

ANTHROPOLOGICAL PAPERS

OF THE

American Museum of Natural

History.

Vol. I.

NEW YORK:
Published by Order of the Trustees.
1908.

EDITOR.

CLARK WISSLER.

CONTENTS OF VOLUME I.

	PAGE.
Part I. Technique of Some South American Feather-work (Plates I to IV). By Charles W. Mead. January, 1907	1
Part II. Some Protective Designs of the Dakota (Plates V to VII). By Clark Wissler. February, 1907	19
Part III. Gros Ventre Myths and Tales. By A. L. Kroeber. May, 1907	55
Part IV. Ethnology of the Gros Ventre (Plates VIII to XIII). By A. L. Kroeber. April, 1908	141
Part V. The Hard Palate in Normal and Feeble-Minded Individuals (Plates XIV to XXII). By Walter Channing and Clark Wissler. August, 1908	283
Part VI. Iroquois Silverwork (Plates XXIII to XXIX). By M. R. Harring- ton. September, 1908	351
Acknowledgments	371
Index	373

ANTHROPOLOGICAL PAPERS

OF THE

**American Museum of Natural
History.**

Vol. I, Part I.

Technique of Some South American Feather-work.

BY
CHARLES W. MEAD.

NEW YORK :
Published by Order of the Trustees.
January, 1907.

ANTHROPOLOGICAL PAPERS

OF THE

AMERICAN MUSEUM OF NATURAL HISTORY

VOL. I, PART I.

TECHNIQUE OF SOME SOUTH AMERICAN FEATHER-WORK.

BY CHARLES W. MEAD.

CONTENTS.

	PAGE
INTRODUCTION	3
ANCIENT FEATHER-WORK	5
Feather Ponchos	5
Feather Head-dresses	9
Shawl-like Garment	12
Plumes	12
MODERN FEATHER-WORK	13
Feather Bracelet and Ear-ornament	13
Feather Waistband	14
Feather Shoulder-ornament and Wands	14
Feather Hatband and Belt-ornaments	15
Feather Forehead-band	16
SUMMARY	17

ILLUSTRATIONS.

PLATES.

- I. Feather Poncho, Museum No. B-8581. Length, 53 cm.; width, 89 cm.
- II. Feather Poncho, Museum No. B-8580. Length, 84 cm.; width, 53 cm.
- III. Feather Head-dress, Museum No. B-4520. Height, 35 cm.
- IV. Karaja Feather Wands, Museum Nos. 40-1070, 40-1071. Length, 62 cm.

TEXT FIGURES.

	PAGE
1. Ordinary Methods of attaching Single Feathers	4
2. Technique of lengthening the Shaft of a Feather	5
3. Technique of Feathered Strings	7
4. Method of attaching Feathered Strings to Cloth	7
5. Variation in the Method of attaching Feathered Strings to Cloth	7
6. Loop of Cord on a Feather-shaft	6
7. Detail of a Feather Poncho	8
8. Feather Attachment in Modern Work	13
9. Feather Attachment in a Modern Ear-ornament	13
10. Feather Attachment used by the Guato	14
11. Karaja Feather Attachments	14
12. Technique of Karaja Wands	15
13. Aymará Technique	16
14. Yahgan Technique	16

INTRODUCTION.

The subject of feather-work in America has not received the attention it deserves. While it was widely distributed over both continents, reaching its highest development in South America and in Central America, it retained the same characteristics from north to south. The art also flourished in Polynesia, the natives of which are often considered as ethnically related to the Americans. This Museum has from time to time, in connection with general ethnological research, collected material illustrating feather-work among North American tribes, especially those of California and the Plains. While no systematic study of the technique of such feather-work has been made, a few types have been described in previous publications of the Museum. The following paper is an attempt to furnish details, from a study of the collections now on exhibition in this Museum, in the technique of some feather garments and ornaments of the South American Indians. It was the original intention of the writer to present the details of the feather-work of the ancient Peruvians only; but later it was thought advisable to add a few examples, for comparison, of the work of such modern Indians as is represented in the Museum's collections. The examples selected are from the Chamacocos and Guato of Paraguay, the Karaja of Brazil, the Aymará of Bolivia, and the Canoe (Yahgan) Indians of Tierra del Fuego.

All the ancient specimens described come from graves in the coast region of Peru. From the foot-hills of the Cordilleras to the Pacific, a desert stretches the entire length of the country, broken only by a few fertile valleys which are watered by streams flowing from the mountains to the ocean. In this desert, where rain is almost unknown, are found the *huacas*, or burial-places, of the ancient Peruvian dead; and to the absence of rain and the dry nitrous character of the sand in which they were buried is due the wonderful state of preservation in which such materials as feathers and textile fabrics are found. So well are they preserved, that in many instances they show little or no signs of age; and, after an examination of some of the garments of cotton and wool, it is difficult to imagine that these objects have lain for centuries in the grave. The fabrics are apparently as strong, and the different colors with which the threads were dyed are as bright, as when the garments were woven.

