a coastal (Nasca) strain in it. The cultural activities that resulted in this situation, according to Menzel's interpretation, were ones of strong interaction between the coastal (Nasca) and the local highland (Huarpa) cultures during the late stages of the Early Intermediate Period. Even as Nasca's power waned in the Middle Horizon, the relations between Nasca and the highlands remained close, both areas influencing and being influenced by the other. This situation explains why Nasca 7, 8 and 9 themes are present in the Chakipampa B style and why the Chakipampa B style is found on coastal textiles and pottery in Middle Horizon 1B, c. 600 A.D. Menzel has compared Nasca to ancient Greece, in that Nasca seems to have enjoyed a privileged position in the new Middle Horizon empire, even after its own power dwindled (1964, p. 66-68).

The Chakipampa B style in textiles has been partially described by Ann Rowe (1979). Although no textiles of this style have been reported with ceramic associations, she has identified a number of fabrics of this style through iconographic comparisons to ceramics. She expanded the sample through technical comparisons of fabrics with identifiable iconography. She identified fabrics in various structures, including one of the tassels in this study, which bear a wide range of presently little understood iconography. Her work has provided a broad view of what the Chakipampa B style in textiles looks like, but she readily admits that secure relative dating of the fabrics awaits the discovery of ones with ceramic association (1979, p. 117).

Thirty-nine bell-shaped tassels (nine pairs in the group)[1] have been located in publications, museum collections and through correspondence with other researchers who generously added to the sample. The majority are made in intertwined sprang, but even those that are not are included in order to more completely discuss this distinctive type of adornment.

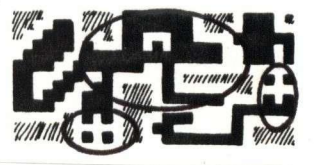
The sample has been divided into four categories on the basis of structural differences. When this division was made, it became clear that the categories were stylistically distinct as well. Part of the style difference might be attributed to the limitations imposed by the different structures. However, it seems likely that the differences in both structure and style are responses to cultural differences, either temporal or geographic.

Category 1

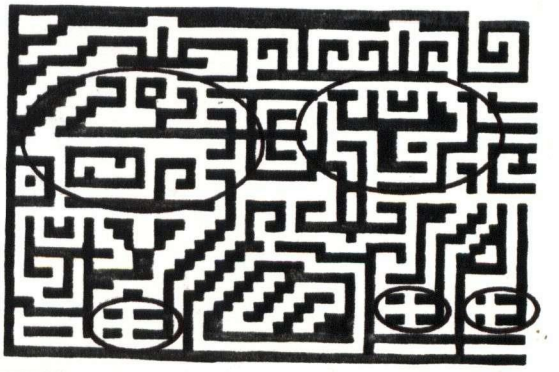
The largest group (21 out of 39), which might be considered the "standard" type, is put in the first category. The group is technically and stylistically quite homogenous although colour choice and specific iconography vary. Two layers of fabric made from contrasting sets of threads interpenetrate to produce figure against ground in an all-over, maze-like style of patterning (Fig. 73). The back side of the two interpenetrating layers has the same design with colours in reversed positions.

The technique is undoubtedly sprang because the central, unworked warps still join the two reflectively symmetrical pieces which are worked in a variant of the intertwined structure. The Ohara Museum has an unfinished tassel which shows the flat sprang warp (Fig. 74). The finished article is constructed by transverse folding across the unworked warps and seaming the side selvedges of the two pieces together. The warp

A



B



C

Fig. 73 Category 1 tassel
A. DO #509; photo taken from Lothrop, Foshag and Mahler, 1957, #345
B. Figure on warp cover
C. Double-headed figure with misplaced legs (faces and digits circled)

Fig. 74 Unfinished tassel illustrating the technique of sprang was used, OM P163 (photo Mr. Tanaka, courtesy of Nobuko Kajitani)

selvedges, although lying together, are unseamed. The unworked warps are generally covered with a veneer of cross-knit looping.

The structure of the tassels differs somewhat from the intertwined structure of the openwork fabrics described earlier. Not only are the tassels made of two interconnected layers of fabric (double cloth) but the actual intertwining also differs.

The basic structure has pairs of threads twining on both diagonals but each pair encloses one thread of two pairs on the opposite diagonal between twining twists. Fig. 75 shows the structure in a single layer of fabric. The principle of omitting twists between intersections of pairs is the same as in the variants of intertwined openworks (Figs. 63, 64, 65) but the precise placement of twists differs. Fig. 76 shows both layers, using two contrasting sets of threads. The top half of the diagram shows horizontal colour changes (A B A in the top layer and B A B in the bottom layer). The lower half of the diagram shows vertical colour changes (A B A in the top layer, B A B in the bottom layer, reading across the diagram from left to right). Only one structure of intertwining is used but the joins between vertical colour areas in the lower half of the diagram are very specific and have the appearance of an irregularity. Vertically adjacent colour areas are joined by linking one thread from each colour area at the boundary. In vertical colour areas, threads move diagonally only to the edge of the colour area before changing directions. The diagram is shown stretched out so that the structure and the joins in the bottom cloth can be seen. In actuality, only the threads of the top cloth are visible (Fig. 77). The simultaneous working of the two layers is shown in the replication photograph (Fig. 78). Vertically adjacent colour areas are being worked in the

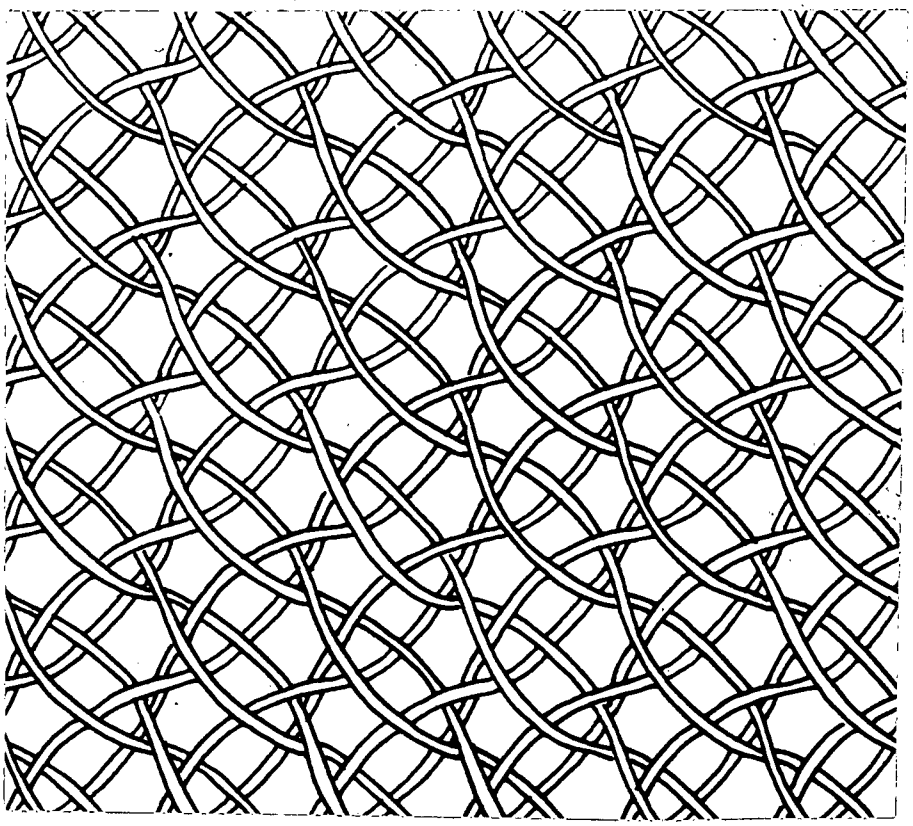


Fig. 75 Structure of Category 1 tassels: an intertwined variant where each pair encloses one thread of two pairs on the opposite diagonal

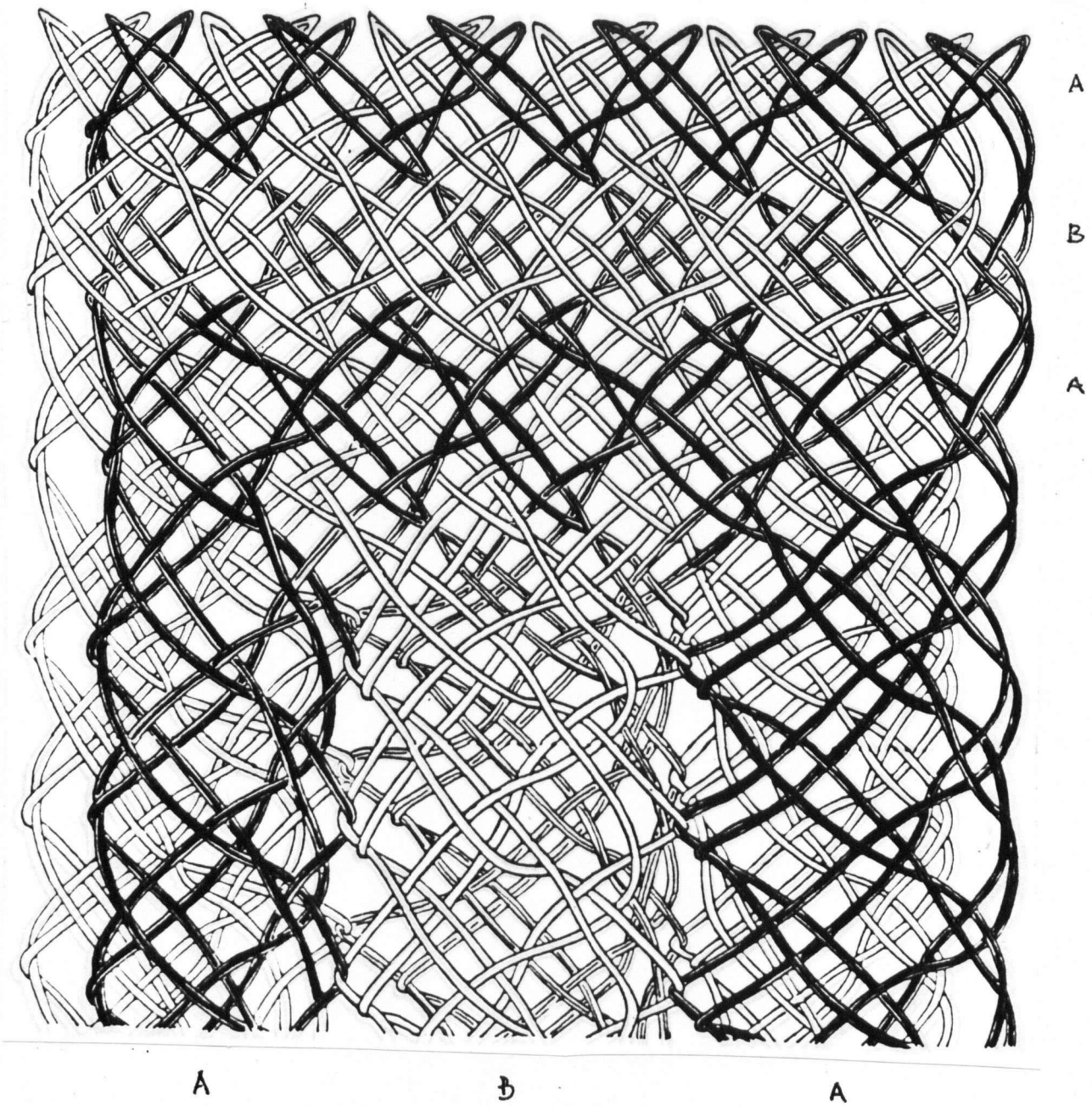
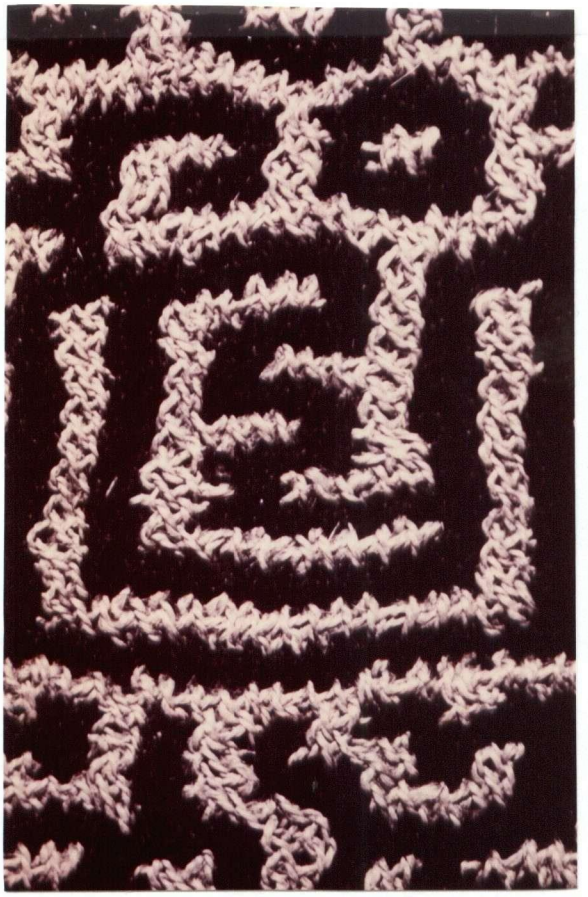
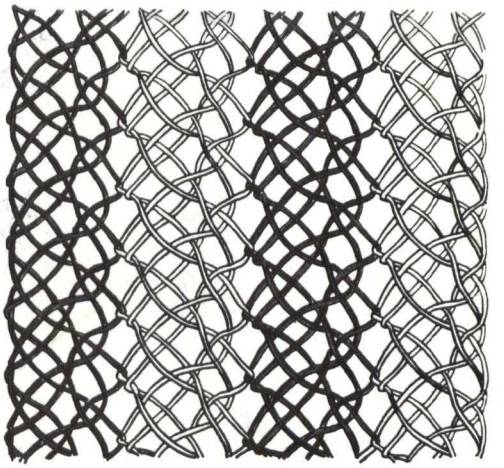


Fig. 76 Category 1 tassels: the structure in two, interpenetrating layers with vertical joins. The top half of the diagram shows horizontal colour change (A B A - set A is grey-black and set B is white). The lower half of the diagram shows vertical colour areas and the links that join them (A B A).



A



B

Fig. 77 Category 1 tassel detail: only the top layer is visible
A. MM 1914 7-31 51
B. Diagram of top layer only, showing threads in vertical colour areas

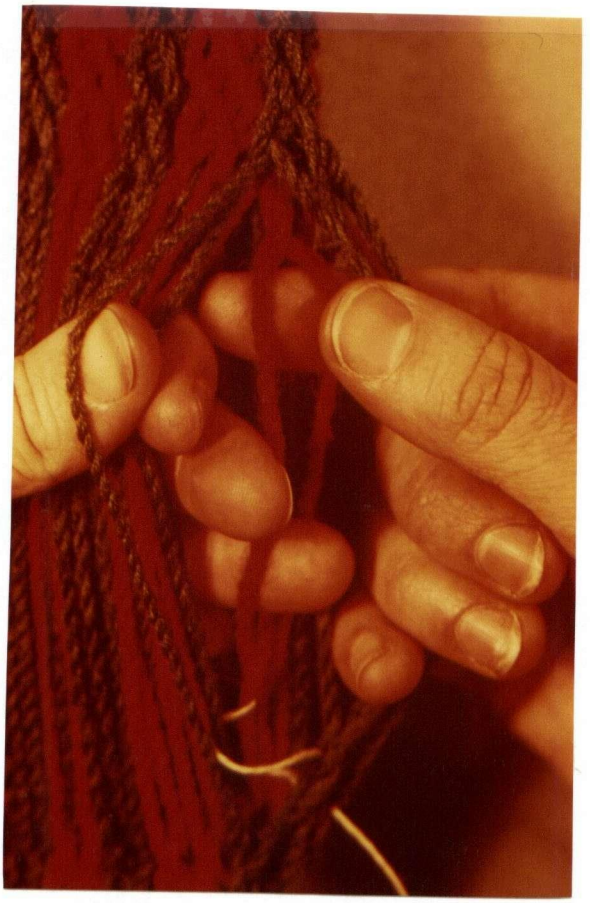


Fig. 78 Replicating the intertwined sprang structure on two interpenetrating layers that is used in the Category 1 tassels (photo taken by Alan R. Sawyer)

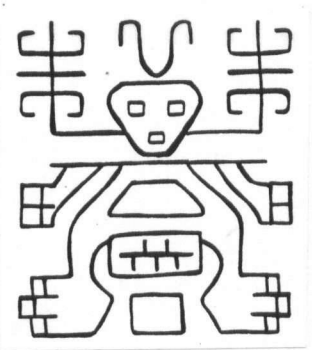
intertwined variety of Category 1 tassels. Because of the complexity of the structure and the huge number of threads used (over 750 in 0.18 M), every tassel is not worked in precisely this way throughout. Deviations or "errors" are fairly numerous although the basic structure, as diagrammed, is mostly adhered to.

Several subsidiary structures appear in the tassels of Category 1. The solid end borders are generally worked in two separate layers of interlacing. Single threads usually interlace obliquely, over two, under two, to form horizontal ribs (see Collingwood, 1974, p. 187-8 for the technique). The border near the top of the tassel is also usually interlaced in two separate layers, but using groups of threads, either four or eight, as a single unit. Two tassels in Category 1 have lower end borders in an openwork variation of intertwining, rather than the usual oblique interlacing (Kanegafuchi, 1956, Vol. 1, No. 10; BME IVC 345). As the main body of Category 2 tassels have this structure, it will be described in that section.

