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OF THE

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Vol. I.

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**EDITOR.**

CLARK WISSLER.

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ANTHROPOLOGICAL PAPERS

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**American Museum of Natural  
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Vol. I, Part I.

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Technique of Some South American Feather-work.

BY

CHARLES W. MEAD.

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NEW YORK :

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January, 1907.

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ANTHROPOLOGICAL PAPERS  
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AMERICAN MUSEUM OF NATURAL HISTORY  
VOL. I, PART I.

TECHNIQUE OF SOME SOUTH AMERICAN FEATHER-WORK.

BY CHARLES W. MEAD.

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## 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 Chamacoccos 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.

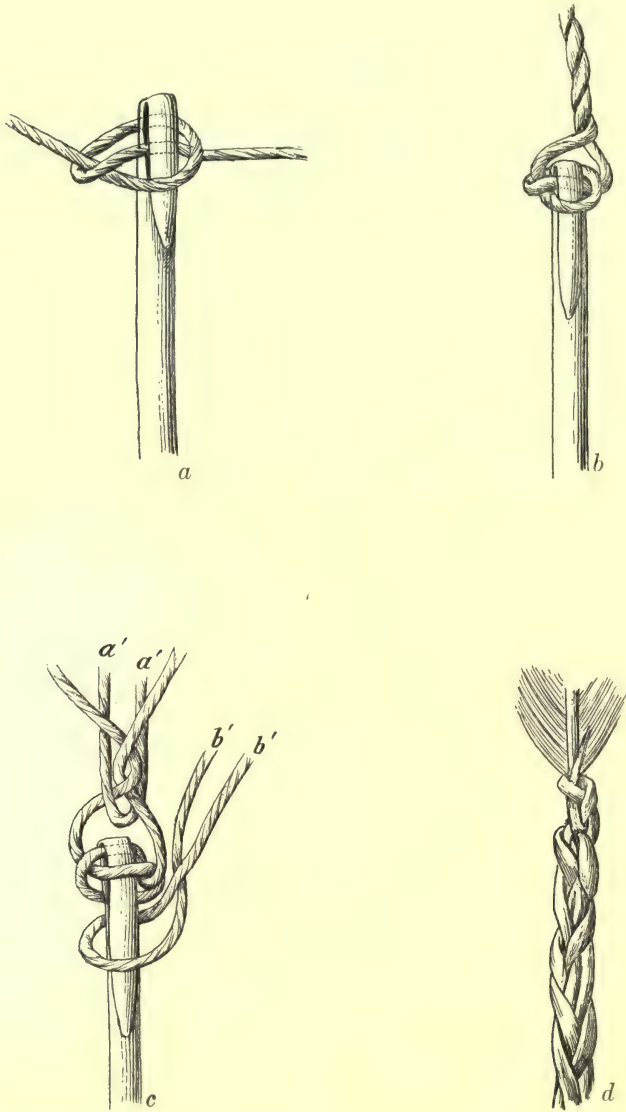


Fig. 1. Ordinary Methods of attaching Single Feathers.

## 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.

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.

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

*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's<sup>1</sup> 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

<sup>1</sup> Baessler, *Ancient Peruvian Art*, description of Plate 148.



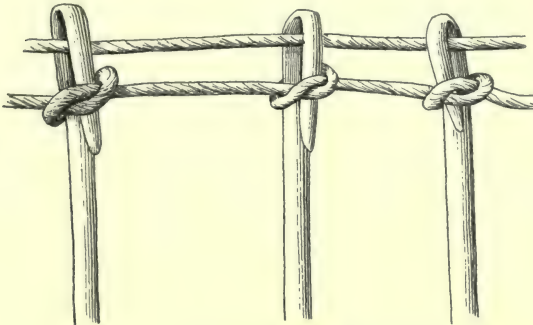


Fig. 3. Technique of Feathered Strings.

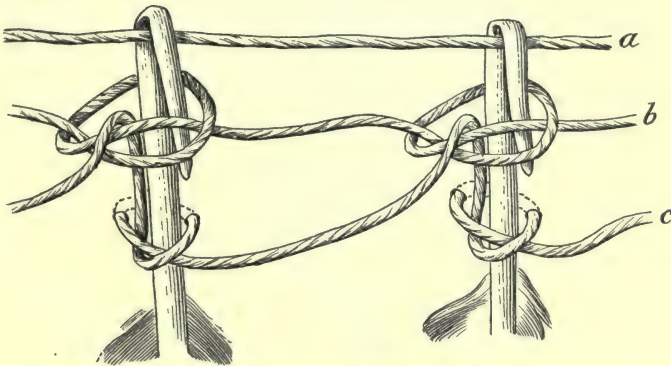


Fig. 4. Method of attaching Feathered Strings to Cloth.

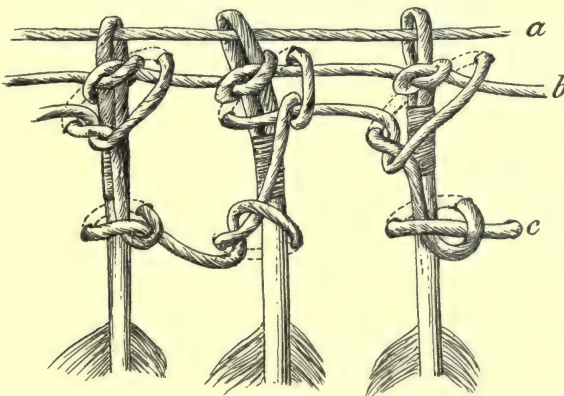


Fig. 5. Variation in the Method of attaching Feathered Strings to Cloth.

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

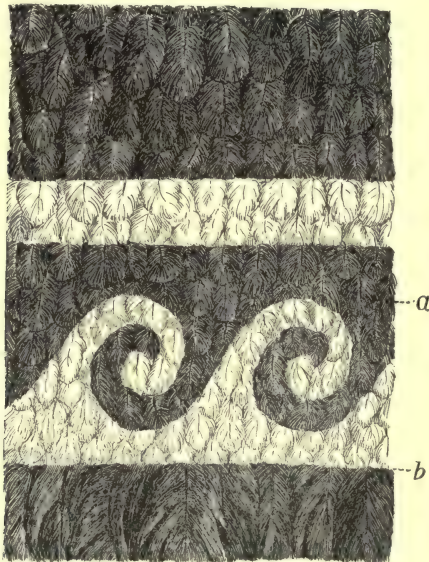


Fig. 7 (B-6715). Detail of a Feather Poncho.

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,<sup>1</sup> 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

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<sup>1</sup> 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.<sup>1</sup> 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-

<sup>1</sup> 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.<sup>1</sup> 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.

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<sup>1</sup> Reiss and Stübel, *Necropolis of Arcon*, 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 Chamacocos 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. 8 (40-1637). Feather Attachment in Modern Work.

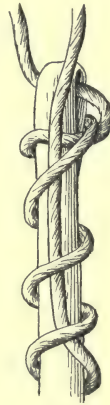


Fig. 9

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

employed by the Northern Maidu Indians of California<sup>1</sup> and by the Huichols<sup>2</sup> of Mexico. In both of these cases the process is reversed, but the result is the same. The feather ear-ornament from the Chamacocos 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

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

<sup>2</sup> 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 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).