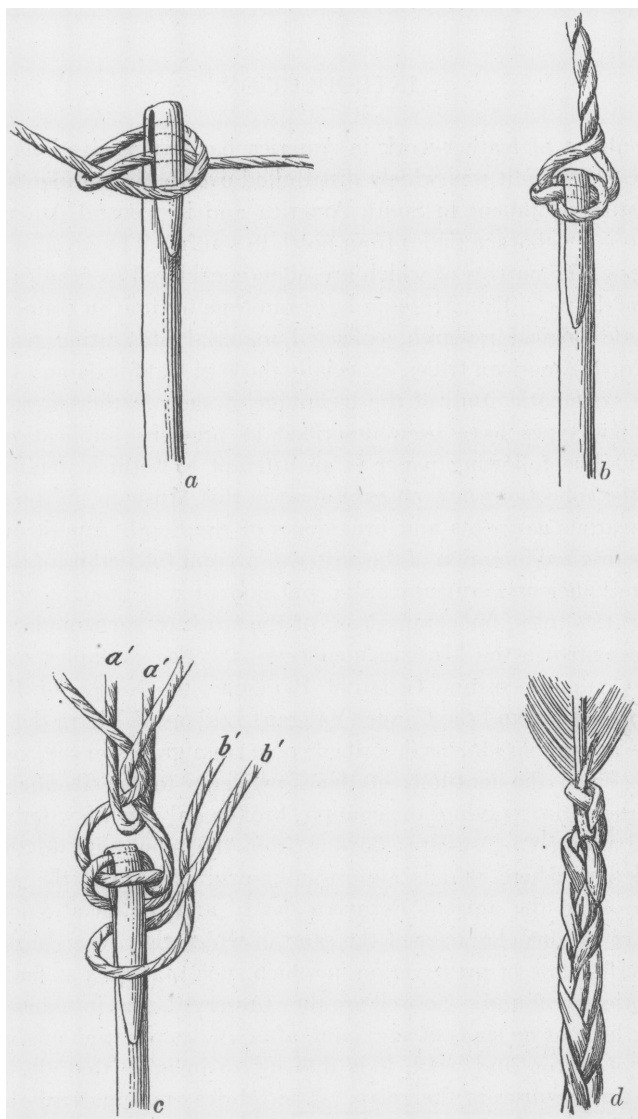


Fig. 1. Ordinary Methods of attaching Single Feathers.

I. — ANCIENT FEATHER-WORK.

In ancient Peru the mode of attaching single feathers to head-dresses, to plumes (so often found on the false heads of the mummy-bundles), and to similar objects, was both ingenious and effectual. These ornaments were usually made of rather short feathers, which necessitated the addition of something to the shaft to increase its length; and this added material must be of sufficient stiffness to support the feather in an upright position. For this purpose a piece of rush, or stout cord of vegetable fibre or cotton, was generally used. One of the most common forms is shown in Fig. 1, *a*. The end of the quill is bent over upon itself; the cord or rush is passed in between the two parts of the shaft (carried around it from left to right), passing over the cord, and up under it on the left-hand side. When this knot is drawn taut, the two parts of the quill are held tightly together. In some cases the cord was carried several times around the shaft before being knotted. Frequently the quill was split, and half of its cylinder removed, before bending it over. Fig. 1, *b*, shows this knot firmly drawn and the ends of the cord twisted together.

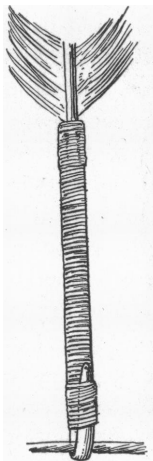


Fig. 2. Technique of lengthening the Shaft of a Feather.

When a piece of rush was used and twisted in this manner, and allowed to dry, it was generally stiff enough to support the feather in the required position. When this was not the case, or when a cord of other vegetable fibre lacking the required stiffness, or cotton, was employed, a second piece was frequently added, which was attached in one of the two ways shown in Fig. 1, *c*. It was either passed between the two parts of the first cord, just above the quill (*a'*), or around the shaft, just below the knot (*b'*). The ends were then brought up and twisted together, forming the third cord, and the three were braided, as in Fig. 1, *d*.

Another method employed to lengthen the shaft is shown in Fig. 2. Here a piece of rush or split quill is bound to it by winding with thread, which is generally carried over its whole length to add stiffness, and the lower end is bent over and also fastened by thread to form a loop. This was a very common way of preparing feathers to be used in the larger head-dresses.

Feather Ponchos.—The most beautiful pieces of feather-work from the old Peruvian graves are undoubtedly the ponchos and the head-dresses. The so-called feather poncho was a cloth garment, often of several thicknesses, decorated with feathers. It was commonly parallelogram shaped, with a median slit for the admis-

sion of the wearer's head, one half falling in front and the other behind. In a few instances the cloth was folded, and the sides closed by sewing the edges together, leaving an opening on either side for the arms.

The entire outer surface was covered with feathers arranged in parallel rows, one row overlapping another in shingle-fashion. The feathers were first fastened to cords of the same length as the width of the cloth to be covered. This stage is shown in Fig. 3, where the upper cord passes through the loops in the quills, and the lower compresses both parts tightly together upon it. Each shaft, being thus held at two points, is kept in a perpendicular position. These feathered strings are figured in Dr. Baessler's¹ excellent work. He says of them, "To avoid the necessity of having to fix each feather separately, which would greatly increase the labor, whole rows of feathers were arranged beforehand, those of about equal size and of the same color being knotted to threads at as far as possible equal distances, so that these alone required to be carefully sewed on in order to obtain a uniformly fine piece of work."

The method of attaching these feathered cords to the cloth is one of knotting rather than of sewing, as is shown in Fig. 4. Cords *a* and *b* are the same as the cords in Fig. 3. The ends of these cords are usually knotted to the edge of the cloth, but in some cases hang free. Cord *c* is first knotted to the cloth at the right-hand edge of the poncho, then carried over the shaft of the first feather, down through the cloth, coming out on the right-hand side, where it is passed over and under the cord, forming a knot. It is then carried up the shaft, through the knot in cord *b*, and over to the next feather. When all the feathers in the row have been similarly attached, this third cord is knotted to the cloth at the left-hand edge of the garment. In some cases I find this cord *c* attaching each feather to the cloth in two places. This variation is shown in Fig. 5. Here, after fastening the shaft below in the usual way (Fig. 4), it is carried up, passed through the cloth on the left-hand side, and out over the second cord (*b*) on the right side, and the usual knot formed, and thence to the next feather.