Most of the Category 1 tassels have cross-knit looping covering the unworked warps (AMNH 41.2/843a may have a woven top; FM 171134 does not show the top; Kanegafuchi, 1956, Vol. 1, No. 10 and OAG P163 have no covering). Designs in the cross-knit looping of all the others are worked by carrying along contrasting threads under the background looping and substituting them where required for colour change (Fig. 79).

A small range of colours is shared by eighteen of the twenty-one tassels (the colours of three tassels cannot be determined). The colours are yellow (including gold), green (including blue-green) and red (including pink and red-brown). Almost all two colour combinations are present: yellow on red (6), yellow on green (4), red on green (4)

A

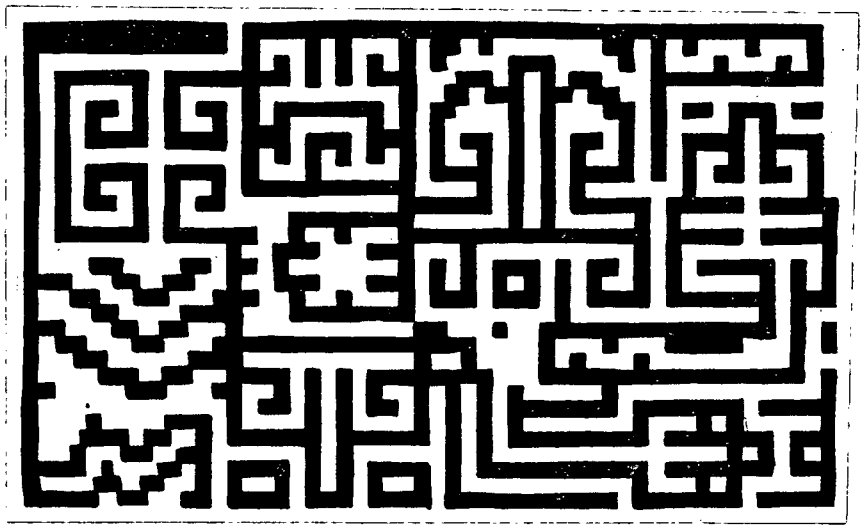


B

Fig. 79 Detail of cross-knit looped warp cover
A. MM 1954 W Ch. 5 599
B. Figure on warp cover

red on yellow (3) and green on yellow (1). Yellow is used frequently but no colour combination dominates. The yellow on red group is more numerous only because it contains two pairs. The fairly extensive use of green is noteworthy. Nasca textiles from the middle of the Early Intermediate Period and from the beginning of the Middle Horizon, about which Ann Rowe writes, tend to use the three primary colours with black outlines. Green is usually confined to accent areas (1979, p. 117). The consistent factor in Category 1 tassels is the use of two colours - one colour appears as figure and the other appears as ground. There does not seem to be any correlation between the colour combination and the iconography.

The limitation of one figure and one ground colour influences the maze-like style in Category 1 tassels. Chakipampa B style textiles in other techniques, where more colours can be introduced without incredible difficulty, generally have more discrete figures which are heavily outlined and set against a background of a different colour (H.U. Doering, 1967, 183 and O'Neale and Kroeber, 1930, Pl. 16). Ann Rowe has noted a tendency of some Chakipampa B designs to fit rectangular spaces very tightly, to the extent that the outlining becomes synonomous with the background space (1979, p. 117-8). This is carried to the extreme in Category 1 tassels with the skeletal lines of the figure sketched in one colour and surrounded by equal size lines of the other colour. All space is filled by linearly described motifs, outlined by the other colour (Fig. 80A). Locating the face and forearm is the first step to distinguishing the figure in this difficult style (Fig. 80B). The digits on hands and sometimes on feet are terminated in small squares. Eliminating background motifs and the halo of rays and volutes that surround the figure also makes them more readable. The figure still can remain elusive



A

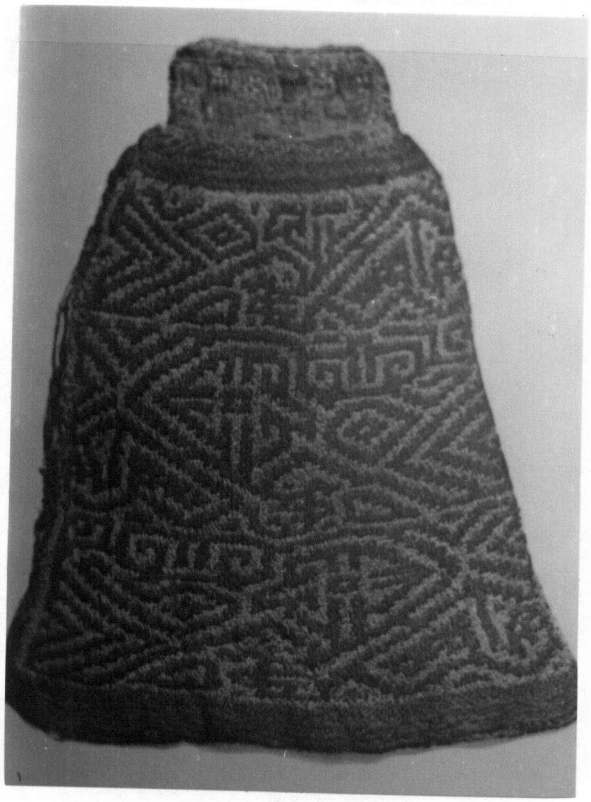
B

Fig. 80 Maze-like style of patterning in Category 1 tassels
A. drawn from TM 91.536
B. simplification of figure in A

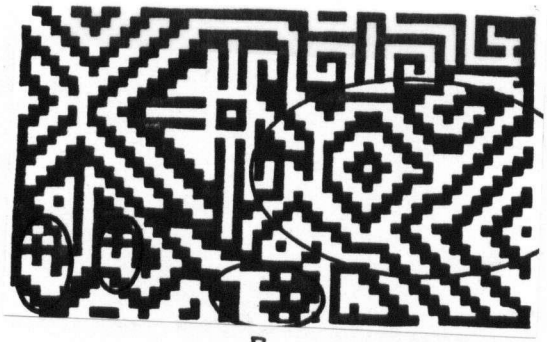
because body parts are sometimes not shown in realistic relationships.

The maze-like style is further influenced by the complex structure. An analysis of the structure shows that, although threads move on oblique paths, colour changes are structural along horizontal and vertical lines (Fig. 76). Diagonal and curved areas are made by combining the movements for horizontal and vertical colour changes. A standard modular size for colour areas is adhered to generally. A horizontal colour area is usually two rows wide and a vertical colour area is generally two interworkings wide (eight threads of each colour). Diagonal lines have serrated edges as they are made up of modular blocks (Fig. 81). Because the lines that make up the figure and the background are structurally limited to the same size, the over-all effect is vibratory. This adds to the difficulty in seeing the figure.

The style of the looped warp covers is closer to the Chakipampa B style of textiles in other techniques, like tapestry (O'Neale and Kroeber, 1930, Pl. 16), discontinuous warp and weft (H.U. Doering, 1967, 183) and the "tapestry medallion" textiles (A. Rowe, 1979). Outlining is somewhat reduced in scale and, although the figures tend towards filling a rectangular space quite closely, the figure and background space are in different colours (Fig. 82). More colours, usually three to six, are used. The predominant background colours, where they can be determined, are red or red-brown (7), green-blue (3) or yellow (3). The only correlation to the colours on the tassel bodies is that all the yellow on green tassels and some of the yellow on red tassels have a red background in the looped area. From this sample, a favoured but by no means standard combination would be a yellow on green tassel body with a predominantly red looped top (Fig. 83).

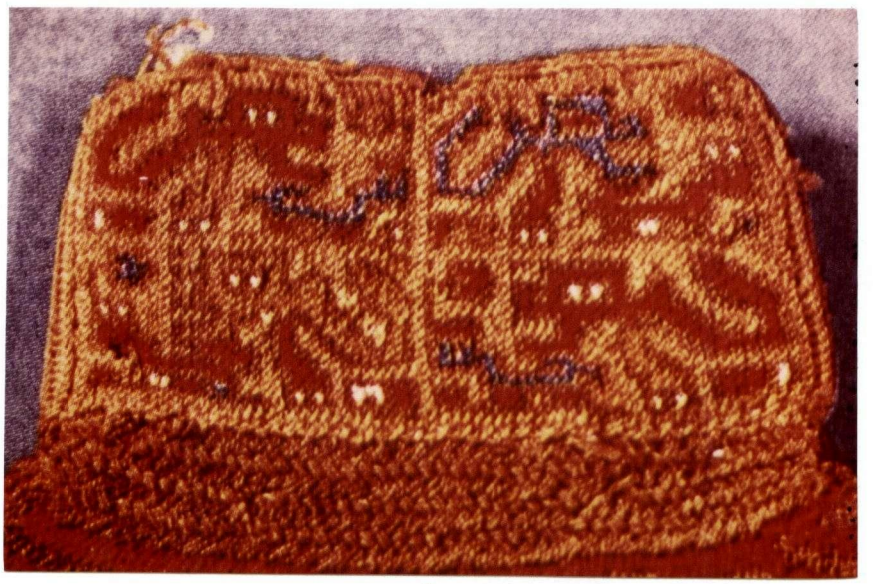


A



B

Fig. 81 Category 1 tassel with diagonal lines built up of rectilinear modules
A. FI 13024 (photo taken from d'Harcourt, 1962, Pl. 57)
B. Figure on tassel body - face and digits circled

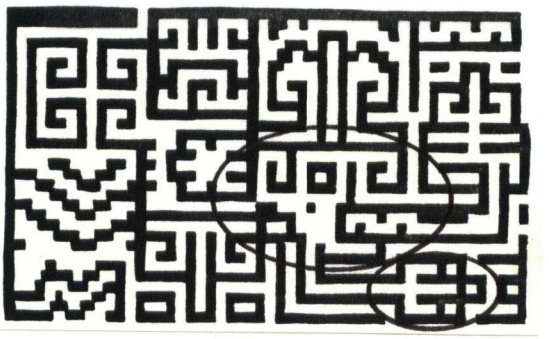


A

B

Fig. 82 Tassel warp cover with more clearly differentiated figure
A. DO B-509 (photo from Lothrop, Foshag and Mahler, 1957, #345
B. Figure on warp cover - head and digits circled

A



B

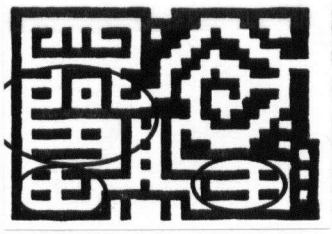
Fig. 83 A favoured colour combination in Category 1 tassels - yellow and green tassel body with a predominantly red warp cover
A. TM 91.536 (photo by J. Bird, courtesy of Alan R. Sawyer)
B. Figure on tassel body - head and digits circled

Two aspects of the Category 1 tassel style, repetition and viewpoint, correlate quite closely. Most tassels show figures from profile viewpoints and all profile creatures repeat in horizontal rows. They may be repeated one to six times and partial repeats, truncated due to lack of space, are not uncommon. Some tassels are divided into two vertical registers as well as a number of horizontal rows. Often, though not always, profile figures face in opposite directions in alternate rows (Fig. 84). Other profile figures appear on the tassels in Figs. 70-73 and 81-83.

One tassel figure that repeats in horizontal rows has a profile head but a dorsal view of the body (Fig. 85A). The combination of these two viewpoints is not uncommon in other Chakipampa B style textiles, although it is not found in the Nasca style of the Early Intermediate Period (Fig. 85B).

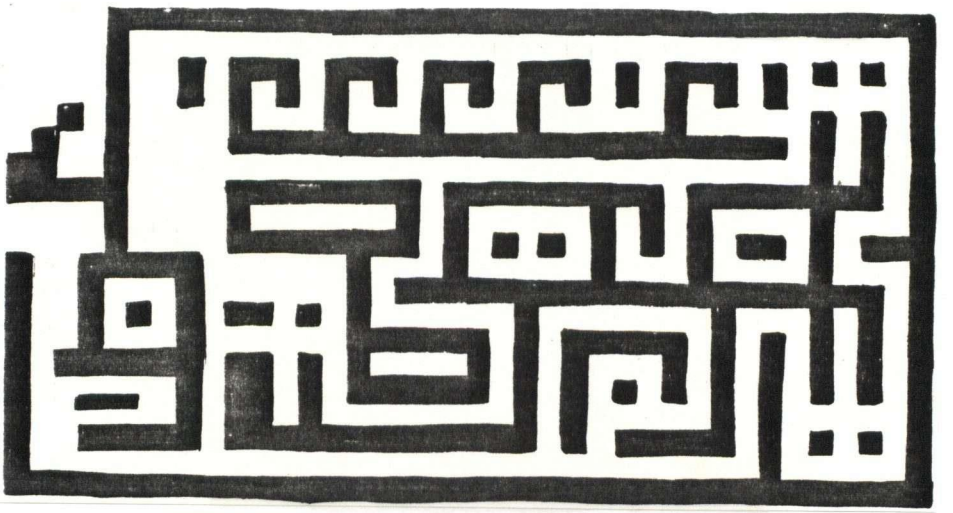
A single, central image appears on a few of the tassels but it may be rendered from one of several viewpoints. Fig. 86 shows a creature from the dorsal point of view, with appendages extended and head thrown upwards. This positioning is also used for the "stinger animal", one of the few motifs specifically identified as Chakipampa B (see O'Neale and Kroeber, 1930, Pl. 16 for such a stinger animal, A. Rowe, 1979, p. 117). Fig. 86 is not necessarily a stinger animal as it lacks the triangular tail. Some single, central images are presented from a frontal viewpoint (Fig. 87). Two other tassels (Fig. 74 and AMNH 41.2/843a) are similar to Fig. 87 and seem to be primarily a face, elaborated with face and head ornaments. Only one frontal view figure in the sample is repeated (CAI 1955.1795 in Lehmann, 1924, Pl. 1). Apart from this one exception, profile viewpoints are used for figures that are repeated and frontal or dorsal viewpoints are used for single images.

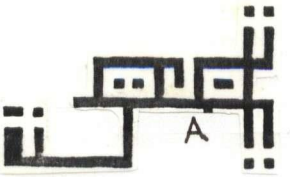
A



B

Fig. 84 Profile figures are repeated figures in Category 1 tassels
A. MM, Pentland Collection, no number
B. Figure on tassel body - head and digits circled

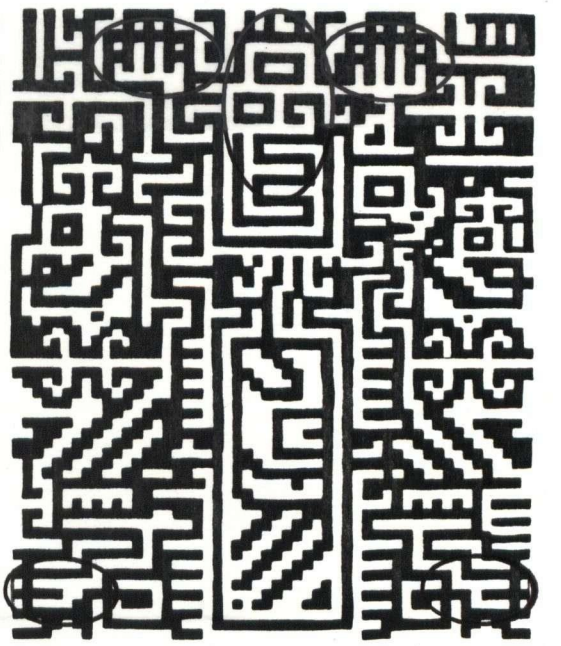




B

Fig. 85 A repeating figure with a profile head and a dorsal view of the body
A. Drawn from a Category 1 tassel, BME IVC 345
B. Figure presented from the same dual viewpoint on a contemporaneous interlocking warp textile, LM 8538a (photo courtesy of Alan R. Sawyer)

A

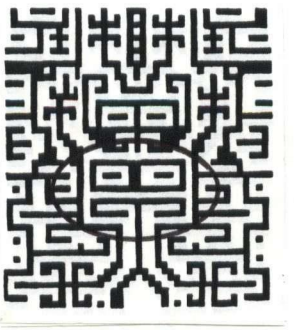


B

C

Fig. 86 Single, central image shown from a dorsal viewpoint
A. MM 1914 7.31.51
B. Drawn out figure - head and digits circled
C. Simplified version of the same figure
(flanking figures, top and bottom, are profile)

A



B

Fig. 87 Single image shown from a frontal viewpoint
A. photo taken from Kanegafuchi, 1956, Vol. 1, #10
B. Drawing of face with elaborate ornaments and attachments - face is circled

Two tassels have scrambled images in the central areas coupled with repeating images. The scrambled figures have missing and misplaced body parts and are shown from several viewpoints simultaneously (CAI 1955 1793 and 1794). This practice is common in Chakipampa B style textiles and many of the images are, at present, virtually indescipherable (see Fig. 1, A. Rowe, 1979, and Fig. 3, Conklin, 1970). The scrambling of figures may derive from Nasca style precedents as Roark reports the scrambling of anatomical details in Nasca 5 ceramics (1965, p. 26).

All the viewpoints from which figures are depicted in the tassels - profile, frontal, dorsal, combined profile and dorsal, and multiple - are present in Chakipampa B style textiles of other techniques identified by Ann Rowe (1979). Except for the combined profile head and dorsal body viewpoint, they are also present in Nasca 5 and 6 ceramics (Roark, 1965). The combined profile head and dorsal body viewpoint may be a specifically highland contribution to the Chakipampa B style.