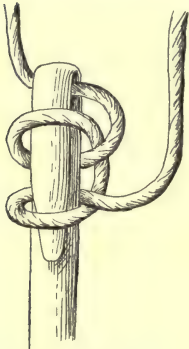


Fig. 10 (40-1657).  
Feather Attachment  
used by the Guato.

*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-

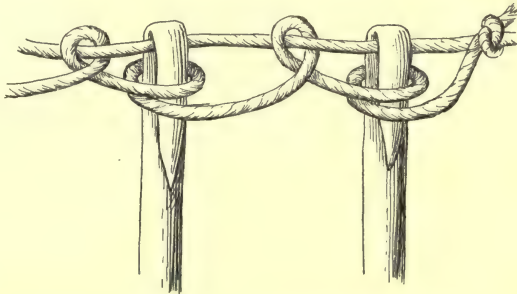


Fig. 11 (40-1067). Karaja Feather Attachments.

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 Aymar  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 Aymar , 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

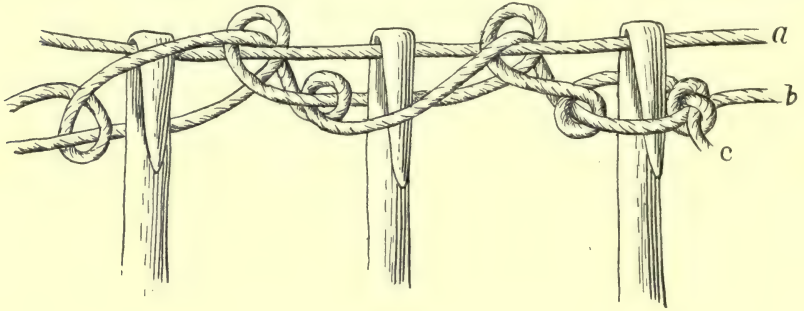


Fig. 13 (B-9575). Aymará Technique.

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

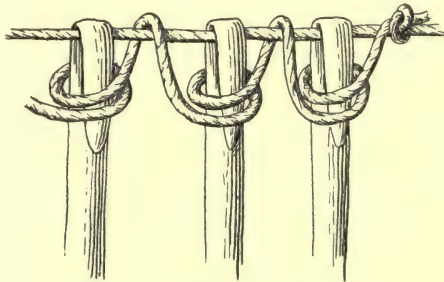


Fig. 14 (40-753). Yahgan Technique.

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.



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Vol. I, Part II.

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SOME PROTECTIVE DESIGNS OF THE DAKOTA.

BY

CLARK WISSLER.

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## INTRODUCTION.

The decorative art of the Dakota has been treated in a preceding paper, in which brief mention was made of religious art, or that art in which there was a definite, unmistakable motive on the part of the artist to represent mythical or philosophical ideas. In this more serious art, a large number of designs may be characterized as "protective designs," because their presence or possession is in part a protection. The idea in a protective design seems to be a symbolical appeal to the source or concrete manifestation of a protective power. It is not easy to get the point of view and the spirit of the faith that make these designs significant, but from the detailed explanations of them some general idea can be formed. The descriptions given in this paper are based upon the statements of Indians, in most cases the executers of the designs. The attitude of the reader toward such a study as this is often that of concluding that the points of view set forth by a writer are universal in the tribe. This leads to a great deal of superficial criticism. In the opinion of the writer, any rejection of such study because one or two or several Indians deny all knowledge of some or all of the specific native accounts upon which conclusions are based, is absurd. We might as well test the artistic sense of a city by calling in one or two persons from the street. As a case in point, the reader is referred to the remarks of J. Owen Dorsey on the authenticity of Bushotter's *Double Woman*.<sup>1</sup> A great deal of the information received from Indians relative to religion is largely individual, and every ethnological field-worker must take the best of his material from the brightest men of a tribe. The object of this study has been to bring together ideas expressed by various individuals more or less eminent among their people, because all of these individual conceptions seem to have much in common. The data were secured by the writer when on Museum expeditions to the Teton and Yankton divisions of the Dakota.

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<sup>1</sup> Dorsey (Eleventh Annual Report of the Bureau of American Ethnology, p. 480).

## SHIELD-DESIGNS.

The circular shield was distributed over a large part of North America. A conspicuous part of the arms of Mexican warriors was "the round, small 'target' worn by the 'brave' on his left arm, and made of canes netted together and interwoven with cotton 'twofold,' covered on the outside with gilded boards and with feathers, and so strong that a hard cross-bow shot could alone penetrate them;"<sup>1</sup> but "merely ornamental shields [were also] used and carried by warriors and chiefs on festive occasions only."<sup>2</sup>

According to the same author, in Pre-Columbian times some of the Pueblo Indians used a thick disk of buffalo-hide as a shield. On the Plains, from the Rio Grande to the Saskatchewan, the circular shield of buffalo-hide was, until the extinction of the buffalo, a part of the regalia of every warrior. These shields usually bore symbolic designs. In many cases the designs were painted upon the rawhide itself, and protected by a buckskin cover; while in other cases the designs were painted upon the cover. Practically no shields of buffalo-hide are to be found in the hands of the surviving Dakota; but in social and religious ceremonies, models or shield-covers of buckskin or cloth, upon which are painted the designs formerly placed on shields, are often used. For purposes of study the writer secured such models of shields, with explanations of the designs and with other shield-lore, from persons who formerly owned buffalo-hide shields.

When the enemies of the Dakota were armed with native weapons, the shield had some value in itself, because few arrows could get through it, and it was of sufficient strength to ward off a blow from a club or an axe; but even at that time the designs and medicine objects tied to the shield seem to have been regarded as of greater importance than the mechanical properties of the shield itself. It was the power represented by the design to which the owner of the shield looked for protection. Naturally, with the introduction of fire-arms, shields ceased to have a real protective value; but their designs were still looked upon as capable of affording protection against evil. According to the statements of some old men who still have faith in protective designs, the ancient shield manifested its power upon the mind of the enemy by influencing them to shoot at the shield rather than at the exposed parts of the body of its bearer. But when fire-arms were introduced, experience demonstrated that the shield was no longer a desirable object in battle, because the same influence

<sup>1</sup> Bandelier (Reports of the Peabody Museum, Vol. II, p. 109).

<sup>2</sup> Bandelier, *op. cit.*, p. 108.

that drew arrows to it drew bullets also, and in this case with fatal results. From this they concluded that guns represented a mystic power superior to that of shield-designs, but that the latter were still efficacious, except where so overpowered.

This explanation is interesting, because these men seem to have grasped the idea that the shield, being a conspicuous object, would attract the attention and thus the aim of the enemy; but they confused this psychological explanation of the observed facts with a mystic conception that the magic power of the design upon the shield was the cause or force that reached out and lay hold of the attention of the enemy. Yet the introduction of fire-arms did not relegate the shield to oblivion; and shield-designs are still cherished by men of the olden time, because they represent a kind of individual totem or protective power.

The following descriptions of shield-designs are given with the interpretations of their owners.