Both of these methods are sometimes found in the same poncho. A variation in the method of stringing feathers appears also in Fig. 5, where, instead of bending the quill over, a loop of short cord is wound to the shaft with thread, as in Fig. 6.

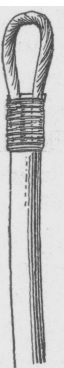


Fig. 6. Loop of Cord on a Feather-shaft.

In the representation of conventionalized animal figures, geometrical

¹ Baessler, *Ancient Peruvian Art*, description of Plate 148.

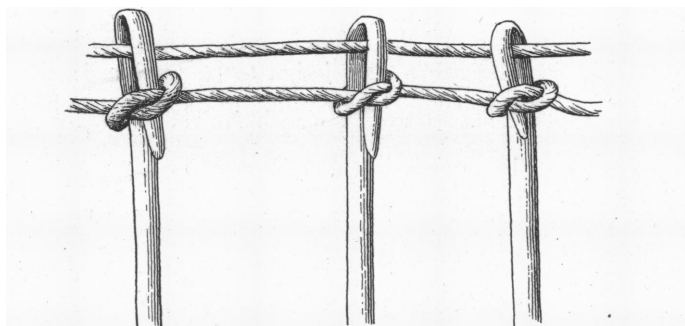


Fig. 3. Technique of Feathered Strings.

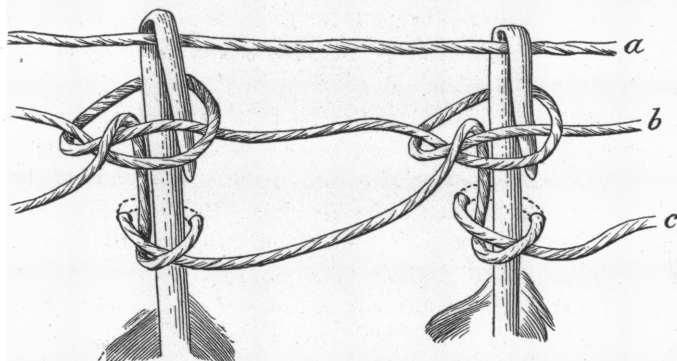


Fig. 4. Method of attaching Feathered Strings to Cloth.

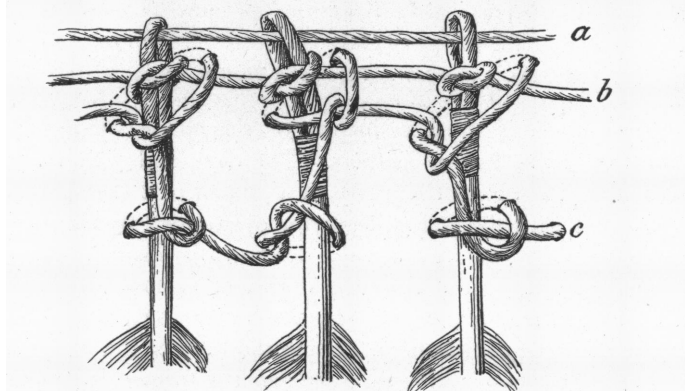


Fig. 5. Variation in the Method of attaching Feathered Strings to Cloth.

designs, and bands in colors, two methods were pursued, — one by means of feathered strings (Fig. 3), the different colored feathers being arranged on these strings in reference to the design to be produced; the other by gluing entire feathers, or parts of their vanes, to the object to be decorated. On ponchos and other pieces of cloth of considerable size, the first method was employed, and the process will now be described.

Small feathers were most suitable for this work. Those used seldom exceeded two inches in length, and were usually very much shorter. A poncho before me is covered with very dark colored feathers, and has for decoration a plain band and a scroll below it, both in yellow (Fig. 7). The

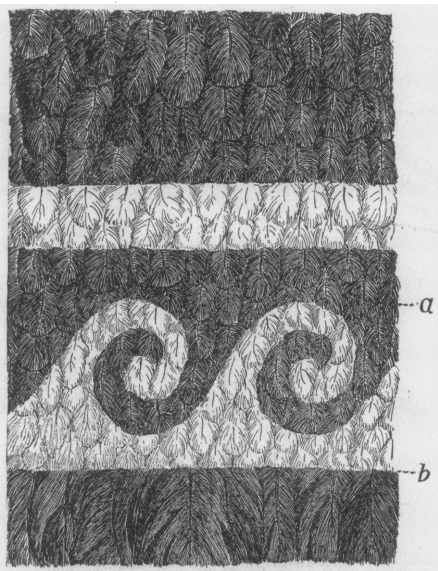


Fig. 7 (B-6715). Detail of a Feather Poncho.

distance from *a* to *b* is but three inches, yet this space is crossed by twelve horizontal rows or strings of feathers. The dark and yellow feathers are so arranged on the different strings that a greater part of the surface of the cloth is covered with the yellow feathers, overlapped by the darker ones, in such a way as to cover all but the design to be shown. At this stage, the design is very imperfect, part of a dark feather covering a surface that should be yellow, and *vice versa*. These overlapping parts were trimmed away by some cutting-implement, leaving the lines of the figure sharp and clear. The yellow band just above the scroll is formed by four strings of yellow feathers; and here again, as in the scroll-work just described, cutting

away parts of feathers was resorted to in making a sharp and straight line of demarcation between the dark ground-work and the yellow of the band.