The consistent correlation of profile figures with repetitions possibly reflects a convention of this and other art styles for representing sub-major or secondary figures. The "angels" on the Gateway of the Sun at Tiahuanaco are shown in profile, are repeated in registers and flank the central, frontal and obviously more important "split-eye god". Four of the five tassels with symmetrical figures (frontal or dorsal viewpoint) are single and central figures on the field, perhaps indicating these figures are relatively more important.

Another stylistic feature that may distinguish between major and sub-major themes in the Category 1 tassels is the use of space filling motifs. Most are angular ray and volute forms and appear on heads, tails, appended to bodies, emanating from mouths and generally filling any

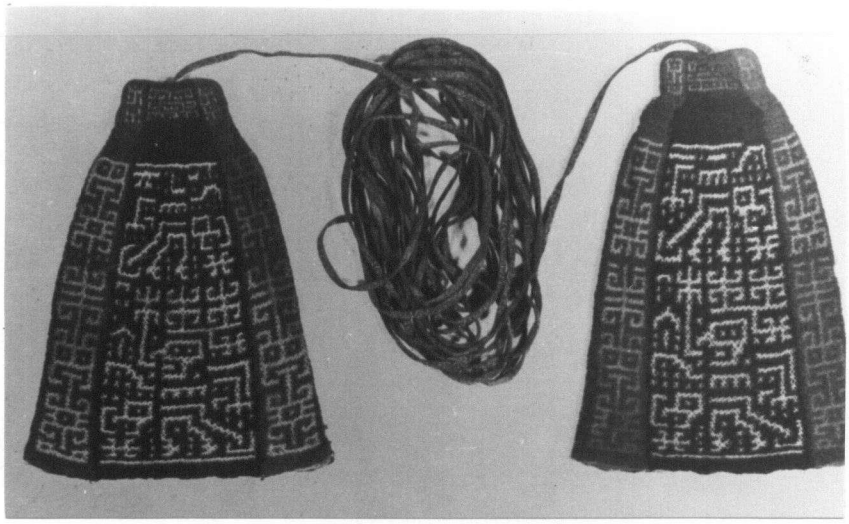
exterior or interior space. Disembodied heads are less frequently used in a similar way. In general, solitary figures have the greatest number of these (Fig. 74, 86 and 87). Scrambled figures also have a great number. Repeated, profile figures usually have a reduced number of these additions. Several profile figures which are repeated many times on one tassel have no space filling motifs (Fig. 70 and 84). The copious use of rays and volutes occurs in the Nasca style, especially Nasca 6 when major themes were treated in the proliferous style (Roark, 1965, p. 59).

Technically and stylistically, the tassels of Category 1 show some continuities with the earlier Nasca tradition. The structure of intertwining in the technique of sprang is, so far, only known from the Paracas-Nasca fabrics of the south coast. Certain stylistic trends from middle Nasca, like outlining, reducing background space and proliferating ray and volute motifs, can be seen as precursors to the style of Category 1 tassels. Other aspects of style, like the particular combined profile and dorsal viewpoint and the extensive use of the colour green, do not seem to have their origins in the Nasca style. Like much of the iconography, they may be specific Highland contributions to the style of the Category 1 tassels.

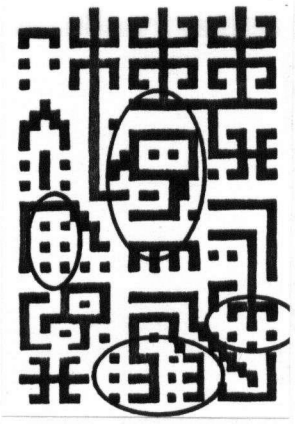
Category 1B

Two pairs of tassels share most of the features of Category 1 tassels but, because they are slightly elaborated, they have been placed in a sub-category of 1. They have the same intertwined sprang structure (Fig. 76) and the same linear style of patterning. However, both pairs incorporate four colours into the body of the tassels.

The well-preserved pair of tassels with a cord joining them (Fig. 88) has a central panel of white on blue flanked by narrower vertical panels



A



B

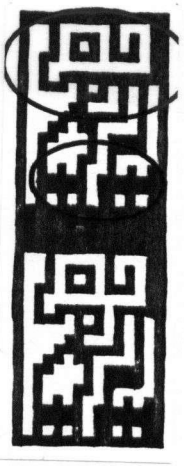
Fig. 88 Pair of Category 1B tassels with four colours
A. TM 1959.11.3, photo taken from Collingwood, 1974, Fig. 43
B. Drawing of standing, profile figure in the central panel - head and digits circled

of yellow on red (Collingwood, 1974, caption to Fig. 43). The greater number of colours used in this pair is the simple result of warping the two outer sections in yellow and red and the inner section in blue and white. Aside from this elaboration in warping, the main and subsidiary structures appear, from a study of the photograph, to be identical to those of Category 1.

The other pair introduces four colours into the tassel body in a way that staggers a fabric analyst. Four complete sets of warps in contrasting colours are superimposed and all sets are consistently interworked in the same structure as the tassels of Category 1 (Fig. 76). Two sets at a time are worked in double cloth, then the two double cloths completely change positions, moving to the opposite face. The blue and green sets of threads that make up one double cloth remain together throughout as do the yellow and red sets of the other cloth. At two points, the two double cloths exchange positions, producing the horizontal colour change from green on blue to yellow on red and back to green on blue (Fig. 89). It is suggested that after one pattern repeat on the upper two sets is worked, the loom can be flipped, bringing the other two sets onto the upper surface in a convenient position for working. Exchanging the position of the two double cloths remains a tedious, thread by thread undertaking. In experimenting with the technique, I have become convinced that the other obvious alternative of working all four sets simultaneously from the same shed is beyond human capability... at least mine.

This extraordinary pair of tassels is smaller than most (L. 8 1/2" x W. 5", d'Harcourt, 1962, p. 161) and they are constructed differently. Each tassel is made from half of the sprang warp and the cut ends of the

A



B

Fig. 89 Pair of Category 1B tassels with four colours - quadruple layer intertwined sprang
A. MDH 34-145-2, photo taken from d'Harcourt, 1962, Pl. 58
B. Drawing of figure, rotated ninety degrees to upright position - head and digits circled

centrally separated warp are concealed under a woven, rather than looped, warp cover. A hook design in bifold rotational symmetry is embroidered on the cover.

The introduction of more colours into the Category 1B tassels divides the field, boldly and simply, into areas. The initial effect of these two pairs is different from the two colour tassels where the whole field is uniformly vibratory. The figures are a little easier to read because of the division of space. Within each two colour area of the Category 1B tassels, the linear patterning still resembles that of Category 1 tassels.

Category 2

Category 2 is a small group of five tassels (one pair in the group). Like Category 1, they are made in intertwined sprang but it is an openwork variety of intertwining. They have a very different appearance to Category 1 tassels as they use large scale colour contrasts and simple motifs.

It seems possible that this small group of aberrant tassels may be prototypical versions of the more standardized tassels of Category 1. The openwork structure and the simplicity of the motifs appear to be more closely connected with the openwork fabrics (Fig. 64, 65) discussed in the last chapter. This can only be a conjecture because of the lack of associations for both groups of fabrics.

I have only examined one of these tassels (Fig. 90) as the others are in Japanese museums. Nobuko Kajitani kindly supplied the slides and the identification of the sprang technique for the examples in Japan. The structure of the Fig. 90 tassel is a specific kind of intertwining that combines twisted pairs (to create the open areas) and intertwining

A

B

Fig. 90 Category 2 tassel - two interpenetrating layers of openwork intertwining
A. MAI #14/2845
B. Branching hook design

pairs enclosing one thread of one pair and one thread of each of two pairs (to create the denser diamonds). The basic structure in a single layer of fabric is shown in Fig. 91. The colour contrast is produced by interpenetrating two layers of fabric (double cloth). The diagram in Fig. 92 shows the threads of both layers and how they interpenetrate to produce the design. It can be seen that colour changes take place along diagonal lines and that groups of threads (four on each diagonal) move from top to bottom layer together. The branching hook design is composed totally of diagonals in accordance with the restraints of this structure. There are no vertical joins because there are no vertical colour areas. This tassel uses four colours in a striped warp arrangement, as the Category 1B tassel in Fig. 88 does.

The tassel in Fig. 93 appears to have the same structure although the photograph is not quite detailed enough for certain identification. The design is a series of hooks joined in a horizontal line. The background area is identical and interlocking. The colour change takes place along oblique lines as groups of threads in the openwork structure change positions from top layer to bottom layer.

A pair of tassels from Kanebo, Osaka has a pattern of simple horizontal lines (Fig. 94). The tassels appear to be larger than most and there is a well preserved strap connecting the two. An image of a trophy head with hair streaming backwards is repeated along most of its length. The pair of tassels is probably at least partially made in the intertwined variant of Fig. 92 as the striations in the lighter colour suggest it is openwork.

The final example (Fig. 95) is aberrant in many ways but it is closest to the small group of Category 2 tassels. It appears, from its sheerness,

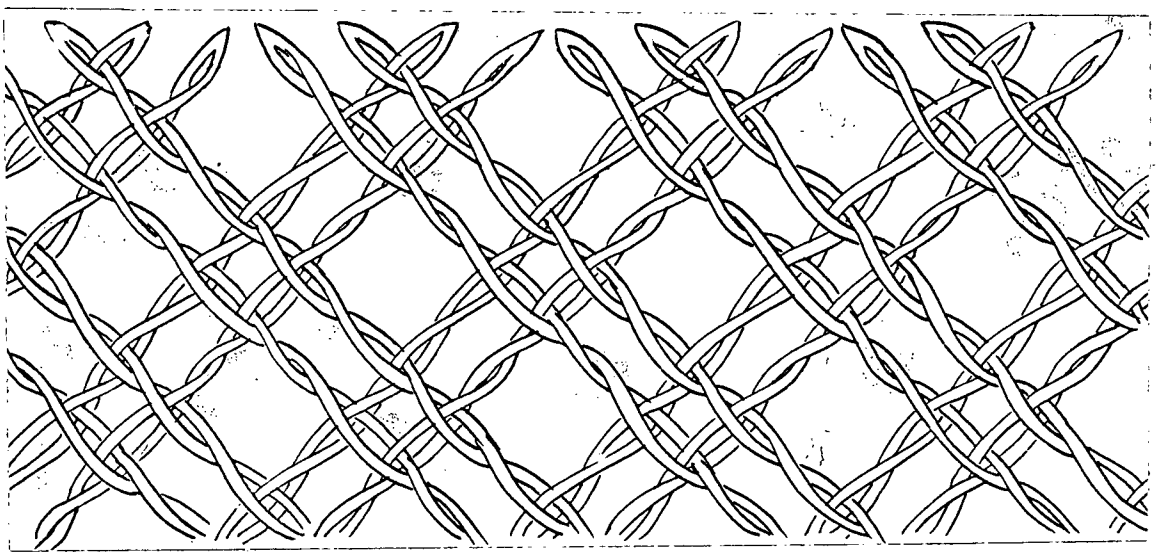


Fig. 91 Intertwined structure of the Category 2 tassel in Fig. 90, shown in a single layer of fabric

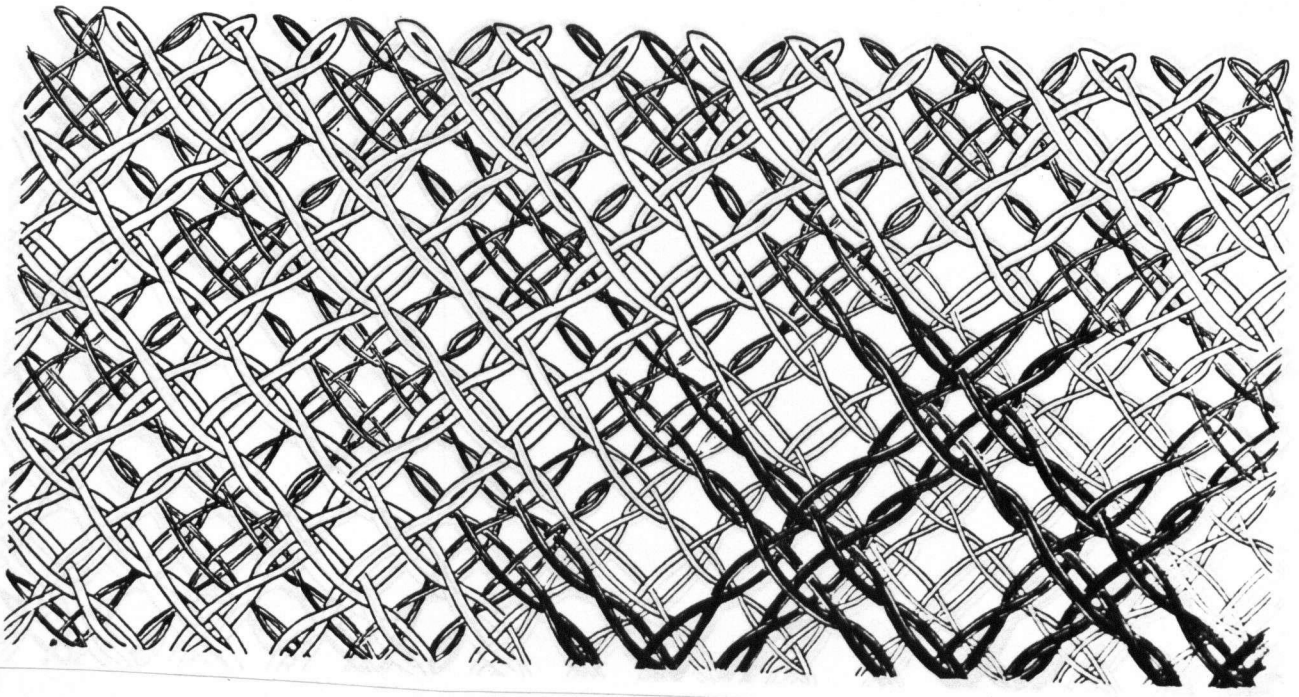
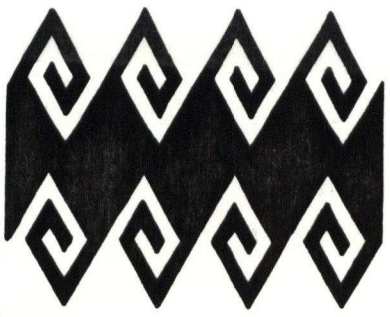


Fig. 92 Intertwined structure of the Category 2 tassel in Fig. 90, showing the two interpenetrating layers of fabric

A



B

Fig. 93 Category 2 tassel - openwork intertwining in two interpenetrating layers
A. OAG C16, photo by Mr. Tanaka, courtesy of Nobuko Kajitani
B. Design of hooks

Fig. 94 Pair of Category 2 tassels with horizontal stripes, Kanebo, Osaka, No number (photo courtesy of Nobuko Kajitani)

Fig. 95 An aberrant tassel with embroidered designs, grouped with Category 2 tassels, OAG K13 (photo courtesy of Nobuko Kajitani)

to be an openwork variety of intertwining but it may be only one layer. The bold figure of an eyed creature with three spirals for a body is repeated twice on each side of the tassel. Uniquely, the design is embroidered on the surface, rather than structurally made.

Generally, Category 2 tassels have large scale designs, like hooks, spirals and bands produced in an openwork variety of intertwining in double cloth. The structure is less complex than Category 1 tassel structures because no vertical joins are needed for the simple designs that follow oblique or horizontal lines. This technical aspect relates them more closely to the openwork mantles of the previous chapter. The colour range is similar to that of Category 1 but the warp covers are unusual. Only one uses cross-knit looping (Fig. 93). One is woven (Fig. 90) and the pair from Osaka appears to have braided warp covers (Fig. 94). The aberrant example appears to be fragmentary in this area (Fig. 95). The shapes and proportions also vary from the homogenous group in Category 1 and from each other. Although the technical variety might be explained by differences in locale, they could also be earlier versions than the more standardized tassels in Category 1.

Category 3

The third category of tassels is a small and highly homogenous group of four. Although no two are so identical that they could be considered a pair, they are amazingly alike. Red and yellow are the predominant colours (Fig. 96). Space is divided by jagged horizontal bands in contrasting structures which are equal and interlock. The tassels are made of two interpenetrating layers of fabric. One layer is warp-patterned weaving with substitution. The other layer is a combination

Fig. 96 Category 3 tassel - two interpenetrating layers of weaving and oblique twining and interlacing
A. MM 1931.11.23.13
B. Bird (?) design on woven warp cover
C. Frontal human (?) figure repeated on the woven fabric
(arrows indicate strip of oblique interlacing below the warp cover)

of oblique twining and interlacing. This particular structure is diagrammed in Fig. 97. Unlike most Category 1 and 2 tassels, they have a thickness of only one double cloth layer.

Although the structure can be analyzed, the technique remains a mystery at this point. It is barely possible that the oblique twining and interlacing was done in sprang. This assumes that each tassel is one-half of the original warp which was cut apart through the central, unworked warps. The other possibilities for making the obliquely twined/interlaced fabric are free-end braiding and looped-end braiding. Combining any of these techniques with warp-patterned weaving in double cloth has its difficulties but perhaps free-end braiding has the fewest impediments as warp take-up does not need to be calculated closely.

Several technical features are mildly suggestive that it was the sprang technique that was combined with weaving in making these tassels. At the lower end of the tassel, both sets of warps have heading wefts (Fig. 98). This is the standard way of preparing a continuously wound warp for weaving or sprang and it suggests there might have been a similar treatment at the other end of the warp. If this was the case, then all the warps were fixed and sprang was the technique of the obliquely twined/interlaced fabric. More tension control is possible on fixed end warps and these tassels are uniformly and evenly worked, suggesting they were worked under tension. Lastly, the area just below the warp covers on the woven fabric is obliquely interlaced, using groups of threads (see arrows, Fig. 96). Tassels in other categories also have a strip of oblique interlacing on grouped threads in this area.