A shield-cover decorated with feathers, bearing a design used by a chief on ceremonial occasions, and said by him to be the copy of a shield carried in his youth, is shown in Plate v. The black border on top of the shield takes the form of the new moon, which it represents. In the centre of the shield is a well executed drawing of an Indian on horseback. The horse is in blue, with zigzag black lines extending down the legs. The blue color of the horse indicates his connection with the thunder, or the powers of the sky. The background of the shield is in yellow, but the lower part has been worked over with green. Symmetrically arranged around the mounted figure are four circles of purplish color, representing a phenomenon observed in the sky, which seems to have been either the halo of the sun, or the phenomenon that passes under the name of "sun-dogs." From the description of the owner of the shield, it appears that these four circles were associated in his mind with the medicine-hoop. He stated that this design as a whole was the representation of what he saw in a dream; that the moon with its dark color was drawn to represent the night, because that was the time when he had this experience; and that in the dream he saw a horse and rider appear in the sky surrounded by the four circular objects, as indicated upon the shield. It appears from his explanation, that the association of the rings with the medicine-hoop was his own individual interpretation of the significance of his dream. In the dream he could see a shield associated with these objects as they would appear in reality; but in the design he attempted to convey an idea of what he saw in conformity with the conventional modes of representative art practised by his tribe.

Another shield-cover (Fig. 1) bears a bird-design, representing to the owner the osprey (?). One half of the background of this shield is in yel-

low; the other half, in light green.<sup>1</sup> These two colors represent the appearance of the sky at sunrise; the yellow corresponding to the region of the dawn, and the green to the dark sky above. The four stars symmetrically arranged are colored black for the night, yellow for the dawn, blue for the evening, and red for the day; or in other words the whole circle is represented. The design of the bird presents some interesting details. The



Fig. 1 (50-2970). Shield-cover with Design. Diameter, 42 cm.

lightning-symbols represent the death-dealing power conferred upon the owner of such a shield-design at the time of his dream. The red marks upon the breast of the bird, representing the national emblem of the United

<sup>1</sup> In the drawings, colors are indicated by the following devices: red, by horizontal shading; yellow, by vertical shading; green, by left oblique shading; blue or purple, by right oblique shading. Black and white have their conventional qualities. The drawings were made by Miss R. B. Howe.

States, were interpreted by the owner as symbolizing such death-dealing power in contending with soldiers. The peculiar feature upon the tail of the bird represents an additional experience, and was added to the shield about the year 1867, after a successful engagement with the United States troops, in which the owner of the shield participated. According to his account, the design on the tail of the bird is the conventional symbol of the spider-web, but is used here to represent an experience preceding the above engagement. As the war-party were moving forward, they saw a strange appearance in the sky, which took the form of this symbol. The sight of it caused the war-party to scatter; and the interpretation placed upon this by the owner was, that its manifestation of supernatural power, which was to be conveyed to them, would cause their enemies to scatter in like confusion. During the confusion into which the party fell, the stars moved rapidly through the sky and the lightning flashed in all directions. This is represented by the four corners of the design. At the top of the shield is a braid of sweet-grass and a small buckskin bag containing medicines of a supposed charm-value. Before going into battle, some of this sweet-grass was to be burnt, and ritualistic songs pertaining to the shield were to be sung. This having been done, the shield was supposed to protect its owner from his enemies. Eight feathers, arranged in pairs, are attached to the shield, and their quills are painted to correspond to the parts of the background to which they are attached.

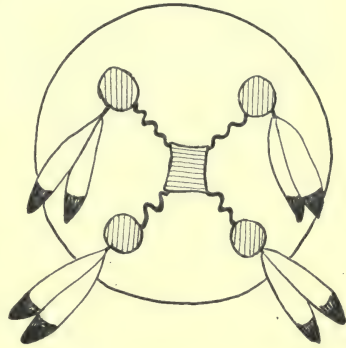


Fig. 2. Shield-design, from a Drawing by a Native.

There is one interesting feature connected with this shield-design, and that is the fact that some of the old men disapproved of the owner placing the spider-web design upon the tail of the bird, because it was a mixing of supernatural manifestations. The incident connected with this design was regarded by them as most extraordinary, and as having been worthy of distinct and separate representation. According to the accepted modes of interpretation, this experience should have been represented upon a new shield.

The specimen shown in Plate VI is not a shield-cover, but was nevertheless spoken of as a shield; and the design upon it is an old shield-design. The specimen is a cape (made of cotton) worn around the shoulders in such a way that the design could be seen upon the back of the wearer. Here

are represented the rainbow, the thunder-bird (possessing in this case characteristics which indicate that it was copied from the national emblem of the United States), the new and full moon, and the stars. It will be

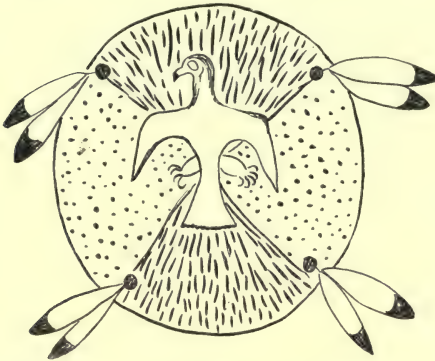


Fig. 3. Drawing, by a Native, of a Shield-cover.

observed that the stars in this case are four-pointed, similar to the design of the spider-web, and they are regarded by the Indians as an example of the old original method of representing them.

As a great many Indians who formerly owned shields do not now possess shield-covers, the writer secured drawings made by them of their former shields. Such a sketch is reproduced in outline (Fig. 2). In the centre is a design of the spider-web filled in with red. The ground of the shield is in blue, representing the sky. Above and below are circular areas in yellow, representing clouds or heaven. Lightning-symbols in red connect the yellow cloud-symbols with the four corners of the spider-web design. As a final suggestion relative to this interpretation, the informant said, "The spider is the friend of the thunder."

The manner in which the owner secured the shield-design represented in Fig. 3 is as follows. Once when a war-party of which he was a member were about to take the war-path, it was predicted by an old man that he would be killed in the first battle. Before leaving with the party, he went to an old medicine-man for help, and this man made him a shield bearing the design described below. The bird represented is the hawk, — flying from the sky, protected by the thunder from the hail-stones that fly thick and fast about him, — and symbolizes the manner in which the owner of the shield will pass safely through the hail of lead from the enemy. Four pairs of hawk-feathers are arranged symmetrically on the circumference of the shield.

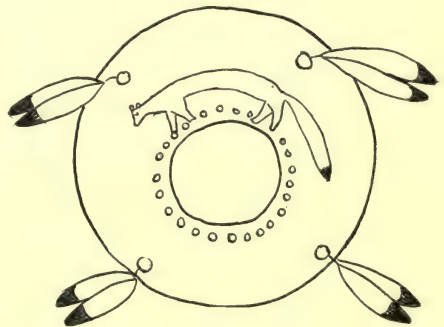


Fig. 4. Shield-design, from a Drawing by a Native.

In the shield-design in Fig. 4, we find a large circular area in the centre

painted yellow and the surrounding portion red. Around the circumference of the yellow portion are black spots, representing tufts of short crow-feathers. Upon the original shield, across the top, there was tied the skin of a weasel, represented in the drawing by a pictograph of that animal. Four pairs of feathers are arranged symmetrically on the circumference of this design.

The design represented by Fig. 5 is rather striking, since an image of the spider is placed in the centre of the shield surrounded by a circle of red, through which the numerous red lines radiate to the circumference of the design. These red lines represent the web of the spider. One end of a string is tied to the mouth of the spider, with an eagle-plume at the other end, painted yellow. Around the circumference of the design is a wavy blue line, representing water. The owner of this design received such a shield when a young man, and stated that he never understood why the medicine-man who made it for him placed the blue line around it, and for that reason he could not explain its significance.