The Museum's collections contain two remarkably handsome and well-preserved feather ponchos. One of these (Plate I) may be briefly described as a yellow poncho decorated in red, blue, and black. Just below the middle, the yellow is crossed by a band of red five-eighths of an inch wide; and below this is a band of blue of the same width followed by a broad band of yellow, upon which the scroll is represented in black. Below the scroll is a narrow band of blue followed by one of red. Beneath this a band of yellow, three inches wide, extends to the lower end of the garment.

In the other poncho (Plate II), the ground-work is blue, with decorations in yellow, red, and white. Six large conventionalized fish-figures, in two rows of three each, occupy considerably more than half the surface. These are alternately yellow and red. Below these fish-figures come two narrow bands, red and yellow, followed by a broad band of the blue ground-work, upon which appear the scrolls shown in Fig. 7. These scrolls are alternately red and yellow. Next follow two narrow bands, yellow and red, when the blue again appears. To the lower end is attached, as a fringe, a row of white feathers, which are about five inches long.

Feather Head-dresses. — The foundation of a large head-dress is usually a crude sort of cloth cap; but sometimes it is a framework of light pieces of wood covered with cloth or a net. The typical form has the cap of cloth with a broad lappet hanging behind, and a narrower and somewhat shorter one from either side. The method of attaching the feathers in this form of head-dress seems to have been practically the same throughout the coast region of Peru; and a description of one will answer for all.

The best preserved specimen in the Museum collections (Plate III) is a cap made of two thicknesses of coarse stout cotton cloth. It is conical in form, about five inches and a half high, and seven inches and a half in diameter at the base. The lappet hanging from the back is seventeen inches long by seven inches in width, while the lappets from the sides are fifteen inches by two inches. Two stout cloth strings are sewed to the lower edge, evidently to be tied under the chin to keep the head-dress in position. From the upper surface rises the great funnel-shaped plume, consisting of several hundred feathers. The central ones, which stand upright, reach a height of nine inches and a half; the outer ones, falling over gracefully on all sides, give it a diameter of twenty inches. The feathers, which are but six inches long, have been lengthened by the addition of pieces of split quill. The feathers thus prepared are fastened to the cloth in pairs by a cord passing through the loops in the split quills.

Fig. 2 shows a feather with the split quill bound to it, and the cord

that attaches it to the cloth in the loop at its lower end. This cord, being fastened on the under side, is brought up through the cloth and through the loops of a pair of quills, down through the cloth, to appear again about an eighth of an inch farther on, where another pair is attached. This is repeated until the entire upper surface of the cap is covered. The lower parts and the lappets are covered with smaller feathers; the cap, by a band of white with one of dark brown below it; and the lappets, by bars of white, green, and dark-brown feathers, in the order named. Those of the lowest row are five inches and a half long, and hang from the end as a fringe. All of these feathers are strung together on cords, and attached in exactly the same manner as in the feather ponchos already described.

Professor Giglioli,¹ in an article on feather-work in the Mazzei Collection, figures a very fine specimen of these ancient Peruvian head-dresses. Belonging as it does to the same class as the one just described, having the large plume on the top of the cap and the lappets hanging from its lower edge, it nevertheless varies so considerably in its construction and ornamentation, that I append his account of it in full, as follows: —

“The cap is formed by a strong network of cord of a coarse vegetable fibre, not unlike cocoanut fibre; the meshes are knotted, allowing an open square about 10 mm. per side; this cap measures about 250 mm. in diameter and 130 mm. in depth. The bottom (top) ends with a circular opening, loosely closed with a piece of muslin-like cloth. Interwoven with the vegetable fibre forming the cord of the network is a certain proportion of human hair of its natural color. Except a band round its lower border, much wider at the back, and two patches above, one on each side, the entire outer surface of the cap is hidden by an abundance of long tufts of human hair of a dull golden yellow, more like discolored hair obtained by some chemical process akin to the modern use of ‘oxygenated water,’ or the more commonly used lime, than the effect of a dye. These tufts are about 100 mm. in length, and are inserted into the meshes of the network, being cut square at their free extremity. Around the open circular top of the cap is inserted a magnificent funnel-shaped diadem opening upwards, formed by three tiers of large feathers, viz., primary, secondary, and tertiary remigants and scapulars and greater wing-coverts of the Great Red and Blue Macaw (*Ara macao*). These feathers are cut and arranged by being neatly tied on the split quills of the larger wing and tail feathers of the same bird, so as to obtain a height of 250 mm.; such being the full height of the diadem, which at its expanded open circular extremity has a diameter of 400 mm.

“But this is not all, this magnificent diadem is formed by a double set of feathers all round, so that the inside as well as the outside shows the bright external surface of the feathers. These are again tastefully arranged as to color; thus the base and the sides of the diadem on its outer surface are of a splendid blue, slightly tinged with green (tertiary remigants of *Ara macao*), while in front and behind there are two large regular patches up to the upper edge, of a bright yellow shading into orange

¹ Giglioli, *Ars Plumaria* (Internationales Archiv für Ethnographie, Vol. VII, p. 223).

and mixed with red (wing-coverts of the same Macaw). The inner surface of the funnel-shaped diadem has the same arrangement of colors, only the blue predominates, and the yellow patches in front and behind are much smaller, being limited to the third or upper tier of feathers; besides, these are less carefully selected, and many show yet their green tips, which had been cut off the corresponding feathers of the outer series.