A minor, but possibly significant, detail concerning this interlaced strip was pointed out by Noémi Speiser. In the Category 3 tassels that

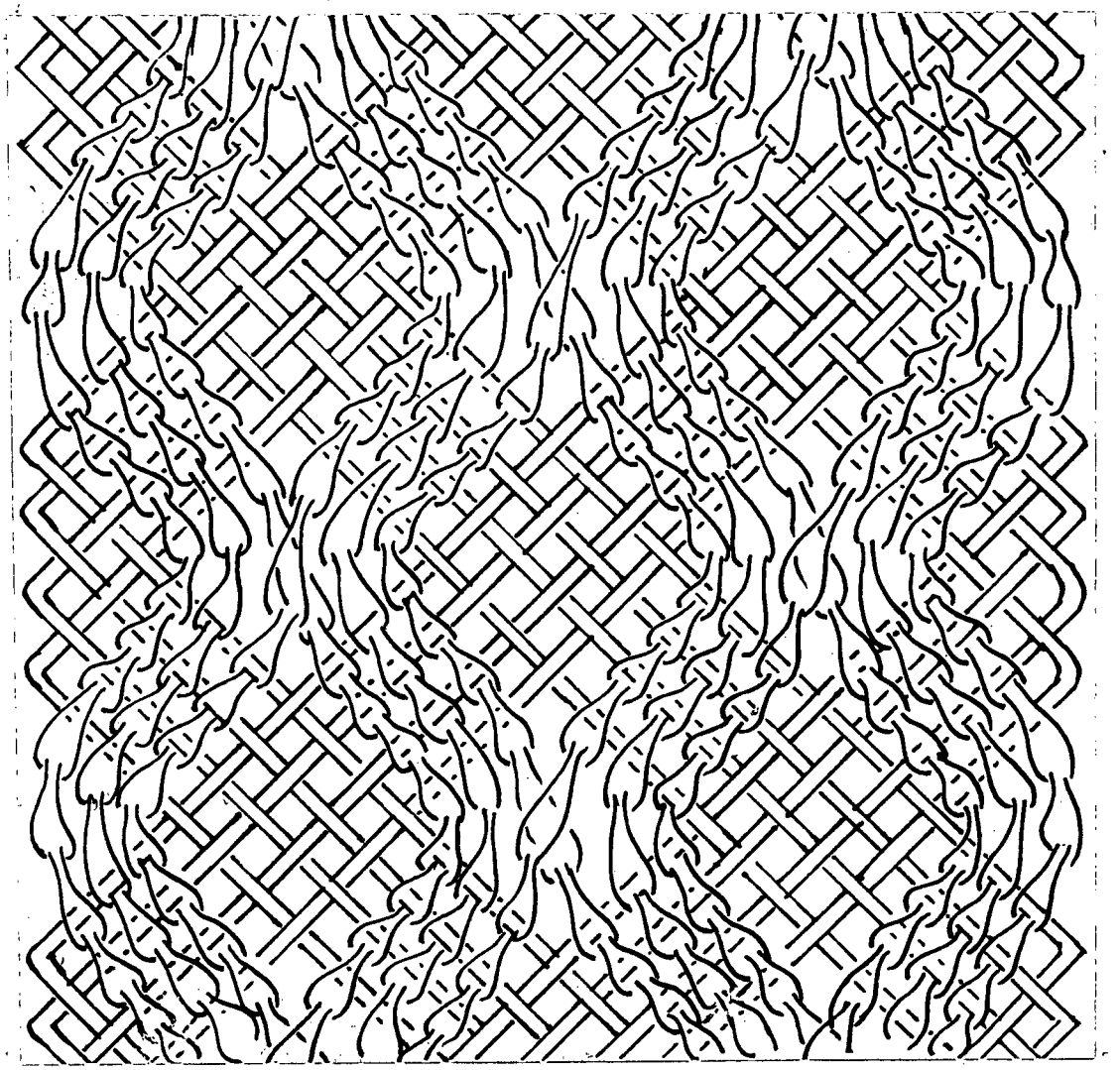


Fig. 97 Diagram of the obliquely twined and interlaced structure used in Category 3 tassels (interlacing threads are paired)

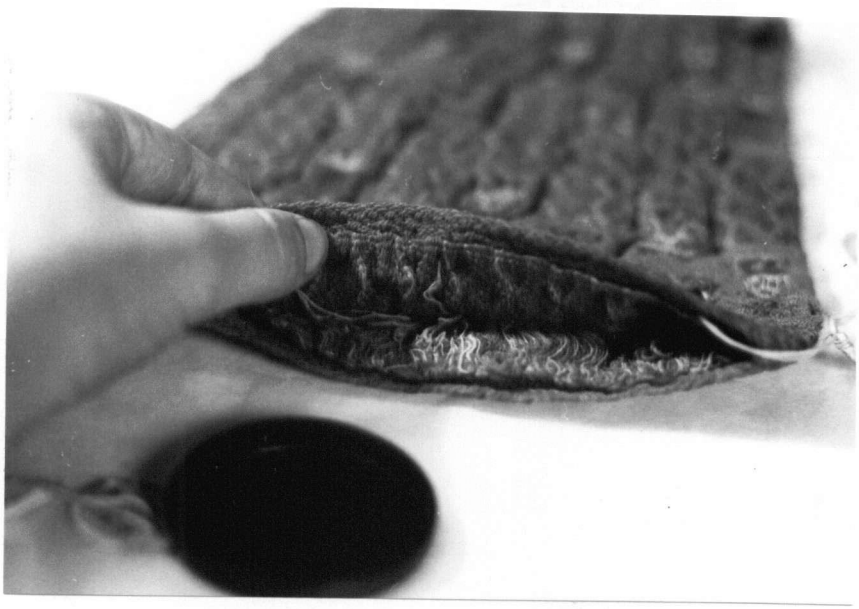


Fig. 98 Inside a Category 3 tassel: the warps of both layers of fabric are mounted on heading cords (MM 1931.11.23.15)

have interlacing below the warp covers, the ribs, or lines of floats, are vertical. In all the other tassels with this feature, the ribs are horizontal. Noémi Speiser suggests that the vertical ribs are more easily produced in a non-sprang method. It might be possible that the obliquely twined/interlaced fabric was made on stretched but not fixed warp ends, using a technique that resembles the one used for the ties on the wrap-around skirts (Fig. 54). There is still the unresolved problem of how this technique could be synchronized with the woven fabric.

In Category 3 tassels, the space is divided simply using the contrast in colour and structure of large scale, horizontal motifs that interlock. The fabric is highly patterned within these simple divisions. The twined/interlaced fabric has a structural design of concentric diamonds which are off-set in successive rows. The woven fabric uses the substitution of contrasting warps for the designs. Frontal, human (?) figures wearing headdresses appear on two tassels (Fig. 96 and MM 1931.11.23.15). Profile birds appear on the other two tassels (Fig. 99 and MM 1931.11.23.14). The woven structure allows more figurative detail and more varied colour use than the intertwined sprang of Category 1 and 2 tassels. Usually, five colours are used in the woven fabric and three in the twined/interlaced one. The favoured colours are red and yellow (several shades of each) with accents of blue and white. A yellowish green is occasionally used.

There are two styles of warp covers in the Category 3 group. Two have cross-knit looped covers with exactly the same design (Fig. 99 and 100). Two others have supplementary weft-patterned covers (Fig. 96 and 101) which also have the same design of a bird-like creature with

A

B

C

Fig. 99 Category 3 tassel
A. DO B510, photo taken from Lothrop, Foshag and Mahler, 1957, #346
B. Figure on tassel cover
C. Figure of bird repeated on woven section, rotated ninety degrees
(heads circled)

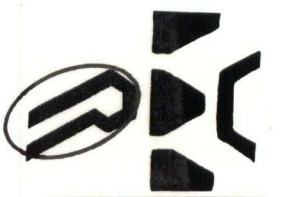
A

B

C

Fig. 100 Category 3 tassel
A. MM 1931.11.23.15
B. Figure on warp cover
C. Frontal human (?) repeated on woven section (heads circled)

A



B

C

Fig. 101 Category 3 tassel - warp cover is woven with supplementary warp patterning
A. MM 1931.11.23.14
B. Bird (?) figure on warp cover
C. Figure of bird repeated on woven sections, rotated ninety degrees
(heads circled)

a profile head and a dorsal viewpoint of the body.

Category 3 tassels relate to the previous groups in shape and some details of finishing. They deviate most strongly in using a woven structure for one of the layers of the double cloth. The structural and stylistic similarity within this small group of tassels is so great that it is tempting to think that they were made by the same workshop. Although none of them are identical, they all share iconography with at least one other tassel.

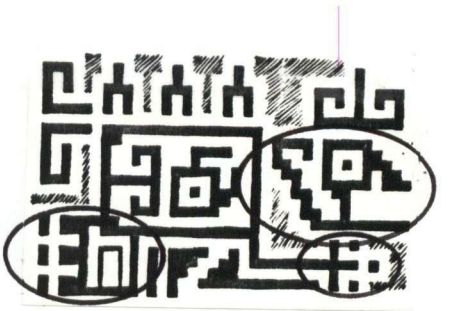
Category 4

There are five tassels (two pairs) in Category 4. They are made of two interpenetrating layers of woven fabric. They do not use the technique of sprang at all, except perhaps for a small section of oblique interlacing just below the warp cover (Fig. 102, see arrows). Like Category 3 tassels, these are only one thickness of double cloth.

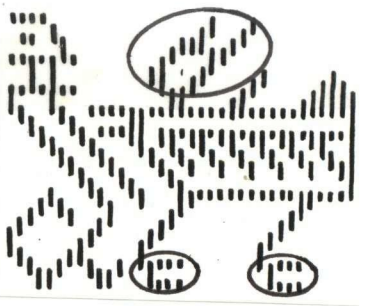
The presence of two identical pairs in the group suggests that two tassels were made on one warp which was cut apart in the middle. There is no real problem to weaving two tassels on the same warp. Andean weaving traditionally uses a continuously wound warp to produce four selvedge fabric. The area of terminal weaving is generally set away from the warp selvedges, indicating that some weaving was done from both ends of the warp. In the case of the Category 4 fabrics, a complete tassel could have been woven at each end of the warp. When the tassels were complete, a small area of oblique interlaced sprang could have been done on the remaining central warps, producing the structure that is visible just below the looped warp covers.

The design organization is quite standard within the group. The major spatial divisions are vertical. Two types of patterning alternate

A



B



C

Fig. 102 Category 4 tassel made of two interpenetrating layers of woven fabric
A. CAI 1955 1791 B, photo Chicago Art Institute
B. Figure on warp cover
C. Woven figure repeated in three registers (head and digits circled)

in five registers. Although the major spatial divisions are bold, each area is re-divided with small scale patterning (Fig. 103). This approach to design is shared with the Category 3 tassels.

The colours are rich and varied with strong contrast between major motifs. The range of colours is reds, yellows, blue and white. Similar colours are used on the warp covers.

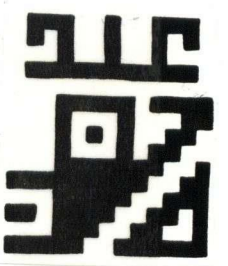
All the warp covers are constructed in cross-knit looping. Their designs vary from profile heads, repeated eight times (Fig. 103), to familiar Chakipampa B style creatures who are repeated four times (Fig. 102) to a single and singular creature (Fig. 104). Most tassels in all categories have looped warp covers and these vary only in being slightly larger and more elaborate iconographically.

In summary, Category 4 tassels share an over-all shape, the double cloth construction and the looped warp cover with tassels of other categories. In structure and technique, they vary widely from the intertwined sprang of Category 1 and 2. They relate most closely to the Category 3 tassels which are partially woven. The design organization and colour range are also closer to Category 3.

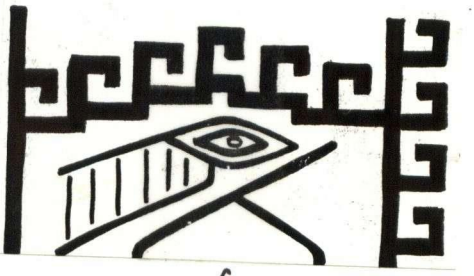
Iconography

The iconography of the Chakipampa B style has not been fully described. Dorothy Menzel does identify several of the more distenct figures found on ceramics in the article "Style and Time in the Middle Horizon" (1964). These figures - the "Ayacucho serpent", the "humped animal" and the "stinger animal" (p. 11-15) - may be among the figures on the tassels but the scant, often partial illustrations on sherds in her references do not provide definitive sets of characteristics for

A



B

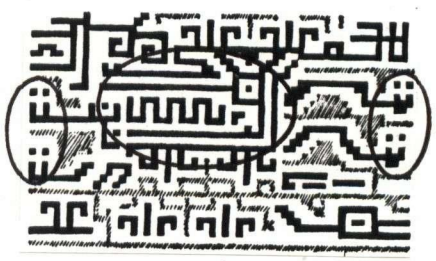


C

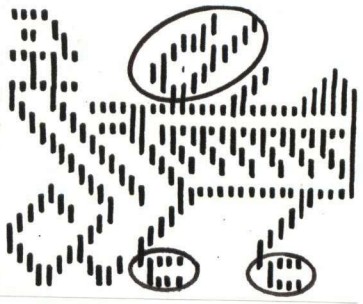
D

Fig. 103 Category 4 tassel
A. AMNH 41.2/5347
B. Head on warp cover, repeated eight times
C. Woven figure repeated in three registers
C. Scroll motif repeated in two registers

A



B



C

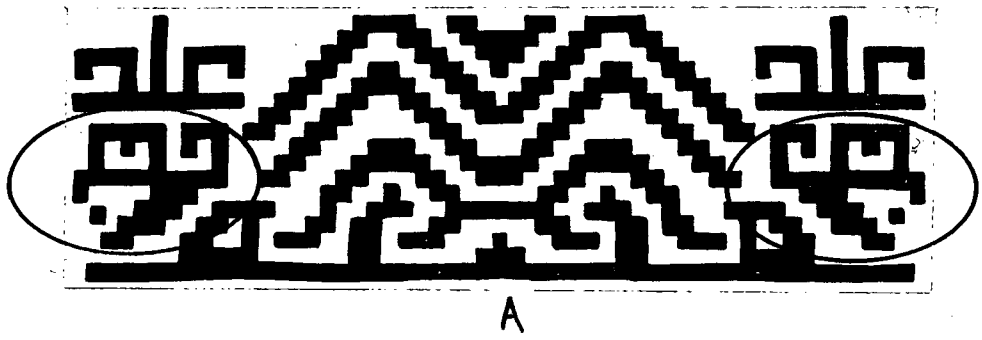
Fig. 104 Category 4 tassel
A. CAI 1955 1792 B, photo Chicago Art Institute
B. Creature on warp cover
C. Woven figure (llama?) repeated in three registers (head and digits circled)

for each creature. The rigidly geometric renderings on the tassels, the variations in viewpoint and the amount of detailing also make matching ceramic and textile iconography difficult.

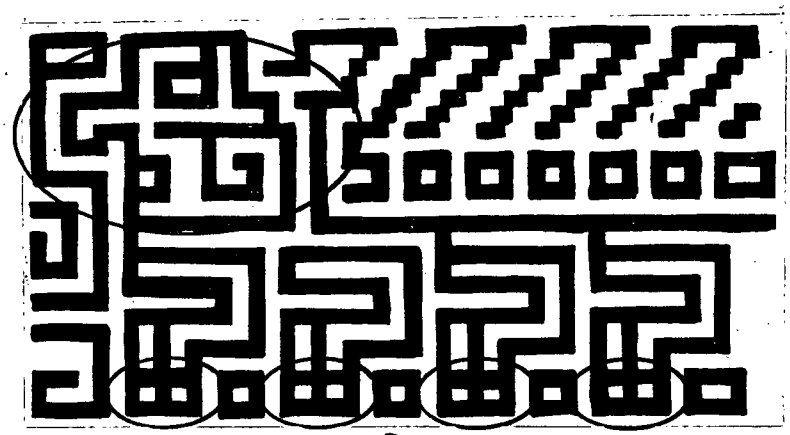
A serpent-like figure appears on only one tassel (Fig. 86) and, although it is double-headed like some of the Ayacucho serpents, the heads are profile, humanoid ones (Fig. 105A) rather than toothed, whiskered heads shown from a dorsal viewpoint (Menzel, 1964, p. 15). The only other creature with a long body has many legs and a human-like head and is, at most, a distant relative (Fig. 105B).

The humped animal, which appears in the Nasca 9 style as well as the Chakipampa A and B styles (1964, p. 28), varies considerably in the ceramic references given by Menzel (pp. 11, 15, 28, 35). It is likely that at least two tassels, and possibly more, have a variation of the humped animal (Fig. 106A,B). Although the backs are not curved, both share a number of general characteristics with the humped animal, including posture and gesture.

The stinger animal is described as a ventrally extended animal with ray appendages, a triangular tail and an elongated 'stinger' in front (Menzel, 1964, p. 11). Two tassels have ventrally extended animals. Fig. 107A is the most clear-cut representation of the stinger animal in the tassel sample, with its tongue-like stinger that projects from its mouth. Though Fig. 107B is ventrally extended, it has neither tail nor stinger and may be a different creature. Ann Rowe (1979, Note 13, p. 123) has pointed out a clear, tapestry representation of the stinger animal (O'Neale and Kroeber, 1931, Pl. 16). The diagonal lines emanating from the muzzle relate this creature to several tassel figures. One tassel body has what may be the front half or head of the stinger animal (Fig. 108A).