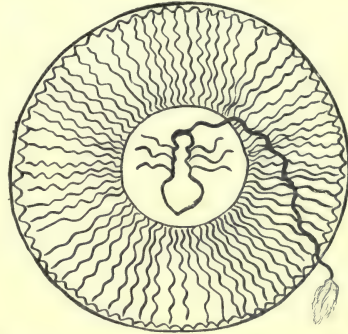


Fig. 5. Spider-design for a Shield, from a Drawing by a Native.

The design represented in Fig. 6 was dreamed of by the owner himself, and in this dream he was presented with a shield bearing a design similar to the sketch. As he was almost blind, the sketch is very crude. In it appear again the thunder-bird, the stars, the yellow clouds, the red and blue lightning, the new moon, and the bear. It was claimed that the curved double line at the bottom represented both the moon and the lightning; the former by the colors, the latter by its form. Another interesting point in this design is the representation of an eagle-feather upon the head of the bear. This is the conventional way of representing a supernatural bear as distinguished from a real bear.<sup>1</sup> The owner of this shield-design claimed, that, while he did not now and had not for years carried or kept about him a drawing of the design, he felt it as a kind of magic presence hovering around him, shielding him from harm. He stated, further, that, while he knew that other men used the symbols represented in his shield-design as the signs of particular powers and ideas, he himself had no such interpretation; for in the dream he saw nothing more than a shield bearing

<sup>1</sup> For an illustration see Catlin, *North American Indians* (7th ed., 1848), Plate 102.

these designs, and received no instruction or information as to their significance. Their protecting power to him lay in the peculiar supernatural presence which he always felt.

The shield-design in Fig. 7 represents a thunderstorm. At the top, the clouds are represented in blue. Below this, falling rain is represented by short irregular lines, and the lightning and thunder by zigzag lines ex-



Fig. 6.

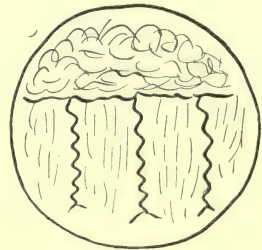


Fig. 7.

Fig. 6. Shield-design, from a Drawing by the Man who dreamed of it.

Fig. 7. Shield-design representing a Thunderstorm, from a Drawing by a Native.

tending downward from the clouds on a background of clear sky. This design originated in the same manner as did the preceding; that is, a finished shield was seen in a dream.

Plate VII is the reproduction of a model of a shield made of shrunken bull-hide covered with buckskin. It was collected by Dr. J. R. Walker. The design is somewhat similar to the preceding. The upper part is painted in blue to represent the clouds, and the lower part in bluish-green to represent the sky. In the cloud-area is the drawing of a horse, symbolizing a dream-horse (probably the thunder-horse). The thunder, or power, is symbolized by red zigzag lines extending downward from the cloud-area. An eagle-feather and twelve hawk-feathers are tied to a small buckskin bag of medicine, fastened to the shield in a manner suggesting their attachment to the mane of the horse. The circumference of the shield is decorated with small feathers, and four pairs of eagle-feathers are also arranged symmetrically around the circumference.

A shield (Fig. 8) similar to the preceding represents a vision in which the dreamer was apparently supported by the thunder-horse in a contest with the mythical turtle. A small bag of medicine and a pendant eagle-plume are attached to the shield, as in the previous case. Feathers are



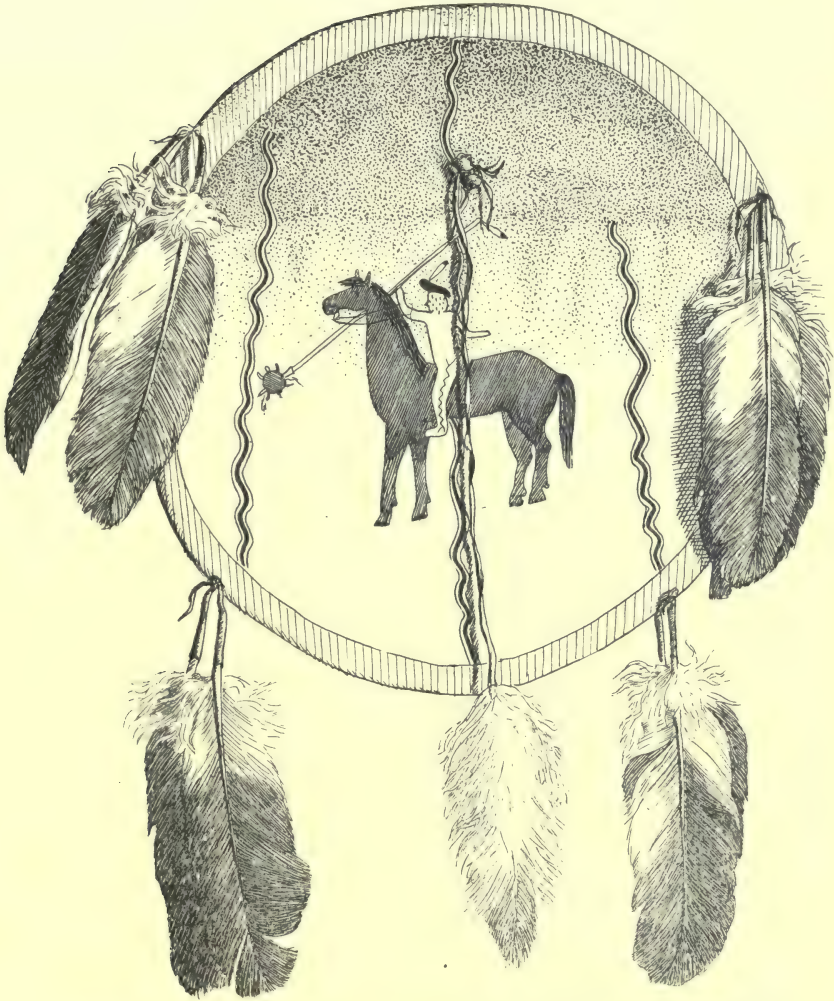


Fig. 8 (50-5456). Model of a Shield with Pictographic Design. Diameter, 47 cm.

again arranged in four pairs. This specimen was collected by Dr. J. R. Walker.

In the Museum collection from the Sauk and Fox Indians, made by Dr. William Jones, is a shield captured from the Sioux, at the time of the outbreak of 1866, by a Fox in the employ of the United States Government. The design was painted upon the rawhide, but is now almost obliterated. Fig. 9 is a diagrammatic restoration. The writer saw an old buffalo-hide shield in the possession of an Assiniboine, at Fort Belknap, Montana. The design was painted upon buffalo-hide, and was similar to that in Fig. 9. He collected also from the Dakota a number of drawings

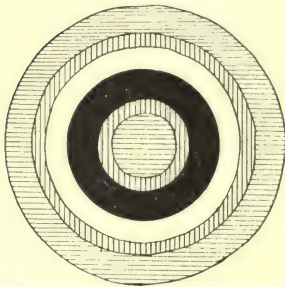


Fig. 9 (50-3569). Design on Sioux Shield captured by a Fox Indian. Diameter, 42 cm.

representing military exploits. While twenty shields are represented in these drawings, fourteen of them bear simple circular designs, as shown in the adjoining figure. This suggests that the older type of shield-decoration made use of simple circular designs. This idea was supported by the testimony of a number of old men who ought to be competent to speak upon the subject. Of course, there is no reason why the image of the thunder-bird, so common upon modern shield-designs, should not have been used in ancient times; and the writer

wishes to be understood as expressing this as an opinion based upon indirect evidence.