"On each side and at the back of the head-dress are dependent lappets, sewed on the network cap. The side or ear ones are narrow; 440 mm. in length, 50 mm. wide at the top, and 70 mm. at the end. They are formed of a strip of cotton cloth of loose texture, doubled, and covered on both surfaces with feathers bound and sewn together. The pattern in colors is identical on both sides and in both of these ear-lappets. Red is the main ground-color, with a patch of yellow above, a terminal band of orange-yellow, and four patches and transverse bands of blue. All these feathers appear to come from *Ara macao*. The nuchal, or as it might be termed dorsal flap or lappet, is 530 mm. in length, 200 mm. in width above, and 390 mm. wide below. It is sewn along the edge of the lengthened hind part of the network cap; its upper edge across a width of about 20 mm. is bare, all the remainder of the external surface of this flap is thickly covered with feathers, which are strung together and neatly fastened in imbricated transverse series on the cloth. The entire ground is covered with red feathers; above are two transverse rows, the first formed by three blue and two yellow patches, the second is continuous and entirely of blue feathers. The central portion is occupied by two grotesque helmeted human figures, side by side; the left one is made with yellow feathers, and has a red nose and blue mouth and eyes; the figure on the right is in blue with a yellow nose and red eyes and mouth. The feathers are all, I believe, to be got from *Ara macao*. Both figures have extended arms and legs. The lower portion of the flap is crossed first by a simple transverse band of blue feathers, then by five singular volute hooked ornaments turned towards the left, and done also with blue feathers. The subterminal lower border is again a blue cross-band, which is edged below by a line of yellow-red wing-coverts tipped with green, from the same Macaw. The cloth of this gorgeous nuchal flap is a strong cotton muslin, doubled, and furthermore strengthened by cross-bands woven into the muslin tissue; and is in itself a fine sample of superior textile fabric."

There remains one other method to be mentioned in the attachment of feathers to these larger head-dresses, that of gluing them to the cloth covering of a wooden framework. This requires no detailed description, as it will readily be seen that — with small feathers of various colors, and pieces of the vanes of such feathers cut into the required shapes, and some adhesive substance — very beautiful mosaics could be formed.

A head-dress beautifully illustrating this process is figured by Dr. Baessler.¹ He says of the foundation, "On a frame made of little thin wooden sticks, the square form is platted of fine wooden boards with rounded angles. At each corner rises a similarly prepared cone-shaped peak."

This frame, he states, was covered by a stout material woven of a brown-

¹ Baessler, *Ancient Peruvian Art*, description of Plate 147.

ish yarn. The ground-color of this specimen is blue; and on two sides are beautiful mosaics, representing one large and several smaller figures, the latter in bird form. The larger ones, which are highly conventionalized, have wings, and a crown-like object on the head. They hold something in the hand which looks like a small animal. The colors used in producing these mosaics are white, yellow, red, blue, green, and black. Dr. Baessler says, "The mosaic is so executed, that only the finest tips, cut from the feathers without stems, have been glued to the material."

Feathers were often glued to substances other than cloth, more particularly to wood. Although entire feathers were sometimes used, small pieces of the vane, as in the mosaic described, were usually found best suited to this class of work. Thin disks of gold and silver were not unfrequently sewed to cloth by means of perforations made near their edges, and these were sometimes surrounded by two or more concentric rings of bright-colored feathers.

Shawl-like Garment.—In the collection is a shawl-like garment, about six feet long by five feet wide, having eight of these silver disks sewed to it. Each disk measures five inches and five-eighths in diameter, and is surrounded by three circles of feathers; the inner blue, the next red, and the outer one blue. Near the bottom, the garment is crossed by a band of feather-work in blue followed by one in red, each two inches in width. Just below these, and occupying the lower edge, is a row of white and red feathers, each about five inches long. The stringing of these feathers, as well as their attachment to the garment, is identical with that on the ponchos, as shown in Fig. 4.

Plumes.—A great variety of plumes adorn the false heads of the mummy-bundles. In these the shafts of the feathers were generally lengthened by pieces of rush, split quill, or cord of vegetable fibre, after the manner already described. Sometimes these additions were completely hidden by variously colored small feathers bound to them by thread. Thus prepared, they were bunched into various shapes. A number of plumes have been figured, in colors, by Reiss and Stübel.¹ A favorite form of the larger plumes of this class was that of the palm-leaf fan, with the exception that its upper part was not curved. A short stick was used for the handle, the stems of the feathers were gathered about it in little bundles placed in the required positions and bound to it. These feather bundles were spread out, and held in position by a solid mass of interwoven cords extending several inches from the end of the stick.

¹ Reiss and Stübel, *Necropolis of Ancon*, Plates 14, 21, 77.

II. — MODERN FEATHER-WORK.

Feather Bracelet and Ear-ornament.—A feather bracelet and an ear-ornament may be taken as types of the feather technique of the modern Chamacoccos Bravos Indians in Paraguay. The bracelet (Museum No. 40-1637) is five inches and a quarter in length by three inches in width. The outer surface has been given a rounded form by trimming off the tips of the feathers. These are not much more than an inch in length, and are strung together on fine but strong cords of vegetable fibre. Eighteen of these feathered strings make this bracelet, and these are held in position by cords knotted from one to the other in such a way that the flat under side presents the appearance of a net. Both sets of strings project from either end, and, being twisted together, form the stout cords by which this ornament is attached to the wrist or arm. The feathers are fastened to the cords as shown in Fig. 8. This method of attaching feathers to cords is



Fig. 8



Fig. 9

Fig. 8 (40-1637). Feather Attachment in Modern Work.