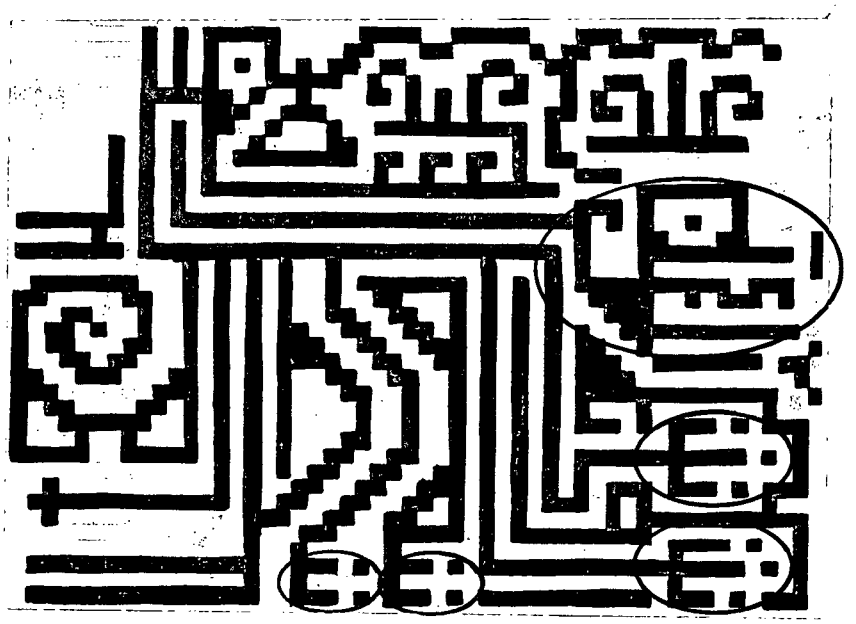


A

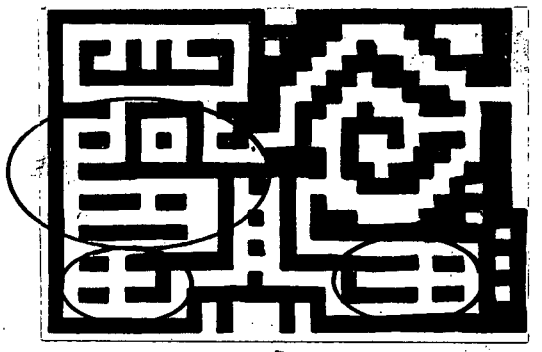


B

Fig. 105 Tassel figures that may relate to the "Ayacucho serpent"
A. MM 1914 7.31.51
B. TM 91.537
(heads and digits circled)



A



B

Fig. 106 Tassel figures which may relate to the "humped animal"
A. Drawn from Kanegafuchi, 1956, Vol. 8, #76
B. MM, Pentland Collection, no number
(heads and digits circled)

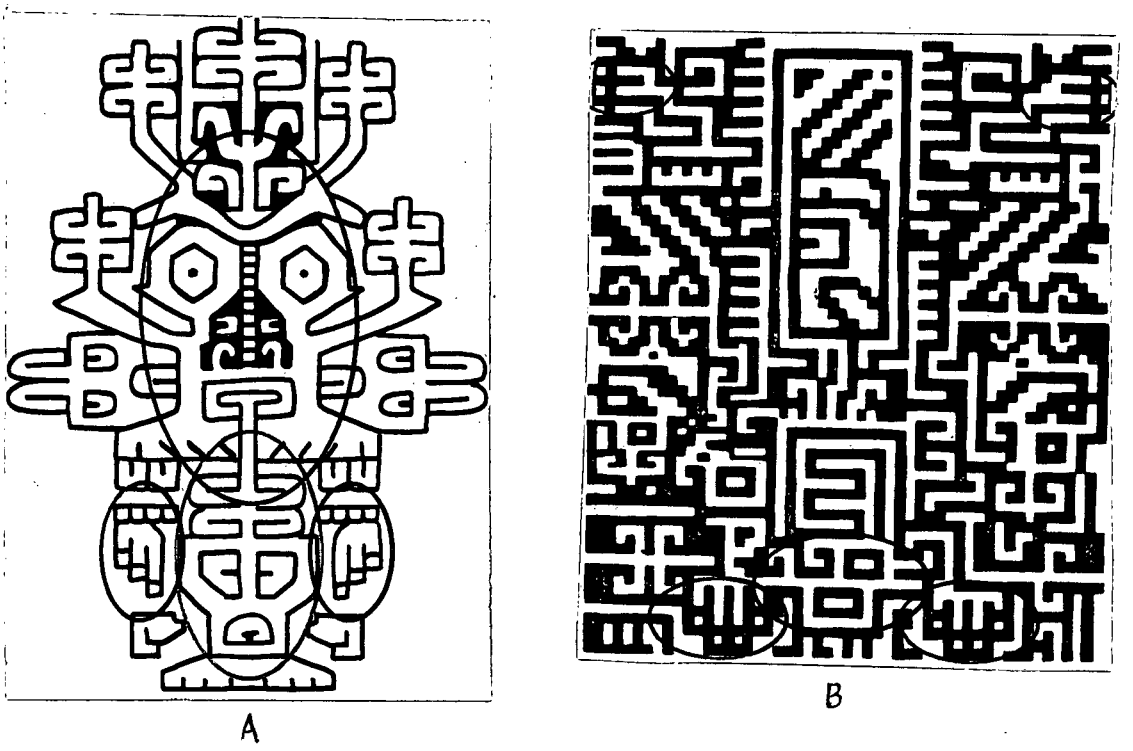


Fig. 107 Ventrally extended tassel figures
A. OM P 163 - clearest representation of the stinger animal in the tassel sample (face, digits and stinger circled)
B. MM 1914.7.31.51 - ventrally extended creature with rays but which may not be the stinger animal (face and digits circled)

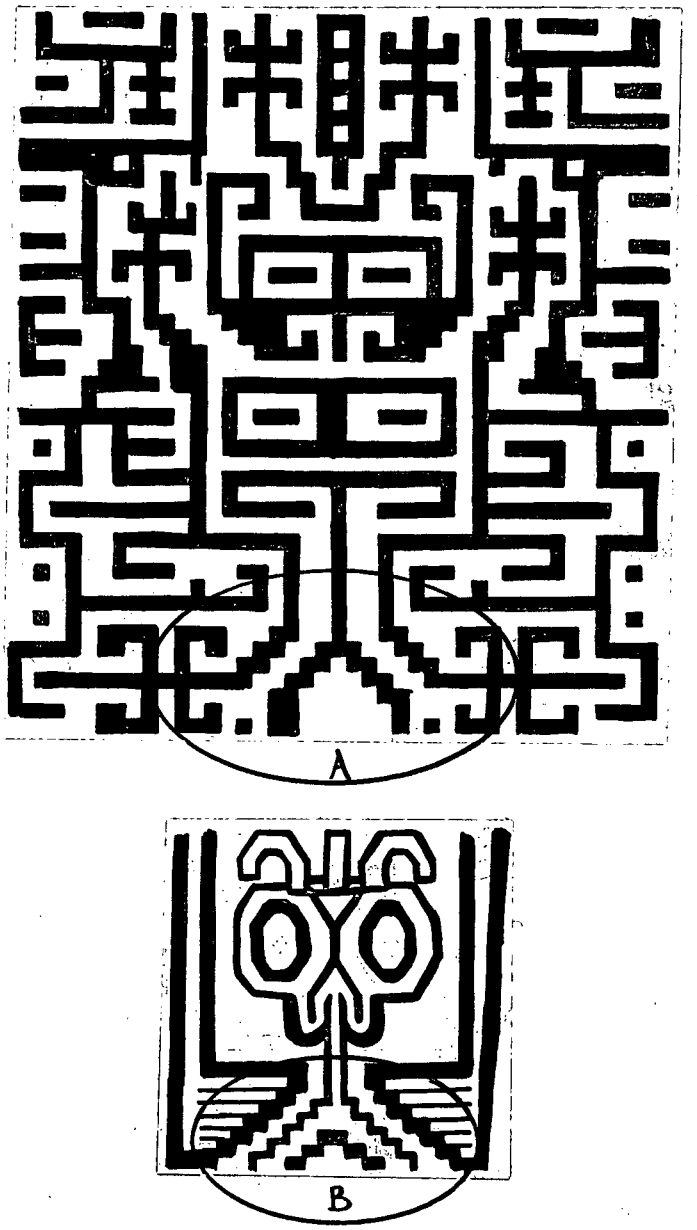


Fig. 108 Tassel figures relating to the head of the stinger animal, as represented in O'Neale and Kroeber, 1930, Pl. 16.
A. drawn from Kanegafuchi, 1956, Vol. 1, #10
B. warp cover, AMNH 41.2/843A
(Diagonal lines emanating from muzzles are circled)

The woven warp cover of another tassel has a frontal view of a goggle-eyed face with diagonal lines emanating from the muzzle (Fig. 108B). The looped warp covers on the pair of tassels in Fig. 83 have similar faces but the photograph is too indistinct for a close comparison. Another feature of the stinger animal is the triangular tail. While not exactly triangular, two tassels have figures with barbed tails (Fig. 109A,B). None of the above can be certainly identified with the stinger animal which may itself be a composite of attributes which can be separated and recombined in different ways. Perhaps the variety of trait-sharing figures in the Chakipampa B style arises from a stylistic practice of compositing figures from discrete elements of independent meaning. For instance, Fig. 109B has a barbed tail like the stinger animal and the posture, stance and general features of the humped animal.

Ann Rowe has noted a small filler element resembling a bird's head which appears on a variety of Chakipampa B textiles (1979, p. 121). This element often occurs inside the body of zoomorphs (O'Neale and Kroeber, 1930, Pl. 19; A. Rowe, 1979, Figs. 8, 10) or attached to arms, legs and beaks (d'Harcourt, 1962, Pl. 4; H.U. Doering, 1967, 183) or as an isolated motif (A. Rowe, 1979, p. 121 and Fig. 1, p. 114; O'Neale and Kroeber, 1930, Pl. 18; H.U. Doering, 1967, 183). The representations vary from having just an eye and mouth to having details of headdress, ear and hair included. This element occurs a number of times on the tassel bodies and on the warp covers. The ventrally extended figure (Fig. 110A) has an eared version complete with hair set inside its body. It also has eared versions with and without headdresses attached to elbows and filling in exterior spaces. One warp cover of a Category 4 tassel has a version with headdress inside its body (Fig. 110B) and another has

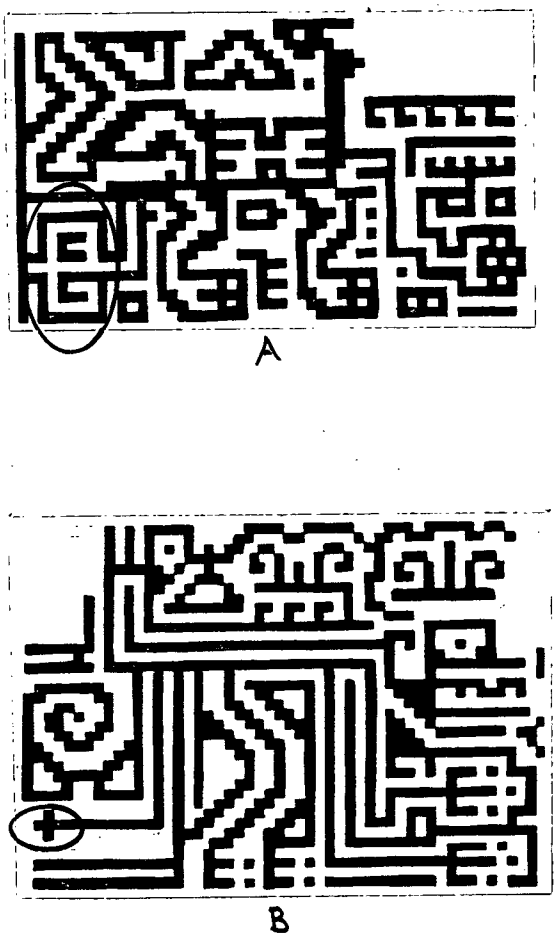


Fig. 109 Tassel figures with barbed tails which may relate to the triangular tail of the stinger animal
A. FM 171134, drawn from O'Neale and Kroeber, 1930, Pl. 21
B. drawn from Kanegafuchi, 1956, Vol. 8, #76 (barbed tail circled)

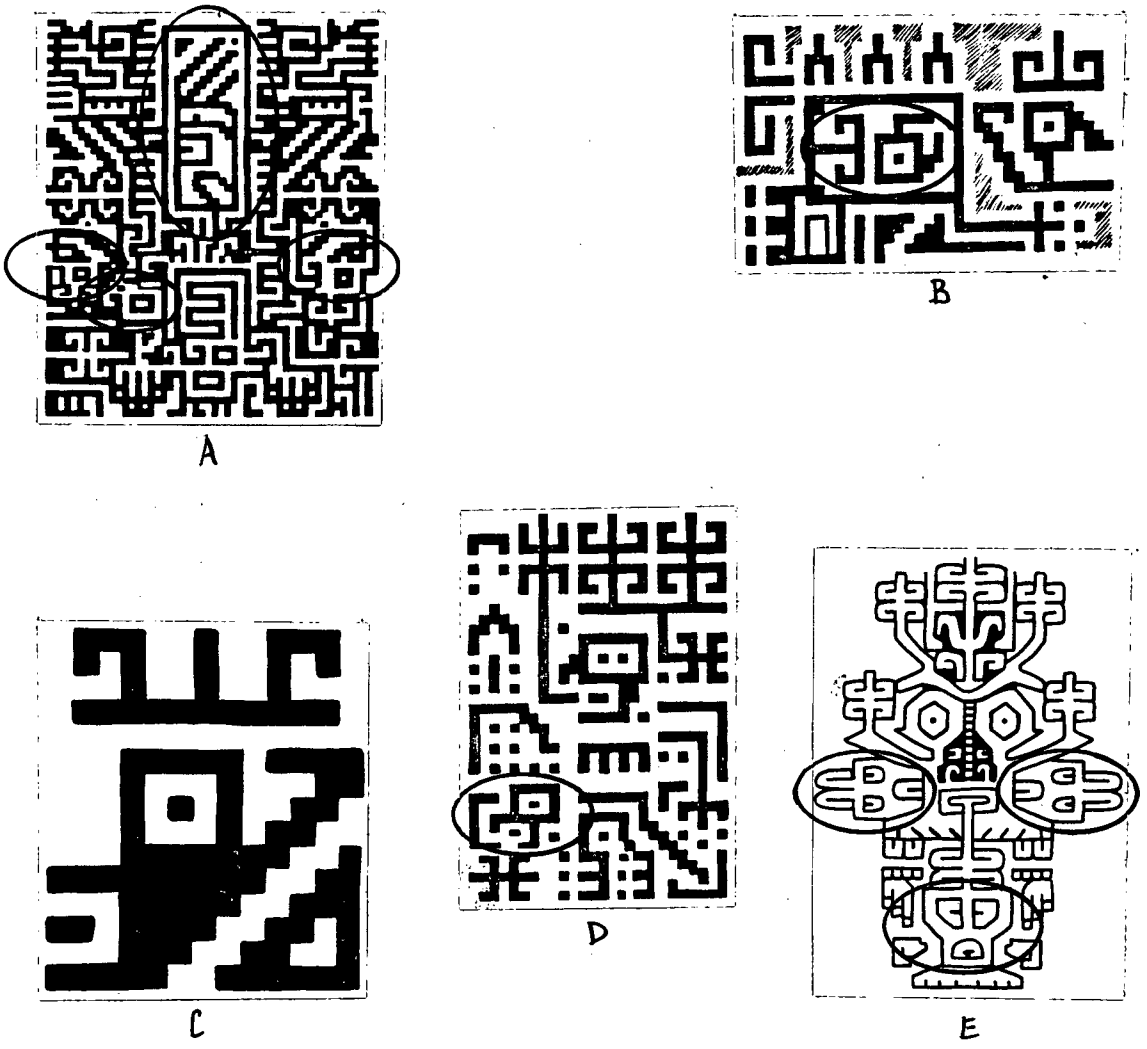
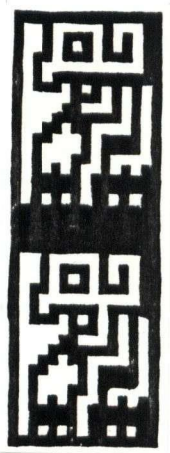


Fig. 110 Various representations of the 'bird head' element which is probably a trophy head motif
A. MM 1914.7.31.51 -trophy heads below arms
B. CAI 1955 1791 - warp cover, trophy head inside body
C. AMNH 41.2.5347 - warp cover, trophy head repeated eight times
D. TM 1959.11.3 - trophy head appended at waist
E. OM P163 - trophy heads appended to stinger and chin (trophy heads circled)

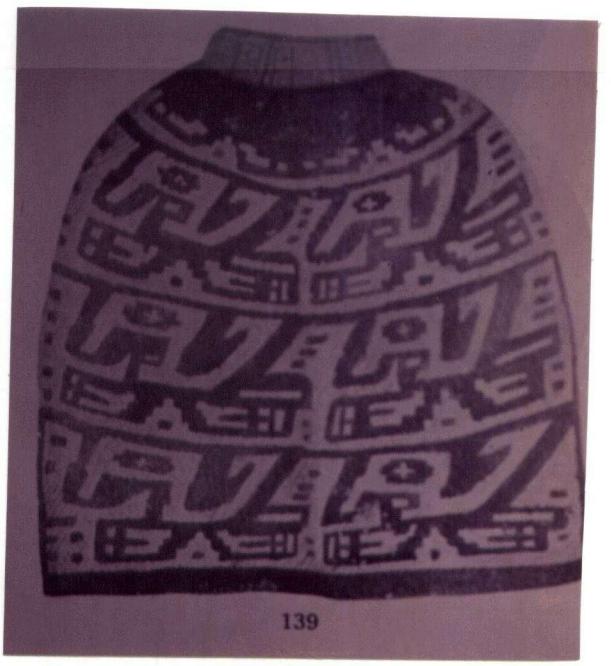
isolated eared versions with headdresses repeated eight times on the warp cover (Fig. 110C). A Category 1B tassel with an upright, profile human has an abbreviated version attached to the belt (Fig. 110D). The 'stinger animal' (Fig. 110E) has heads terminating the stinger and appended to the chin. The overlapping uses of variously detailed versions suggest they all refer to the same theme. The most detailed versions (ear, hair, headdress) suggest that the theme is a disembodied head. Some of the uses, like the attachment to appendages or belt, are very reminiscent of trophy head uses in the Nasca tradition of the Early Intermediate Period (Roark, 1965, p. 23, 27). Menzel writes that the trophy head is a theme of the Chakipampa style which is introduced from the Nasca drainage (1964, p. 11, 29) and Roark describes a similar range of variabilities in trophy head depiction in the Nasca 5 period (1965, p. 27). It seems quite possible that all the versions of this filler element and independent motif are slack-jawed trophy heads.