These circular designs often represented the sun, other heavenly bodies, or the sky, which suggests that formerly the shield as a whole may have been considered as a symbol of the sun. The survivors of shield-using days seemed to have no actual knowledge of any connection between the shield-form and the sun, but usually expressed it as their opinion that it represented the sun, and that the feathers represented the sun's rays. This may have been suggested by the fact that eagle-feathers were sometimes arranged in a half-circle to represent the rays of the sun, and that, furthermore, the rays of the sun were sometimes spoken of as feathers.

Shield-designs could originate only in dreams and visions, and were painted by the person experiencing them, who prayed and sang over his work to give the shield power. Usually but four shields could be made from a single dream: to make a great number was sacrilege. Among the Blackfoot, the shield was often accompanied by a ritual composed of songs and prayers; and they possessed a few shields with such important rituals that they were distinguished from the others as "medicine-shields."

There seems to have been a similar condition among the Dakota, for it was often said that medicine-shields were hung outside the tepees, upon tripods, and that during the day they were changed from time to time so as to keep them facing the sun. This practice was observed by a number of Plains tribes. However, among the Dakota the tripod often gave place to a single pole.

#### GHOST-DANCE DESIGNS.

About the year 1890 a religious movement, generally known as the "ghost-dance religion," infected the Plains Indians. The chief feature of this religion was the belief in a speedy return of the old time, the buffalo, and the extermination of the white race. The different tribes had various ideas of their duties with respect to this new faith, and, with the exception of the Dakota, they did not manifest direct hostility to the white race. This warlike people, however, were already greatly dissatisfied with the treatment they received from the Government and with the difficult conditions under which they lived. In consequence, they received the ghost-dance religion as a herald of the good time which, to their minds, was to be secured only by war with the white race. While a great many of the conditions in the immediate environment of the Dakota have been given by various writers as causes for the outbreak, the fact that these Indians interpreted the new religion as the manifestation of a warlike spirit was probably due to the fact that they were at heart a warlike people. Their ideas still run toward military things. As the essential idea of the ghost-dance religion was a return of the old time, the ceremonies pertaining thereto made use of the typical objects and ideas of the past. In this, of course, they were not entirely consistent, since they did not discard the use of fire-arms, and did not actually resurrect bows, arrows, and shields. Yet, as a substitute for the protective power of the shield, they introduced garments bearing protective designs. These garments are generally known under the name of "ghost-shirts," and at the time of the outbreak were spoken of by white people as "bullet-proof shirts." The following are descriptions of these garments by eye-witnesses at the time of their first appearance:—

"All the men and women made holy shirts and dresses they wear in dance. The persons dropped in dance would all lie in great dust the dancing make. They paint the white muslins they made holy dresses and shirts out of with blue across the back, and alongside of this is a line of yellow paint. They also paint in the front part of the shirts and dresses. A picture of an eagle is made on the back of all the

shirts and dresses. On the shoulders and on the sleeves they tied eagle-feathers. They said that the bullets will not go through these shirts and dresses, so they all have these dresses for war. Their enemies' weapon will not go through these dresses. The ghost-dancers all have to wear eagle-feather on head."<sup>1</sup>

"I think they wore the ghost-shirt or ghost-dress for the first time that day. I noticed that these were all new, and were worn by about seventy men and forty

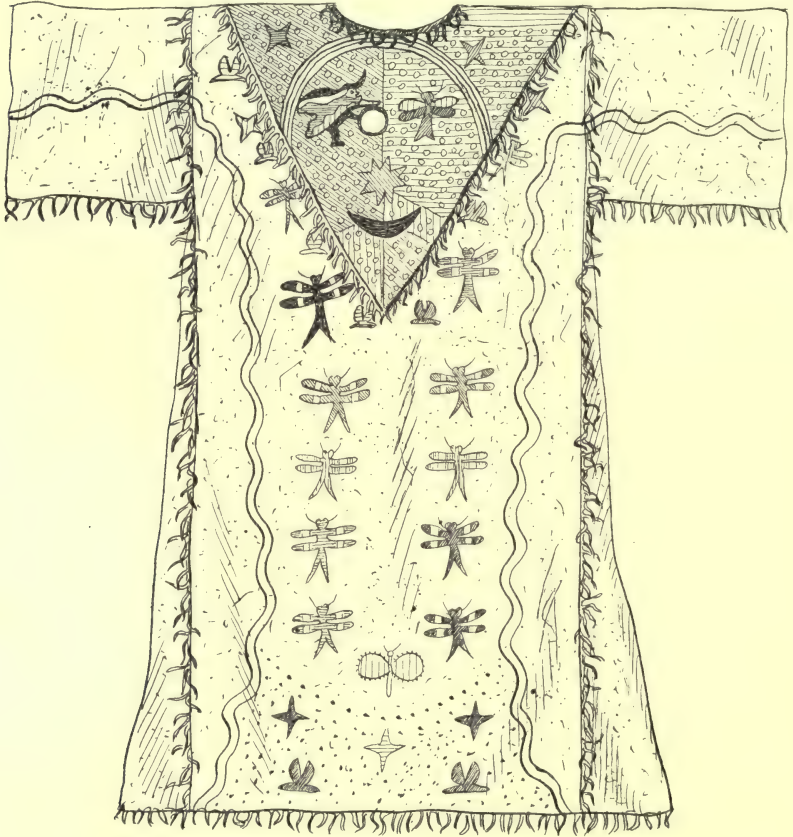


Fig. 10 (50-3053). Front of a Ghost-dance Garment. Length, 126 cm.

women. The wife of a man called Return-from-scout had seen in a vision that her friends all wore a similar robe, and on reviving from her trance she called the women together, and they made a great number of the sacred garments. They were of white cotton cloth. The women's dress was cut like their ordinary dress, a loose robe with wide, flowing sleeves, painted blue in the neck, in the shape of a three-cornered handkerchief, with moon, stars, birds, etc., interspersed with real feathers, painted on the waist and sleeves.

<sup>1</sup> George Sword, on Ghost-dance Religion (Fourteenth Annual Report of the Bureau of American Ethnology, p. 798).

"The ghost-shirt for the men was made of the same material — shirts and leggings painted in red. Some of the leggings were painted in stripes running up and down, others running around. The shirt was painted blue around the neck, and the whole garment was fantastically sprinkled with figures of birds, bows and arrows, sun, moon, and stars, and everything they saw in nature. Down the outside of the sleeve were rows of feathers tied by the quill-ends and left to fly in the