Fig. 9 (40-1563). Feather Attachment in a Modern Ear-ornament.

employed by the Northern Maidu Indians of California¹ and by the Huichols² of Mexico. In both of these cases the process is reversed, but the result is the same. The feather ear-ornament from the Chamacoccos Bravos (Museum No. 40-1563) consists of twelve black-and-white feathers, each about seven inches in length, attached in pairs, and the ends of all the cords twisted together to make the stout one by which it is fastened to the ear. The upper part of the vanes have been notched, and bunches of small

¹ Dixon, Northern Maidu (Bulletin of the American Museum of Natural History, Vol. XVII, Part III, p. 152).

² Lumholtz, Symbolism of the Huichol Indians (Memoir of the American Museum of Natural History, Vol. III, Part I, Fig. 88).

black-and-yellow feathers bound to the attaching cords, just above the quills. The attachment of each pair of feathers is shown in Fig. 9. One end of the cord is passed through the loop of the two quills; the other is carried around the shafts (from left to right), through the loop thus made in the cord, and three times about the shafts, when it passes up on the shafts, under three of the turns, and over the fourth.

Feather Waistband. — A feather waistband from the Guato Indians of Paraguay (Museum No. 40-1657) consists of sixty-eight pairs of feathers

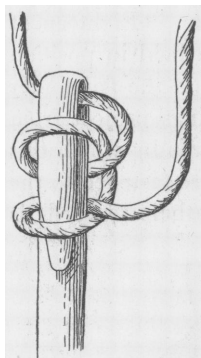


Fig. 10 (40-1657).
Feather Attachment
used by the Guato.

pendant from a cord, which is tied about the waist. The feathers, which are about seven inches and a half long, are attached in pairs. After splitting, and removing half of the quills, one feather is laid upon the other, the quills of both bent over on the same side, when they are attached as a single feather (see Fig. 10). The ends of the cord are not twisted together, one being wound tightly about the other for a distance of about an inch, when a simple knot is tied. Two other feathers being prepared in the same way, the cords of both pairs are doubled together over the main cord, and fastened in position by a knot in a second cord just below it (see lower cord in Fig. 3).

Feather Shoulder-ornament and Wands. — The Museum possesses a large collection of feather-work from the Karaja of Brazil, presented by the Duke of Loubat. The general technique is illustrated in a shoulder-ornament (Museum No. 40-1067) resembling in general the or-

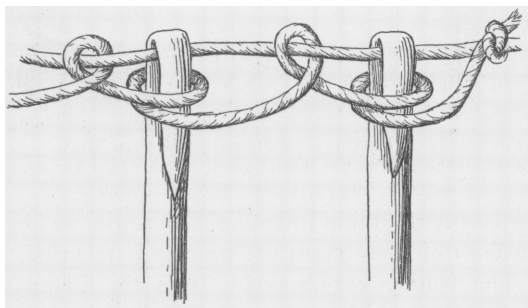


Fig. 11 (40-1067). Karaja Feather Attachments.

dinary form of waistband; but the feathers are attached, closely together, directly to the main cord. The two central feathers of this specimen are red tail-feathers of the macaw, twelve inches in length. On both sides of these are three blue feathers from the same bird, each seven inches in length.

The remainder, forty-eight in number and pure white in color (about eight inches long), are divided equally on either side of the colored central feathers. The quills have been split and half of their cylinders removed, before bending them over the main cord. The method of fastening them to this cord is shown in Fig. 11. A third cord is knotted from one shaft to another, about midway on their length, which holds them in position.

From the Karaja Indians came also the two feather wands shown on Plate iv. These beautiful objects consist of the tail-feather of the macaw (*Ara macao*), with many small feathers, on short strings tied to its shaft about three-quarters of an inch apart. The attachment of these smaller feathers is shown in Fig. 12. The upper wand shown in the plate is twenty-four inches and three-quarters long; blue on the outer side, with a greenish-yellow tint below. Of the depending feathers, three of the central ones are a bright red, as is also the one nearest the tip: the others are yellow. The lower wand is a red feather tipped with blue, depending feathers being pure white in color.

Feather-Hatband and Belt-ornaments.—A hatband and two belt-ornaments from the Aymará of Bolivia deserve mention. The hatband (Museum No. B-9575) is a string of red and white feathers, and is tied around the hat while dancing. The tips have been cut off to make all the feathers of the same length, — about six inches and three-quarters. The feathers in this ornament are attached (see Fig. 13) to the main cord, *a*, by two others, *b* and *c*. These last are knotted together at the right-hand side of the first quill, then a knot is made around its folded part. The next knot is tied about cord *a*, when another feather is added, and knotted about its quill. Thus the knots are tied alternately about the quills and the main cord, until the proper number of feathers has been strung. These are placed as closely together as possible.

Of the feather ornaments which are tied to the belt while dancing, and of all similar objects of the present Aymará, it may be said that they show little variety in technique; and a short description of two will suffice. In one of these belt-ornaments (Museum No. B-9578), which is in the form of a tassel, the feathers were first strung together in the same manner as in the hatband just described (see Fig. 13), then rolled up into the tassel form, and tied with a string. The whole has been colored a bright purple with analine dye.

Another of these ornaments (Museum No. B-9577) consists of a bundle of twenty-four red feathers having pieces of slender root bound to them.