The trophy head theme may be elaborated in two tassels which have a similar design. Both tassels have dominant eared heads attached to two rudimentary appendages (Fig. 111A,B). Both also have abstract emanations from the mouth area. That this figure appears twice in this limited sample suggests it is a standard theme. It is possible it derives from the so-called "full-bodied trophy head", a sub-major theme which Roark finds in Nasca 6 ceramics (1965, p. 45). A looped warp cover (Fig. 86) may also have trophy heads animated by the addition of legs.

The trophy head motif has a long history in ancient Peru. There are some depictions in Chavinoid art (Roe, 1974, Feature 60, Fig. 4b, Fig. 28e) but there are a great many more on the South Coast from Early Horizon 9 onwards. Although it is not possible to make a definitive interpretation of trophy heads, Alan Sawyer has suggested that they are



A



B

Fig. 111 Tassel figures that may be "full-bodied" trophy heads
A. MDH No. 34.145.2, drawn from d'Harcourt, 1962, Pl. 58
B. photo from Tello, 1959, Fig. 139, p. 306 (the head is the primary motif; a speech scroll and two abbreviated appendages are attached to each head)

part of a fertility cult iconography, that they were "a ceremonial means of gathering the life- or soul-fource of enemies to be used for the benefit of the collector group" (1966, p. 122). The trophy head continues to be a frequent element in Nasca and Chakipampa B style images.

A number of profile creatures share the gesture of an outstretched appendage (Fig. 112). This gesture may express the idea of a trophy head. In earlier phases of Nasca art, figures with outstretched appendages often grasp trophy heads or hanks of hair, which appear to be shorthand symbols for trophy heads (Sawyer, 1966, Fig. 205, 207, 213, 215). The extended arm may be a still more condensed rendition of the same idea. Two images on the same bottle of killer whale deities with extended arm are the same (Sawyer, 1966, Fig. 205) except one grasps a trophy head and the other is empty-handed. In the tassel figures, there are varying degrees of similarity among the group and some are, no doubt, variations on the same theme, perhaps the humped animal. Fig. 112 shows six related figures which may contain an implicit reference to the trophy head theme. Fig. 112D is found on the warp covers of two tassels. Three more elaborate figures with outstretched forelegs are very individual (Fig. 113) and do not relate closely to the others in Fig. 112. However, they may also contain a reference to the trophy head idea.

A particular element that is used more frequently than trophy heads needs to be described. The ray motif in four-part radial symmetry is a filler element with Nasca antecedents (Menzel, 1964, p. 28). Its renderings and used in the tassel sample are variable. It can have curved or angular rays emanating from a focal point that is a circle, a square, intersecting lines or a single line. In the lower one-third

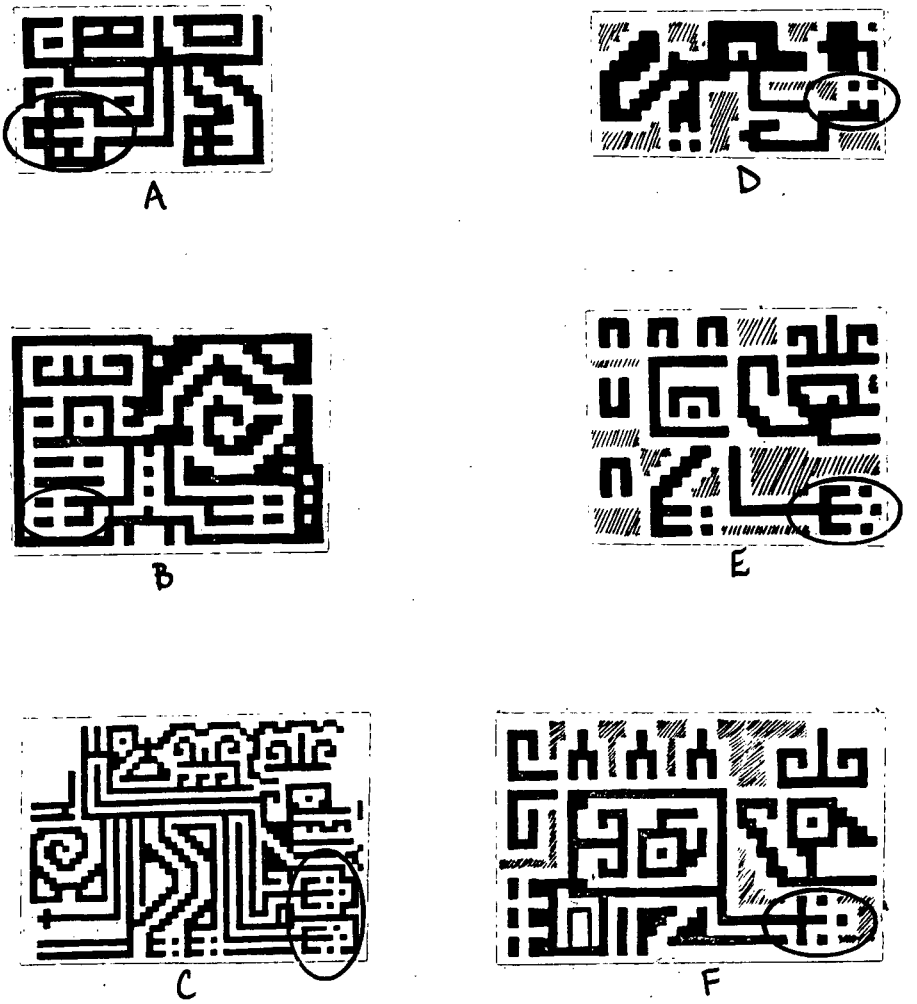


Fig. 112 Zoomorphs with outstretched foreleg, possibly all related to the humped animal and implying trophy head
A. MM 1954 W Ch5 599
B. MM, Pentland Collection, no number
C. drawn from Kanegafuchi, 1956, Vol. 8, #76
D. DO B-509 and Kanegafuchi, 1956, Vol. 8, #76 (warp covers)
E. CAI 1955 1793 B, warp cover
F. CAI 1955 1791 B, warp cover (outstretched foreleg circled)

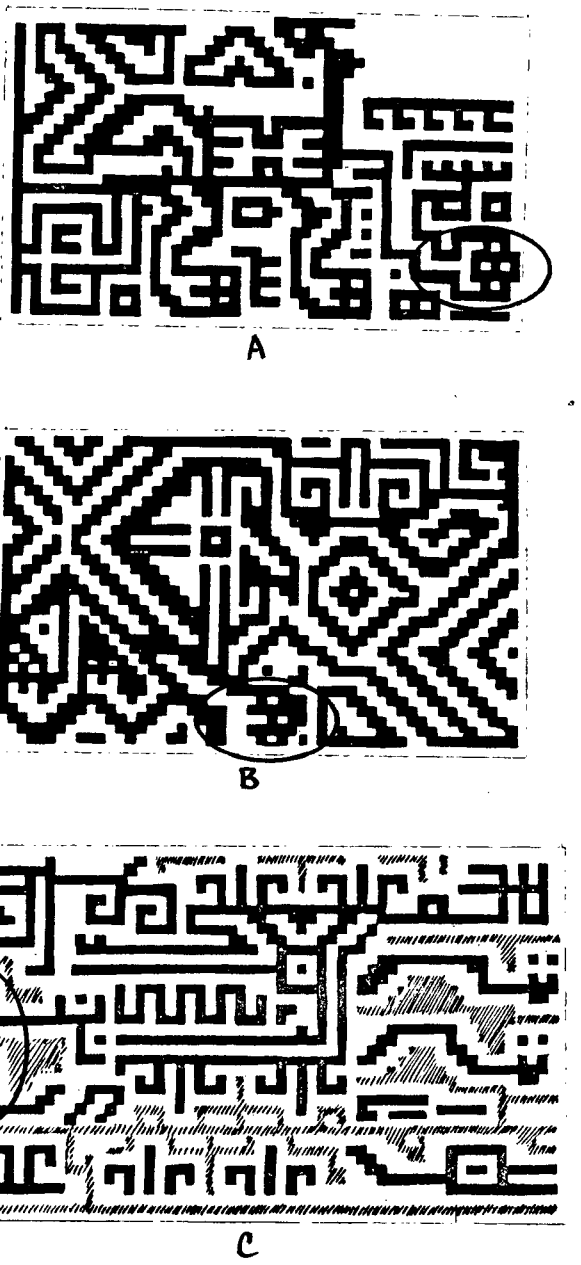
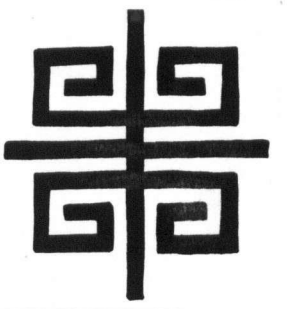


Fig. 113 Three zoomorphs with outstretched forelegs which possibly imply trophy head
A. FM 171134, drawn from O'Neale and Kroeber, 1930, Pl. 21
B. FI 13024, drawn from d'Harcourt, 1962, Pl. 57
C. CAI 1955.1792B, warp cover
(outstretched foreleg circled)

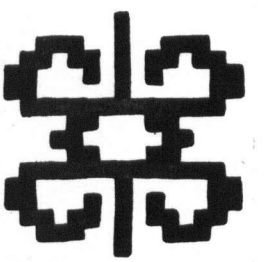
of a badly deteriorated tassel (Fig. 114), a curved ray with circular center is flanked by angular ray motifs that are arranged around two intersecting lines. This motif often terminates extensions from mouths, from heads and headdresses (Fig. 115) and from bodies and tails. Any linear appendage, excepting arms and legs, seems a candidate for such a terminal. This ray motif occurs as an isolated design on other Chakipampa B textiles (A. Rowe, 1979, Fig. 1, p. 114) although it does not occur alone on the tassels. On one tassel, a distorted version is used to fill an interior body space (Fig. 116). The headdresses which are worn by over half of the tassel figures all take the form of one-half of a ray motif in radial symmetry centred on two intersecting lines. Some figures are outlined with halves of the ray motif (Fig. 117).

The ray motif in radial symmetry is the most frequently repeated design element in the tassel sample, although trophy heads are also repeated to a lesser degree. The sum of the minor uses of the ray motif amounts to what Roark terms "proliferation" in the Nasca style (1965, p. 2). The most frequent use of the proliferated motifs in the Nasca style is extensions to the gold forehead ornaments and facemasks which become increasingly complex during the latter half of the Early Intermediate Period. The actual gold ornaments from Paracas and Nasca often have embossed serpent terminals (Sawyer, 1960, Pl. III, IV; Moseley, 1978, P. XXXI and Fig. 44). It appears that the ray and volute may be later, more abstract motifs for designating the serpent projections from masks. Serpentine appendages, attached to various parts of the body, particularly the mouth, are frequently depicted in the earlier art of Paracas and Nasca. The ray and volute are used similarly in the Chakipampa B style, suggesting that rays and volutes have the same group of associations

A



B



C

Fig. 114 Varied ray motifs
A. AMNH 41.2/843a
B. Angular ray motif arranged around two intersecting lines
C. Curved ray motif with circular centre

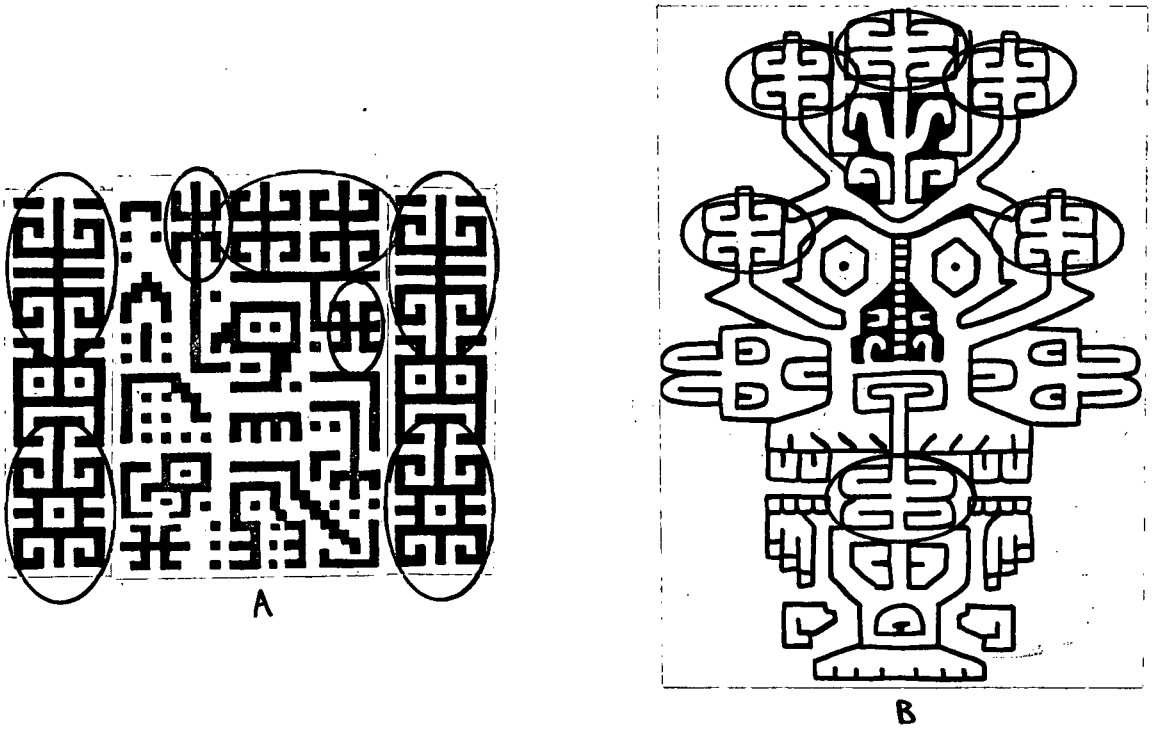


Fig. 115 Ray motifs terminating extensions from mouths, heads and headdresses
A. TM 1959.11.3
B. OM P 163
(rays are circled)

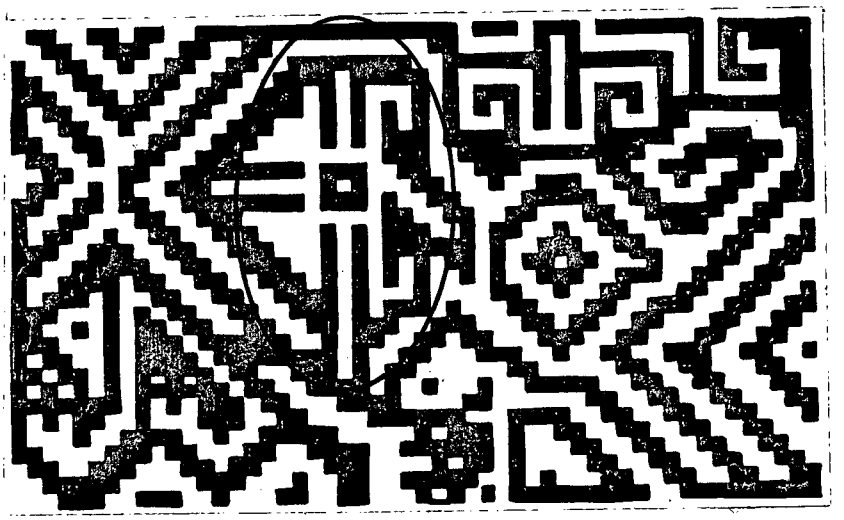


Fig. 116 Distorted variant of a ray motif filling an interior body space (FI 13024, drawn from d'Harcourt, 1962, Pl. 57)
(ray is circled)

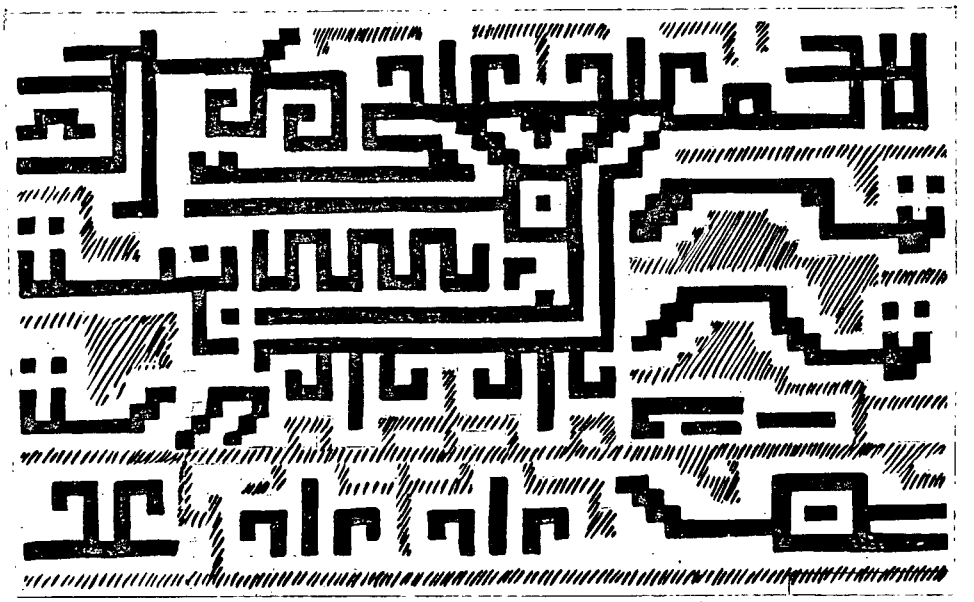


Fig. 117 Ray motifs as outlines (CAI 1955.1792B, warp cover)

that serpents had in the earlier styles of Paracas and Nasca. In the Chakipampa B style of the tassels, the ray motif and trophy head are used in varied, multiple ways and it is likely that both the images and the proliferated uses derive from Nasca antecedents. Three tassels appear to have faces that are engulfed in the proliferated motifs of rays and volutes (Fig. 74, 87 and 114) that derive from the gold face masks and headdresses. Fig. 74 also has numerous trophy heads.