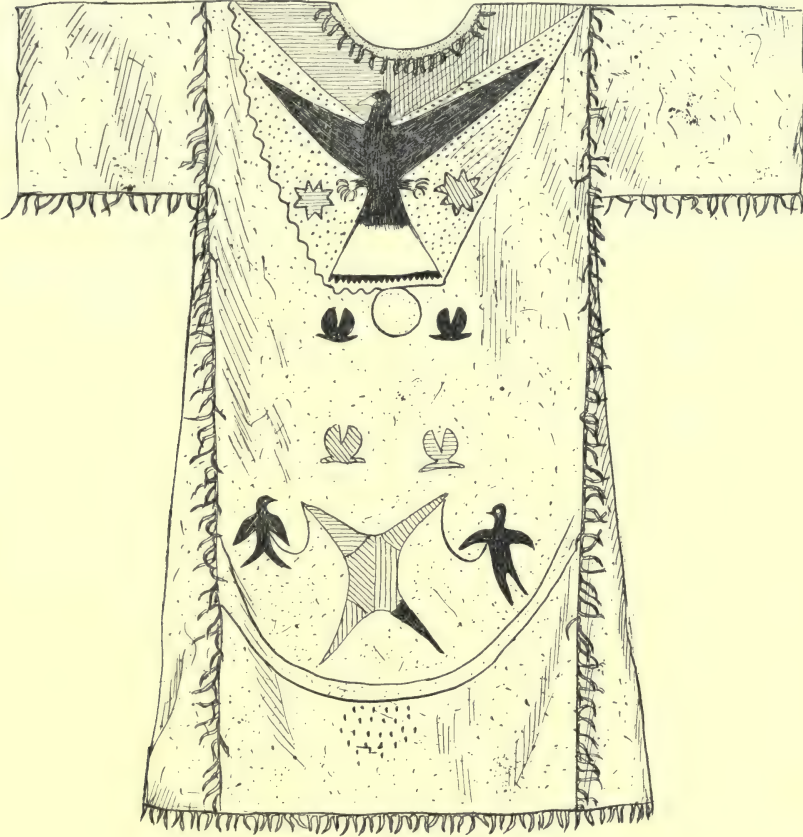


Fig. 11 (50-3053). Back of Garment shown in Fig. 10.

breeze, and also a row around the neck and up and down outside of the leggings. I noticed that a number had stuffed birds, squirrel-heads, etc., tied in their long hair. The faces of all were painted red with a black half-moon on the forehead or on one cheek."<sup>1</sup>

As is noted by the above, designs on these garments were made by individuals who had dreams or other unusual experiences similar to those

<sup>1</sup> Mrs. Z. A. Parker (Fourteenth Annual Report of the Bureau of American Ethnology, p. 916).

of the medicine-men; and it would seem from this account that the designs and objects used in the dance were in every way similar to those employed before the ghost-dance religion appeared. The writer made the acquaintance of several individuals who had prepared such garments at the time of the ghost-dance, and from them he secured reproductions with explanations as to the significance of the designs. As some time had elapsed since the ghost-dance religion was at the height of its popularity, it is possible that the more special features belonging to it were forgotten by these men, and that they worked into the reproduced garments older and more conservative ideas. However, the writer is of the opinion, and he took special pains to investigate as best he could, that whatever may have been lost in this way made no important changes in either the objective character of the designs or in the ideas expressed by them. As a matter of fact, the ghost-dance in some of its milder forms is still observed.

Some garments secured by the writer are decorated on both front and back with designs chiefly pictographic. On the front of one (Fig. 10) is a large triangular space extending downward from the shoulders (one half of which is in red and the other half in blue), thickly dotted over with white spots representing hailstones. The red represents the morning; and the blue, the night. Extending across from side to side is a large arched figure made up of red, yellow, white, and green bands, representing the rainbow. Above this are two four-pointed stars, the red for the morning star and the black for the stars seen in the night. There is a large green star with eight points on the dividing-line between day and night, concerning which I secured no satisfactory explanation. At the apex of the triangular space are small dots of yellow, representing the dawn; and the sun is placed on each side of the division between day and night. The new moon is represented by a black crescent. On the morning-side of this design is the picture of a butterfly; while on the night-side, extending over into the morning, is a picture of a peculiar figure, which the artist regarded as a spirit-bird or man-bird, as he expressed it, with the medicine-hoop in his hand. The other portion of the dress is covered over with small dots in various colors, representing bullets. There are also pictures of butterflies, stars, and buffalo-tracks. On one side are two parallel wavy red lines, and on the other two in green, representing the lightning.

On the other side of this garment, or the back (Fig. 11), is the representation of a bird, which seems to be mythical rather than realistic. The background upon which the figure rests is dotted to represent bullets or hail, as both have the same significance. The lower part of the garment is the most interesting. Here we have four buffalo-tracks arranged in rectangular relation to represent buffalo, and a circle or medicine-hoop (half of which

is red and half green) with extending lines of the same colors, representing the thunder, or its power. The idea of this association of the hoop, or, as it is sometimes spoken of, the mirror, is that this buffalo escapes bullets, or perhaps is immortal. Below the sign of the buffalo is a four-pointed figure, usually known as the spider-web design, representing the heavens; and below this is the rainbow. Two swallows are represented connected to the points in the spider-web design by lines, indicating that they enjoy the protection of this power, making them difficult to hit with bullets or other missiles.

On another garment (Fig. 12), the triangular area at the top is entirely in red, covered with white spots representing hail, and bordered with wavy lines representing the rainbow. This represents the rainbow in the sky. The dark crescent represents the moon. Below is a large four-pointed star in black, representing the night, with a line extending over each side, representing the clouds. The small disk in red represents a bullet; and the small green crescent, the moon. Below these is the spider-web design, representing the heavens, over the four corners of which the lightning appears; but in this case the design is covered with dots representing the falling of the stars. Near this design we find the butterfly and the buffalo-tracks. The remaining space on the whole garment is covered with patches of color, representing the hail. On the opposite side (Fig. 13) are peculiar triangular designs, the background of which is in red bordered by straight lines, suggesting the rainbow; while on the red background are placed the design of the moon and two circles in such relation as to suggest a face. This design was spoken of as the "moon-face;" but this seems to have been an after-interpretation, since the artist wished to represent the medicine-hoop or mirror in the sky. [It seems likely that this is simply an adaptation of a head-dress used in the elk ceremony.] Below this we have a combination which appears to be the spider-web design combined with the figure of a bird, which is said to be the dream-figure, representing the bird seen on a tree. Below this we have the moon, rainbow, tracks of the buffalo, stars, butterfly, and a mounted warrior riding through the hail.

In Fig. 14, the triangular space at the top is similar to that on the preceding garment, and need not be described here. The body of the dress is covered with dragon-flies as they appear when flying over water. The stars represent reflections in the water; and the dashes of color, the hail. The wavy green lines extending down the full length of the garment represent the lightning. In this case the red at the top is spoken of as the thunder-cloud. On the opposite side (Fig. 15), the triangular area with its tail-like extension represents the rattlesnake. In addition we have tracks of

the buffalo, dragon-fly, and butterfly, all associated as in nature. Upon the sides of this garment are the designs of the lizard, swallow, and turtle.

The above detailed statements concerning the designs and their import do not convey their full significance as it was brought out in discussions between the writer and the men who made these garments. In the first