Fig. 12. Technique of Karaja Wands shown in Plate iv.

with thread as extensions to their shafts. Each of these extensions has a smaller green feather bound to it. The method of attachment is the same

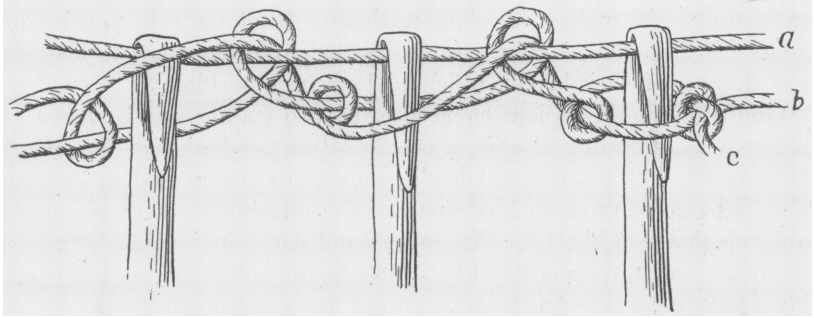


Fig. 13 (B-9575). Aymará Technique.

as in the ornament last described, and the feathers have been dyed with aniline colors.

Feather Forehead-band. — In the Museum's collections is a forehead-band used by the Canoe (Yahgan) Indians of Tierra del Fuego (Museum No. 40-753), and given by Mr. Barnum Brown. This is a string of

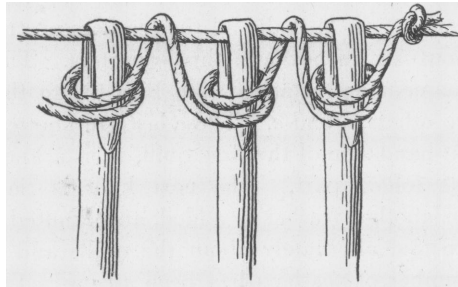


Fig. 14 (40-753). Yahgan Technique.

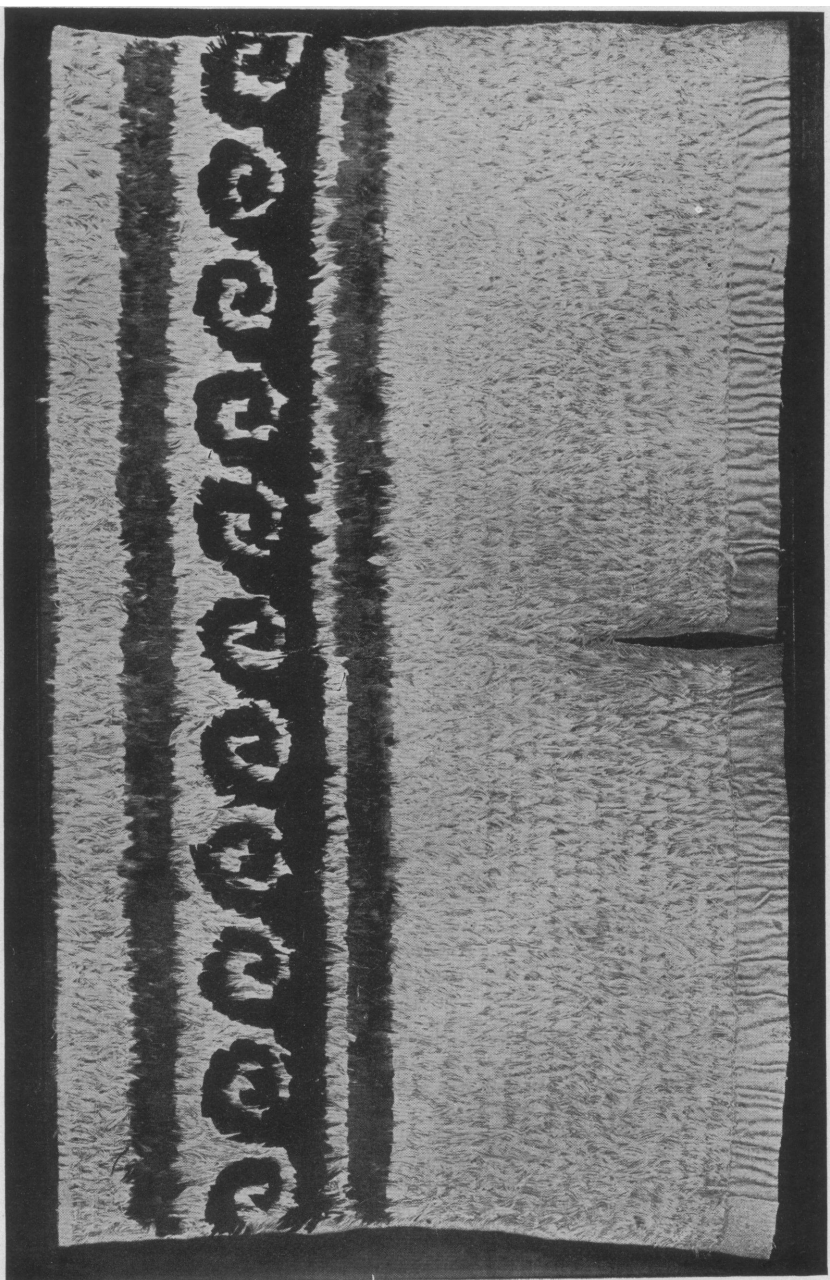
feathers evidently from a species of heron. They are about three inches in length, and are fastened very closely together on the main cord, being separated only by the diameter of the attaching cord. Both cords are of sinew. The details are shown in Fig. 14.

SUMMARY.