Another class of elements in the tassel sample is the geometric. Except for the ray and volute forms, most Category 1 tassels do not have any. One tassel in Category 1B has a 'S', or hook in bifold, rotational symmetry, which is embroidered on the warp cover (Fig. 89). In Category 2, two tassels have large scale hook designs, one in slide symmetry (Fig. 118A) and the other in translation and bifold, rotational symmetry (Fig. 118B). The large scale space division on Category 3 tassels may be a further abstraction of Fig. 118B, limited by the rectilinear combination of structures in those tassels (Fig. 118C). In Category 4, two pairs of tassels have large scale, angular hooks in bifold, rotational symmetry (Fig. 118D) and the final Category 4 tassel has a series of less angular hooks (Fig. 118E) in the same configuration as Fig. 118B. The Category 3 tassels all have designs of outlined diamonds which are structurally produced in oblique twining and interlacing. The shapes, the symmetries and the interlocking of figure and ground in the hook designs of Fig. 118 are reminiscent of the fabric structure images of Paracas Cavernas which were discussed in Chapter 3 of this paper. I suspect that the branching hook motif of Fig. 118A derives from a three strand braid which also has the branching configuration of slide symmetry. The hooks in Fig. 118B, E have the same symmetries and configurations as the twisted or twined strands.

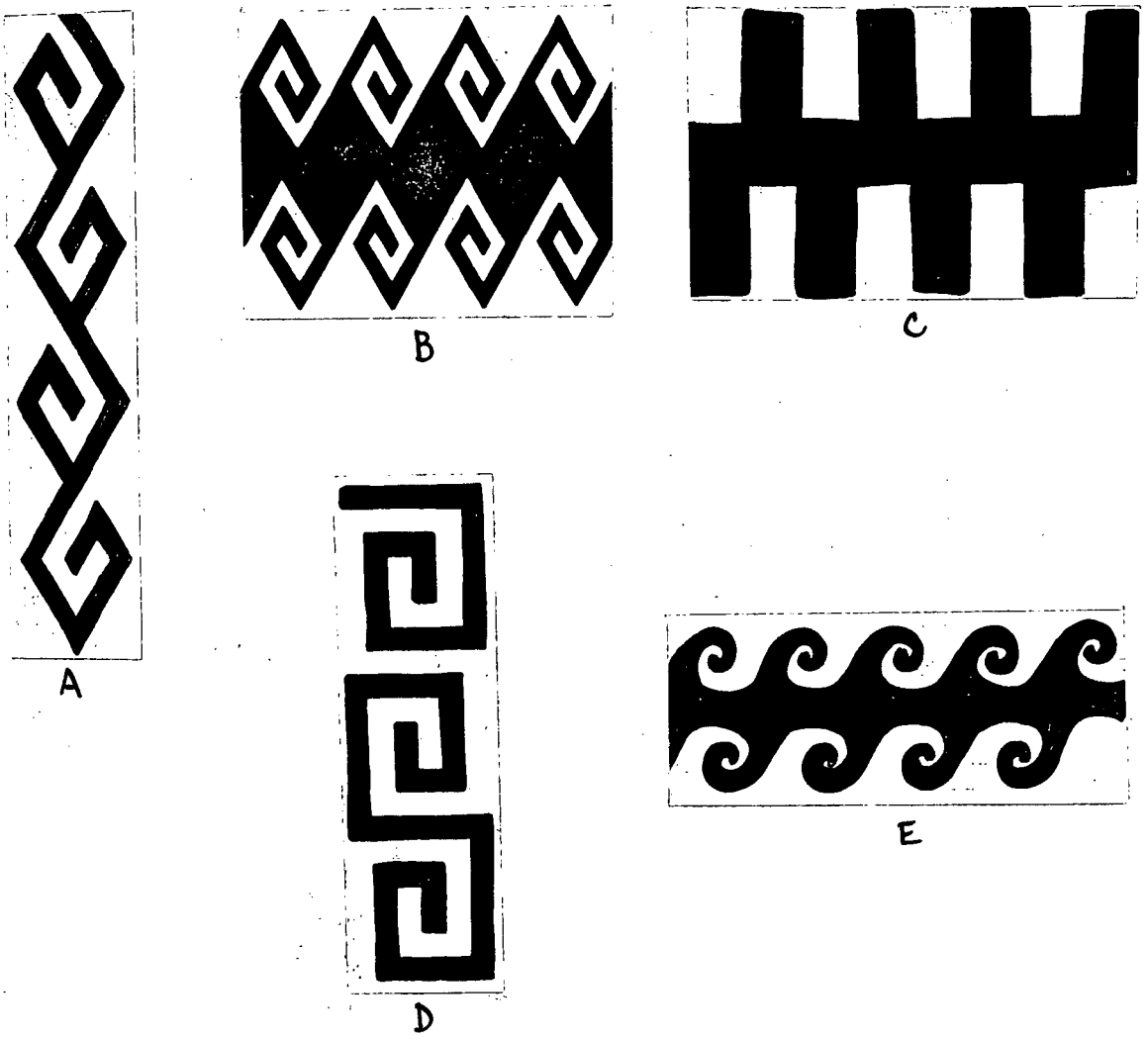


Fig. 118 Geometric motifs in the tassel sample
A. MAI 14/2845
B. OM C16
C. All Category 3 tassels - MM 1931.11.23.13, 14 & 15 and DO B-510
D. CAI 1955.1791 and 1792, A and B
E. AMNH 41.2/5347

A few figures on the tassels are depicted more naturalistically. One figure appears to be an ungulate, possibly a llama (Fig. 119A). A convoluted ray appendage is attached to its mouth. Two pairs of Category 4 tassels have long-legged, eared animals which are possibly llamas (Fig. 119B). The warp-patterned weaving technique changes the rendering so drastically that it is difficult to compare Fig. 119A and B with any certainty. The Category 3 tassels have simple bird-like and humanoid figures on the tassel bodies (Fig. 120A,B).

Two tassels have clearer depictions of upright, profile figures that appear to be essentially human. These figures have considerable anatomical veracity compared to the animated trophy heads of Fig. 111. One squat figure carries a staff (Fig. 121) which is similar to the feathered staffs of Nasca 7 (p.c. L. Dawson) pots (Fig. 122). The other figure also appears to have a hand clenched around a pointed staff (Fig. 123). Several features of this figure seem to be drawn from the Tiahuanaco-related ceremonial style, a practice in the Chakipampa B style that is limited to design details (Menzel, 1964, p. 14). Both the divided eye and the ray attached to the mouth (speech scroll?) are features of the Tiahuanaca-related style of Conchopata (p. 20-21). Another possible human is in a horizontal or floating position (Fig. 124A). This figure also has a ray attached to the mouth and an eye marking. A final example, also horizontal, is very schematic but it also has a divided eye and a projection from the mouth (Fig. 124B).

The warp covers of two Category 3 tassels have Tiahuanaco-related creatures with tooth-filled maws (Fig. 125). The prominent teeth, the hooked eye marking, the elaborate headdress and a possible wing element on its back relate it loosely to variants of the Tiahuanaco staff bearers,

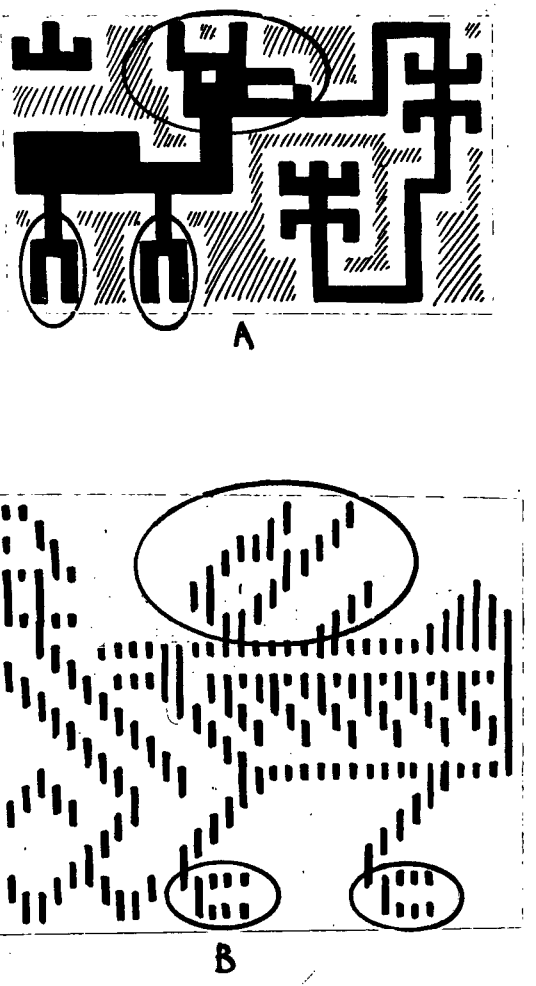


Fig. 119 Tassel figures that appear to be ungulates, possibly llamas
A. CAI 1955.1795, warp cover, drawn from Lehmann, 1924, Pl. 1
B. CAI 1955.1791 and 1792, A and B (head and feet circled)

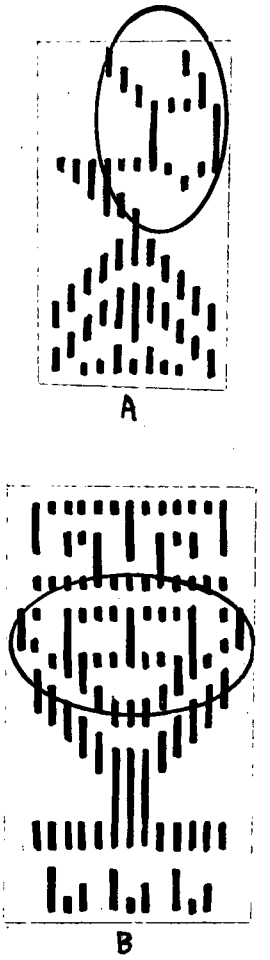
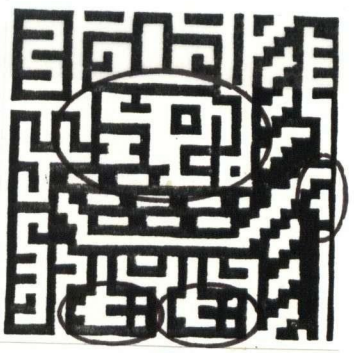


Fig. 120 Warp-patterned figures on Category 3 tassels
A. bird-like figure - DO B-510 and MM 1931.11.23.14
B. human-like figure - MM 1931.11.23.13 and .15
(heads are circled)

A



B

Fig. 121 Tassel with a staff holding human (upside down in the upper half) and a scrambled figure
A. CAI 1955 1793 B, photo Chicago Art Institute
B. human figure holding a staff which is at the right; figure is rotated 180 degrees
(head and digits circled)

Fig. 122 Nasca 7 pot with a warrior carrying a feathered staff (LM 4-8951)

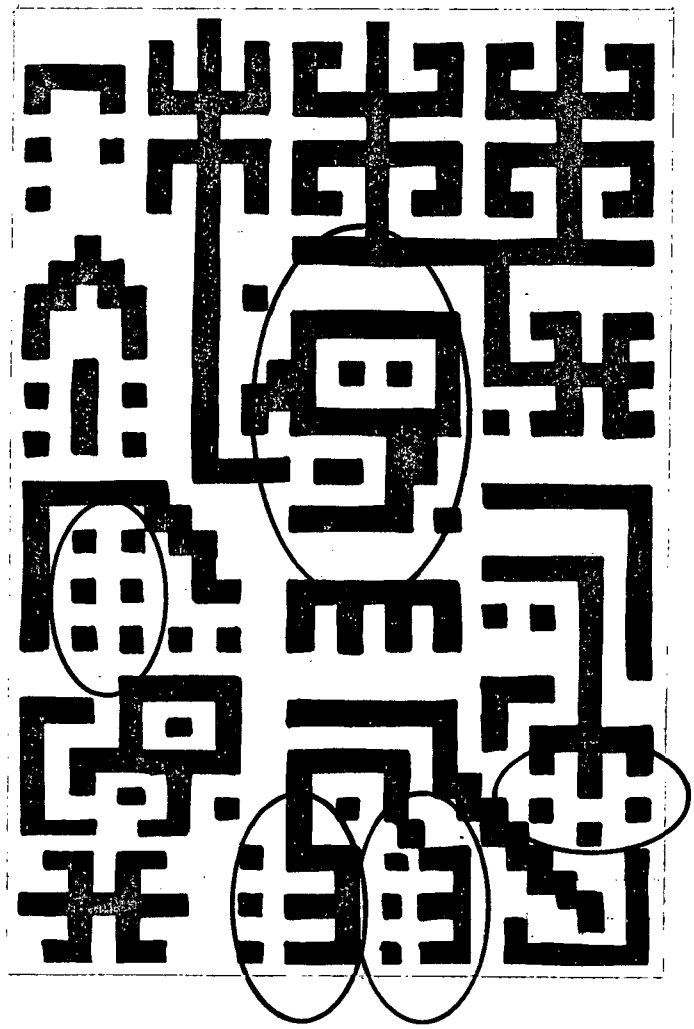
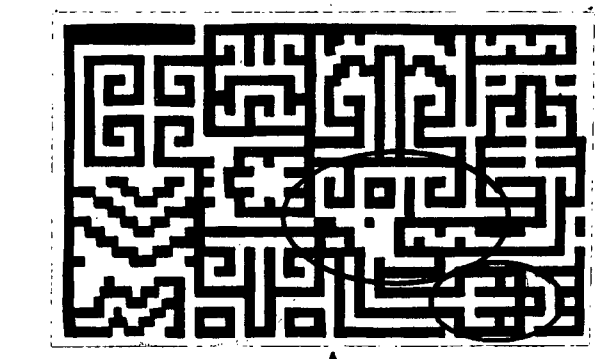
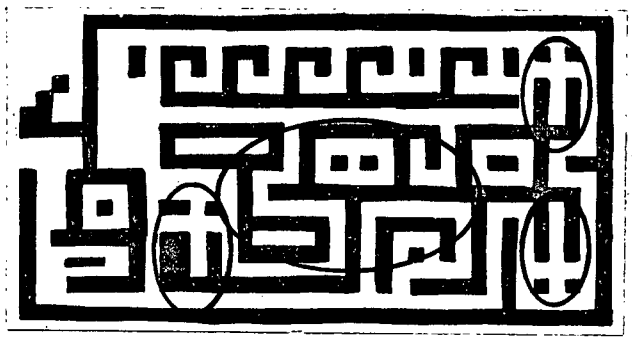


Fig. 123 Profile human carrying a staff, along the left side
TM 1959.11.3
(head and digits are circled)



A



B

Fig. 124 Two horizontal figures that may be humanoid
A. TM 91.536
B. BME IVC 345
(head and digits circled)

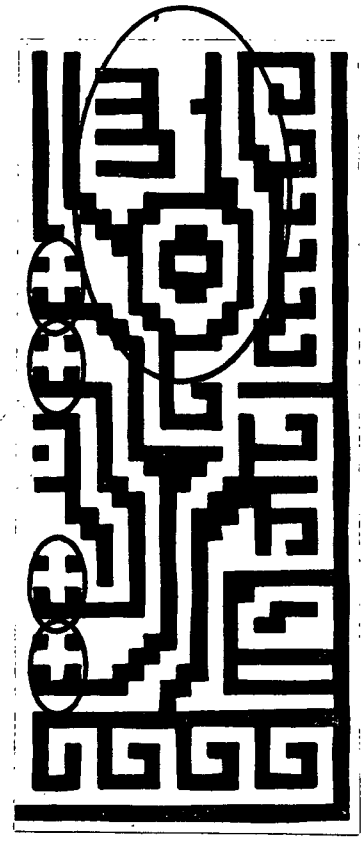


Fig. 125 Warp cover figure possibly related to Tiahuanaco-Wari staff-bearers (MM 1931.11.23.15 and DO B-510)

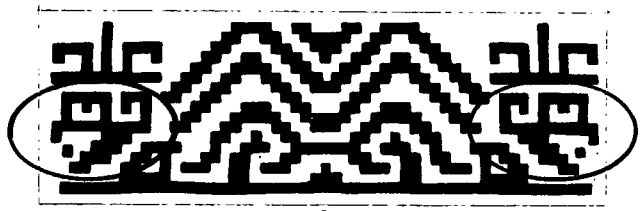
such as those on official Wari tunics (Sawyer, 1963, Fig. 3, 6).