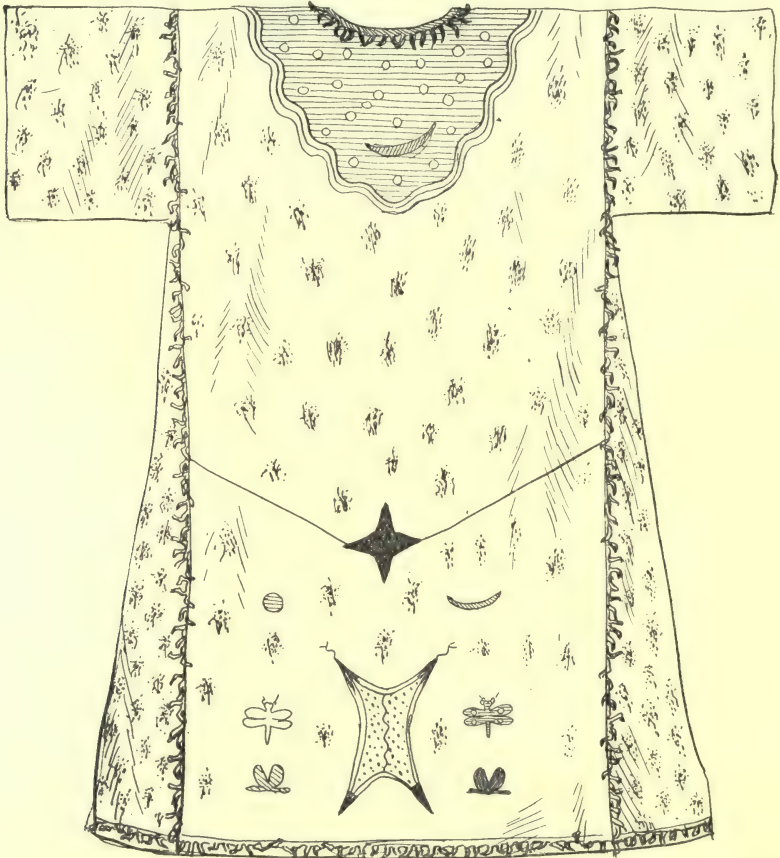


Fig. 12 (50-3054). Designs on the Front of Ghost-dance Garment. Length, 128 cm.

place we find on them symbols to be described in another section of this paper; namely, the spider-web designs and the medicine-hoop. It will be seen that in most cases the living creatures represented are those that seem to have power to escape the hailstones, because, as they say, no matter how severe the hailstorm may be, no one observes their dead or maimed upon the ground: therefore they assume that these creatures possess some



extraordinary power, or receive the attention of some protective power. The bird represented does not seem to be the thunder-bird, as is usually the case in Dakota art, but such species, usually birds of prey, as soar above the destructive range of the hail. The lizard and the turtle are spoken of as animals of great power, since they are killed with great difficulty, from which it follows that they also enjoy the protection of some



Fig. 13 (50-3054). Designs on the Back of Garment shown in Fig. 12.

power. This we may generalize by saying that the Indian placed upon these garments representations of living creatures that, according to his observation and experience, were seldom hit by missiles, or that possessed great vitality, making it difficult to kill them. Placed on the garments, they express a prayer, a hope, or an actual realization, on the part of the wearer, of the protective power by which these creatures are enabled to survive.

The triangular designs at the top of these garments were spoken of as shields, the idea being that they were in some measure shield-designs, and performed the same function as did those upon shields in former times. Mr. Mooney expresses the opinion that the protective designs on garments used in the ghost-dance religion were not aboriginal with the Indian.

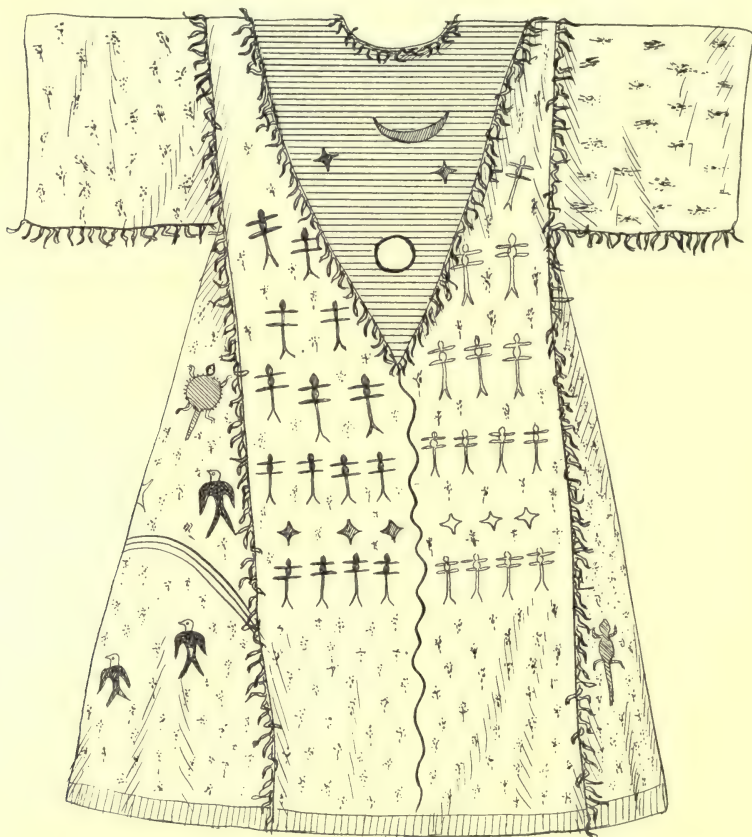


Fig. 14 (50-3055). Front of a Ghost-dance Garment bearing Dragon-fly Design.  
Length, 125 cm.

“The protective idea in connection with the ghost-shirt does not seem to be aboriginal. The Indian warrior habitually went into battle naked above the waist. His protecting ‘medicine’ was a feather, a tiny bag of some sacred powder, the claw of an animal, the head of a bird, or some other small object which could be readily twisted into his hair or hidden between the covers of his shield, without attracting attention. Its virtue depended entirely on the ceremony of the consecration, and not on size or texture. The war-paint had the same magic power of protection. To cover the body in battle was not in accordance with Indian usage,

which demanded that the warrior should be as free and unincumbered in movement as possible. The so-called 'war-shirt' was worn chiefly in ceremonial dress-parades, and only rarely on the war-path.<sup>1</sup>

This statement, however, suggests that Mr. Mooney based his opinion upon objective evidence, while the opinion expressed by the writer is based



Fig. 15 (50-3055). Back of Garment shown in Fig. 14.

upon subjective evidence. A comparison of the interpretations of shield-designs and ghost-dress designs seems to leave little opportunity for any other conclusion than that the protective designs used in the ghost-dance were essentially the same as those used in former times upon shields and other objects. The garments may be foreign; but the idea of protective

<sup>1</sup> Mooney (Fourteenth Annual Report of the Bureau of American Ethnology, p. 790).

designs is most certainly not peculiar to the ghost-dance religion, since it was widely distributed among American tribes, and associated with ceremonial objects that were in use at least a century before the ghost-dance religion appeared.

If the writer had no other information at hand than that furnished by Mr. Mooney in his comprehensive study of the ghost-dance religion, he would be inclined to regard the whole as the manifestation of aboriginal religious ideas in response to a single foreign conception; namely, that of the coming of a messiah and the destruction of the present order of the world. The way in which the ghost-dance ceremonies were performed, the ideas expressed in the songs, the things the priests dreamed of, and the objects used in the ceremonies, are so characteristically Indian, that no other interpretation seems possible. However, in the present connection we are concerned with these designs as types of the universal primitive expression of belief in the presence of a guiding personal agency that looks into the affairs of men.