But little attempt has been made to identify the particular kinds of feathers used in making the above-described ornaments. It may be said in a general way, that the ancient Peruvians employed the feathers of the macaw and of many other varieties of the parrot family, and occasionally (in plumes of the larger head-dresses) those of the king vulture. The Karaja Indians of Brazil use the plumage of the macaw in the greater part of their feather-work, although that of other birds, not identified, will be found. In the work of the Chamacocos and Guato of Paraguay, feathers of the American ostrich (*Rhea*) and of different varieties of the parrot family are most commonly used. In describing step by step the process of making the various feather attachments, I have followed the order which seemed most natural; but the same result could, of course, have often been reached by proceeding in a different order.

In comparing the different forms of attachments shown in the illustrations, one striking difference will be seen between the methods of the ancient Peruvians and the work of such modern Indians as has been figured. The former employ a true knot in every instance, except in such cases as have the two parts wound together with thread. In the modern work, a loop or turn about the shaft takes the place of the knot. Figs. 1, *a*, and 8 illustrate the difference between these two methods. If a cord attached to a shaft, as in Fig. 1, *a*, be slipped downward until free from the feather, and then the ends drawn, a knot will result; but if we draw the ends of the cord in the form shown in Fig. 8, the loop disappears and there is no knot.

A few words may be said regarding artificially colored feathers in the work of the South American Indians. I have never been able to detect a single instance of their use among the ancient Peruvians, and the custom would seem to be confined, at the present day, to a few localities. Two ornaments have been described consisting of feathers stained red and purple by aniline dyes. These were used by the Aymará Indians in the vicinity of La Paz, Bolivia, who have lived many years in close contact with the white man, and have become well acquainted with his cheap dyes. The use of these dyed feathers, which have a particularly garish and unnatural appearance, is, I believe, one evidence of the decadence which seems inevitable to Indians in their situation. Primitive man, even in his combinations of most brilliantly colored feathers, seldom produces effects that offend the artistic eye.



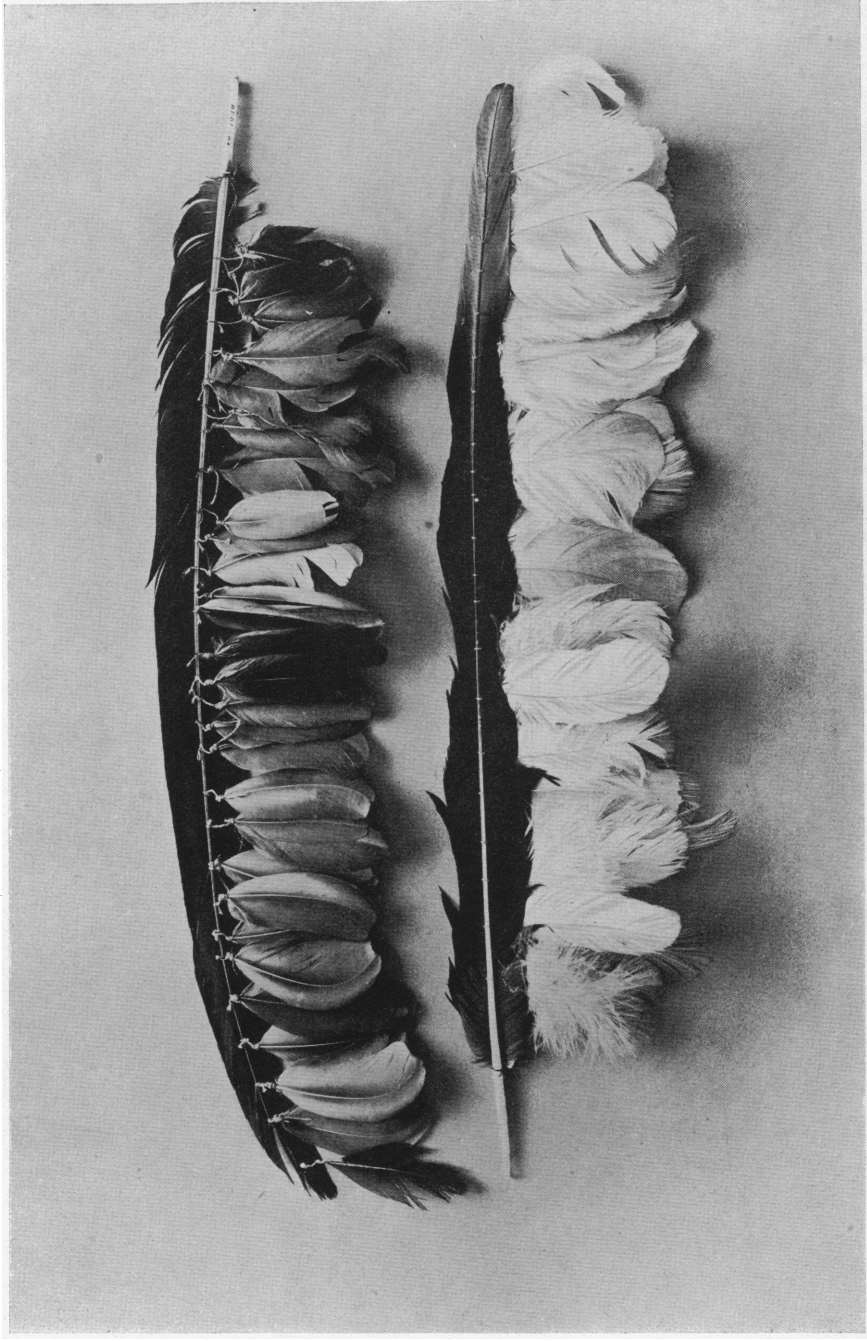
FEATHER PONCHO.



FEATHER PONCHO.



FEATHER HEAD-DRESS.



KARAJA FEATHER WANDS.