In some tassels, zoomorphic and humanoid attributes are combined in the same figure. The representations of humanoid heads (and trophy heads) generally have a nose that protrudes beyond the plane of the face. Several tassel figures have a human-like head attached to a non-human body (Fig. 126A, B). One tassel has an anatomically scrambled body and two faces, one human and one non-human (Fig. 126C). Several tassels have figures that are totally scrambled. Heads and legs can be found but not in naturalistic relationships. Faces and disjointed legs appear in the lower third of the tassel body in Fig. 127. These scrambled details are exactly repeated in the upper third. The central section remains quite indescipherable. Fig. 121 also has a scrambled figure in the lower half.

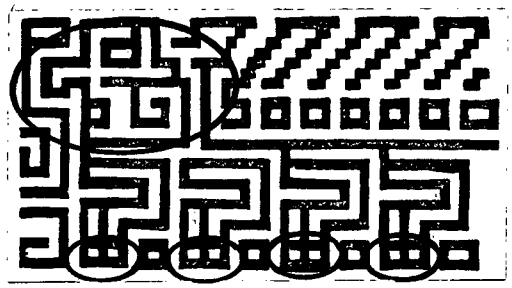
In the Chakipampa B style, the lack of clear cut iconography and the practices of scrambling figures and overwhelming them with proliferated motifs suggests there is not a pantheon of major deities. The figures are composed of and elaborated by elements which may have independent meanings. In fact, some Chakipampa B textiles, like the tapestry medallion ones described by Ann Rowe, are primarily decorated with a catalogue of elements (1979, Fig. 1) which can occur in conjunction with diverse figures. The complex interplay of culture forces which Menzel postulates for the period of the Chakipampa B style (1964, p. 10, 66-68) may be reflected in the art style which is more a stitching together of conventions and ideas from diverse sources than a presentation of distinct mythical beings.

Chonological Implications of the Tassel Classification

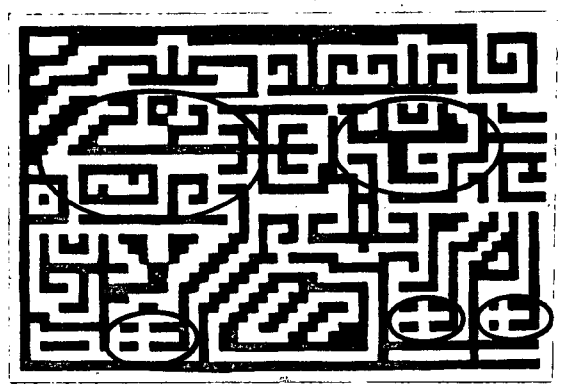
The classification of thirty-nine tassels into four categories



A



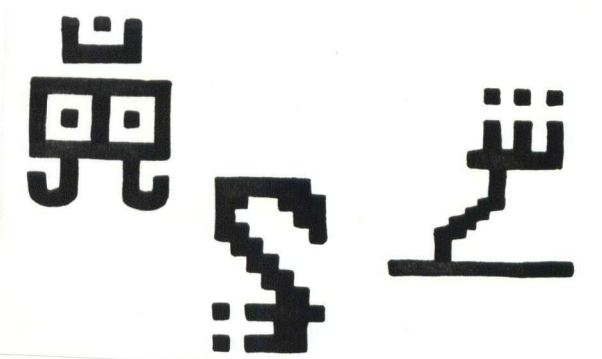
B



C

Fig. 126 Zoomorphs with humanoid heads.
A. MM 1914.7.31.51
B. TM 91.537
C. DO B-509 - humanoid head on the right and zoomorphic head is on the left
(heads and digits circled)

A



B

Fig. 127 Tassel with anatomically scrambled figures
A. CAI 1955.1794, photo Chicago Art Institute
B. Unco-ordinated body parts which appear in the upper and lower third of the tassel - head, leg and arm

on the basis of structure is reinforced by differences in design organization, style and iconography. The limited and undocumented nature of the sample does not allow any insight into contemporaneous regional styles but it is suggested that Category 1 and 2 tassels are earlier than Category 3 and 4.

The largest group, Category 1, was described first as they appear to be the standard type. Technically, Category 2 tassels have the closest affinity with fabrics of the Early Intermediate Period as they continue to use openwork variations of intertwined sprang. Category 1 tassels may have evolved slightly later than Category 2 tassels as they use a very complex and specialized structure for vertical colour joins. This vertical join is necessary for the devastatingly detailed patterns of the Chakipampa B style. Category 2 tassels remain somewhat problematic. The group is too small and too diverse to be sure they represent a temporal and not a regional difference.

Intertwined sprang has a significant presence among Nasca fabrics. It seems reasonable to think that the double cloth variants of Category 1 and 2 tassels develop out of the intertwined openworks of that period. The over-all patterning and filling of all background space continues some Nascoid propensities. The iconographic range of zoomorphs, humans and combinations share some characteristics with the standard iconography of the Chakipampa B style, although few are 'dead ringers'. Certain Nasca derived motifs, like the ray and trophy head, and the stylistic practice of proliferating motifs are strongly in evidence. A few elements derived from the ceremonial or Conchopata style, like the divided eye and the ray attached to the mouth, are also present. The limited use of colours and the use of one of those colours as both outline and background

relate to trends observable in middle Nasca textiles (Bennett, 1954, Fig. 72). All in all, Category 1 and 2 tassels relate more strongly to the practices of the Early Intermediate Period than the other categories of tassels.

Category 3 and 4 tassels have a change in structure and technique. Both introduce warp-patterned weaving into the body of the tassel. Category 3 tassels may retain the use of sprang for one of the layers but this cannot be ascertained. Category 4 tassels may have a narrow area of interlaced sprang just below the warp covers. Space divisions are bold and large scale geometric motifs, like hooks, are generally present. Within the broad spatial definitions, smaller motifs are repeated, varying in orientation and colour placement. Space is not crammed with maze-like patterning but ordered through major contrasts and relieved through minor contrasts. Figurative motifs are unelaborated representations of birds, humans and llamas (?). The colour range of Category 3 and 4 tassels is larger and more varied. Many shades of gold and red with strong accents of blue are used. The underlying spatial organization of vertical and horizontal registers and the colour use are closer to the style of Wari tunics which date primarily to Middle Horizon 2.

The tassel warp covers are a little more homogenous from Category 1 through 4. The warp covers of Category 3 and 4 continue to have the Chakipampa B iconography and, in general, the cross-knit looped structure. In fact, they become larger in size and the representations become more elaborate. It is as if the iconography on the Category 1 tassel bodies is forced upward, into this secondary area, as the main part of the tassel gives way to change in style, technique and iconography.

The tassels seem to have been a south coast specialty, perhaps a badge of office or status. The largest, most standardized group, Category 1, dates to Middle Horizon 1B (p.c. Lawrence Dawson). The number of tassels located for this study tapers off as changes in technique, style and iconography tend toward Tiahuanaco-Wari influences. Tassels of Category 3 and 4 may extend into Middle Horizon 2. This tapering off in number, coupled with a change in style and technique, suggests the supplanting of one culture by another, a change supported by ceramic chronology (Menzel, 1964). So far as my present research can determine, the technique of sprang falls into disuse at this point, as the south coast Nasca culture comes under the sway of the highland Wari culture.

FOOTNOTE

[1]Since I completed writing this section, Alan Sawyer has located three more tassels in the private collection of Anton Roeckl of Munich. Each tassel originally had a mate but they have been sold to a New York collector. The tassels share all the characteristics of Category 1.

CHAPTER V

Summary and Conclusions

A search of the literature and a number of museum collections has turned up a considerable body of fabrics manufactured in the sprang technique. The sprang technique has a verified existence from Early Horizon 7 through Middle Horixon 1B (c. 700 B.C. - 650 A.D.). The report of preceramic sprang from Asia (Engel, 1963) is considered to be in error. The geographic area over which sprang fabrics have a confirmed appearance is almost totally limited to the South Coast area. Many pieces without provenience can be tied stylistically to ones with a confirmed South Coast provenience. D'Harcourt (1962, Pl. 54B) does cite a Central Coast locale for one fragment of intertwining.

The earliest sprang fabric located for this study is an interlinked band from Cerrillos. It is the sole fabric of its type. It is expected that there are many others but that they have not been collected or commented on because of their plain appearance.

Interlinked sprang is particularly used for headdresses, most of which can be dated to Early Horizon 9 on the basis of a comparable style to excavated examples with ceramic association. During Early Horizon 9, there is a great emphasis on openwork fabrics with structural patterning and interlinked sprang, along with gauze weaving and knotting, appears to be a favoured technique. The cultural importance of fabric making is demonstrated in this group as the designs themselves are derived from images associated with fabric making. Interlinked sprang seems to be primarily associated with the people who made incised,

resin-painted ceramics like those found at Ocucaje and Paracas Cavernas. A single example of interlinking, a striped bag, is associated with a mummy bundle from Paracas Necropolis.

Interlaced sprang is used for garment ties for loincloths and skirts during a period that may span Early Horizon 9 and Early Intermediate Period 2. An unusual method of warp suspension is indicated by the obliquely worked rows. The warp was probably folded in half transversely and then manipulated from the loops formed in the folding. This variant method is indicated only for the ties as all other sprang fabrics appear to be worked in horizontal rows. These distinctive interlaced ties are, so far as I presently know, associated only with embroidered garments of the type found at Paracas Necropolis and some less opulently embroidered ones from other south coast sites.

Several different types of interlaced sprang bags appear to date between Early Horizon 9 and the latter part of the Early Intermediate Period. They are few in number and unspecialized in structure and design. No conclusions can be drawn from the very limited sample. One group of similarly finished, interlaced bags appears to have been made expressly for carrying coca leaves and lime. Two of the bags are shaped during the making to have three pockets, a particular bag shape that remains associated with coca use to the present day.

Intertwined sprang appears to have continued in use longer than interlinking and interlacing. The few associations indicate it is connected with the groups who made incised, resin painted ceramics in the last stages of the Early Horizon and slip-decorated pottery during the Early Intermediate Period. This is not surprising as there is no abrupt change from one ceramic type to the other at several stratigraphically

excavated sites (Sawyer, 1966, p. 96). The intertwined openworks are beautifully executed and some are so large that they were made in two sections. The fabric sizes indicate both headdresses and shrouds were made of intertwined sprang.

The most unusual sprang fabrics are a series of double cloth tassels. The majority exhibit the Chakipampa B style which is the last pahase of the Nasca style in Middle Horizon 1B. Within the tassel sample, it is possible to follow a change in technique, which is paralleled by a change in style and iconography. The first two categories continue the Nasca technique of sprang and the intertwined structure. Some stylistic conventions also relate these groups to the Nasca style although the iconography draws on a number of highland (pre-Wari) themes. The third and fourth categories of tassels use warp-patterned weaving, a highly favoured technique among the highland Wari. The change in technique is paralleled by changes in colour, design organization and iconography which are tending toward the Wari style of the Middle Horizon. The categorization of the tassels, which is based on structure and technique, appears to be as diagnostic of change as the style and iconography.

Like other culture traits that have been used to construct chronologies, the technique and structures of sprang are limited temporally and geographically. Various types of sprang fabrics are specific to certain phases of cultures and can be associated with pottery types and styles in other textiles. The occurrence of sprang fabrics in ancient Peru is summarized in Table 2.

The technique of sprang appears to fall into disuse about the time the highland Wari culture spreads to the coast in Middle Horizon 2. In the course of examining a number of museum collections, I have found

SOUTH COAST

OCCURRENCE OF THE SPRANG TECHNIQUE

IN THE THESIS SAMPLE

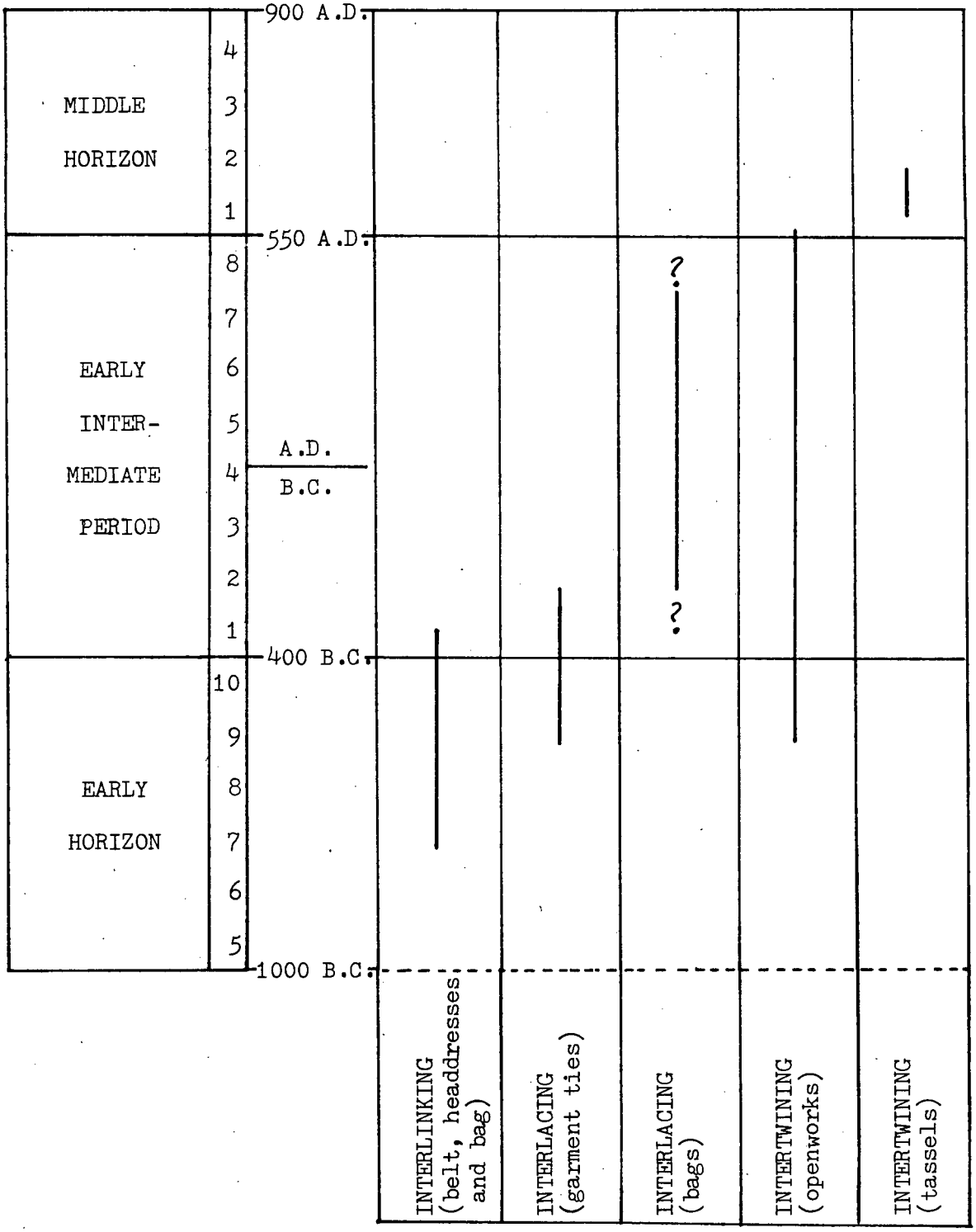


TABLE II

only two fabrics of later periods that relate to the sprang fabrics of this study. Neither are true sprang as they both have wefts. They do make use of the sprang principle of reciprocal shedding which allows symmetrical fabric to be built from both ends of the warp toward the central, terminal area. One is a small bag of two-strand warp twining from Huarato, Acari Valley (LM 16-11092d) which was found with a fabric with Late Intermediate Period characteristics. The other sprang-like fabric is a Late Horizon bag (BMS 3:12473) made in tri-axial interlacing[1]. Like 1:1 interlaced sprang, the threads move obliquely on two axes. The horizontal weft, placed in the shed of each row, lies on the third axis. The lack of true sprang fabrics in the late periods underlines how specific techniques are to the originating culture. The Wari and subsequent groups who peopled the south coast favoured quite different techniques of fabric making and these supplanted many of the methods used in Paracas and Nasca fabrics.

Technical studies such as this one, which uses a large number of unassociated fabrics, are not capable of revealing the entire picture of Peruvian culture history. However, there is a considerable application for this information. At least a general chronological and geographic placement of 'orphan' sprang fabrics in museum collections should now be possible from no more than a technical analysis. Also, it is possible to suggest some internal sequencing, based on an evolution in technique and structure, when the sample of specialized fabrics is large enough. Iconographic comparisons have been used to clarify the cultural associations of various parts of the sprang sample. Now the technical groupings, particularly of complex fabrics like the tassels, can be used to expand the iconographic repertory of a culture

phase. Technical 'association' in the case of complex structures and esoteric techniques is as certain a diagnostic as many stylistic criteria in present use. As a textile typology by culture continues to develop, studies such as this one, which follows one technique and its variant structures, may be useful in clarifying contacts, movements and continuities between groups. The presence of the sprang technique on the South Coast from 700 B.C. to 650 A.D. suggests a strand of continuity in this time period. A cataclysmic culture change after Middle Horizon 1B is indicated by the total disappearance of the sprang technique.

FOOTNOTE

[1]The term, tri-axial interlacing, was suggested by Peter Collingwood.

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