#### THE HOOP.

The circle, or more properly the hoop, is a very important religious symbol among the Dakota. One form of it appears in the great hoop-game described by Louis Meeker,<sup>1</sup> and later by Dr. J. R. Walker.<sup>2</sup> This hoop is usually about two feet in diameter, and notched so as to divide the circumference into quadrants. While this hoop-game seems to be a true gambling game, it could be and was sometimes played as part of a ritualistic ceremony the object of which was to bring the buffalo. It is interesting to note that this large hoop is similar to the sacred wheel used by the Arapaho in the sun-dance. At the time of the ghost-dance outbreak among the Dakota of Pine Ridge Reservation, Mr. Mooney saw the hoop and the two pairs of sticks used with it carried in the ceremonies connected with the ghost-dance religion. He states:—

“It is said that the medicine-man of Big Foot’s band carried such a hoop with him in their flight from the north, and displayed it in every dance held by the band until the fatal day of Wounded Knee. A similar hoop was carried and hung upon the centre tree at the dance at No Water’s camp near Pine Ridge. To the Indian it symbolizes the revival of the old-time games.”<sup>3</sup>

The last line of the above quotation implies that the hoop was a part of the paraphernalia used in the ghost-dance ceremonies, because it sym-

<sup>1</sup> Meeker (Bulletin of the Free Museum of Science and Art, University of Pennsylvania, Vol. III, No. 1).

<sup>2</sup> Walker (The Journal of the American Folk-Lore Society, October–December, 1905).

<sup>3</sup> Mooney (Fourteenth Annual Report of the Bureau of American Ethnology, p. 1075).

bolized the ancient games. On another page of the same article occurs the following:—

“As it was the favorite game with the men in the olden times, a great many of the songs founded on these trance visions refer to it, and the wheel and sticks are made by the dreamer, and carried in the dance as they sing.”<sup>1</sup>

It should be remembered, however, that the game was formerly played to restore the buffalo when they were temporarily absent from their range; and, as one of the great objects of the ghost-dance religion was the return of the buffalo as in the olden times, the reason for the use of the hoop in the ceremonies described by Mooney is apparent. In Mooney's account, a number of songs pertaining to the hoop-game are given as sung by the various tribes practising the ghost-dance religion. Among these is a Dakota version, as follows:—

“The holy (hoop) shall run,	“Come and see it,
The holy (hoop) shall run,	Come and see it,
The swift hoop shall run,	Says the father,
The swift hoop shall run.	Says the father.” <sup>2</sup>

A mythical account of the hoop-game is given by Dr. J. R. Walker, which indicates one of the probable conceptions upon which this religious use of the hoop rests.<sup>3</sup>

The hoop-symbol occurs in graphic form, sometimes upon garments. The writer secured a shirt that was used by one of the leaders in ghost-dances, and which seems to have been a type of the so-called “bullet-proof shirt.” This garment is daubed with red about the neck and on the shoulders, but in addition bears four circular designs, also in red, with large dots at their centres (Fig. 16). One of these designs is placed upon the right breast; another, directly opposite, upon the back of the garment; one upon the right shoulder; and one upon the left. These are so arranged, that, no matter from what point you see the wearer, one of the circular designs will be visible. These designs were recognized as symbols of the medicine-hoop, and were supposed to have the power to protect the wearer from all harm. The idea of placing the designs so that one of them should always be between the wearer and the source of danger may be original with the owner of this shirt; but the number of them (four), and their arrangement according to the four directions, correspond to the common explanation of religious symbols.



Fig. 16 (50-2964). Circular Design upon a Shirt. Diameter, 11 cm.

<sup>1</sup> Mooney (Fourteenth Annual Report of the Bureau of American Ethnology, p. 994).

<sup>2</sup> Mooney (Fourteenth Annual Report of the Bureau of American Ethnology, p. 1075).

<sup>3</sup> Walker (The Journal of the American Folk-Lore Society, October-December, 1905).

Meeker describes <sup>1</sup> a wheel-shaped hoop-ornament consisting of a ring enclosing four spokes at right angles to each other. According to his account, this is a symbol associated with the hoop-game; but similar specimens were seen by the writer upon the heads of Dakota men, who explained that these were symbols of the medicine-wheel or medicine-hoop, and did not refer to the hoop-game. They were worn because they were regarded as symbols of the power that could protect the wearer from arrows, bullets, or other dangers.

As is suggested by the above, the game-hoop is distinguished from the medicine-hoop as used in ceremonies. A medicine-hoop seems to have been used by all divisions of the Dakota, and, according to the descriptions

received by the writer, to have been of several forms. In certain ceremonies where the elk played an important part, a hoop or ring was formed by twining together fresh twigs and leaves of the willow. In the centre of this hoop, a small mirror was held by four cords arranged at right angles, and representing the four directions. A drawing of an elk-dancer by a native is shown in Fig. 17. The painted centre for the circular designs on a shirt (Fig. 16) described above, as well as the small wheel-shaped head-ornament, were said to represent a hoop of this type.

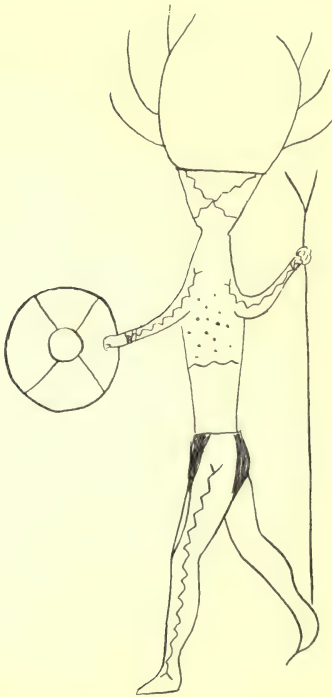


Fig. 17. Sketch, by a Native, of an Elk-mystery Dancer carrying a Hoop with a Mirror in the Centre. Drawing collected by R. Cronau.

The connection of this hoop with the idea of protection is well illustrated in the manufacture of one kind of red paint. It is produced by burning a kind of yellow clay, found near the Black Hills, until it takes on the red color. The paint, however, is given its protective power by certain ceremonies performed as it is made. In the particular ceremony observed by the writer, the yellow earth was pounded fine, and mixed with water until it became a stiff paste. This

was then made into a flat disk about half an inch thick and from four to six inches in diameter, after which a hole or depression was made in the

<sup>1</sup> Meeker, op. cit., p. 35.

centre. The purpose of this, as explained, was to give it the form of a medicine-hoop, the hole in the centre corresponding to the place occupied by the mirror in the form of hoop just described. This disk was then burned in the fire until red, after which it was pounded on a stone until fine enough for use. The ceremony in preparing the paint consisted of ritualistic songs and prayers, which reached their climax as the disk of clay was formed and perforated. The burning and the subsequent preparation were not regarded as parts of the ceremony. The idea, as expressed, was to connect the paint with the power represented by the hoop, so that when a warrior rubbed some of it upon his body, he came at once under the protection of this power.

Another idea seems to be connected with the conception of the medicine-hoop, and that is the appearance of certain mythical animals with openings through their bodies where their hearts should be. The conception seems to be, that an animal without a heart is immortal and supernatural: at least, this is the way in which the mythical elk was described. According to the belief, there is a connection between this opening through the heart and the centre of the medicine-hoop, represented in the elk ceremonies by the mirror; but it is the opinion of the writer that this is an error on the part of the Indians themselves in associating two things that were formerly distinct.<sup>1</sup>

It seems rather curious that the mirror should become so closely associated with the hoop, and that the mirror should have appealed to them as a symbol of almost equal importance. The writer is of the opinion that the preceding cases, where the mirror and the hoop are considered as identical symbols, are the result of a former close association of the two in ceremonial affairs.

### THE WHIRLWIND.

In another place the writer has described the conception of the power of the whirlwind among some of the Dakota, but wishes at this time to refer to it again because of its relation to their system of protective designs.<sup>2</sup> As stated in the former publication, there seems to be in the minds of some of the Dakota an association between the phenomenon of the whirlwind

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<sup>1</sup> In the Report of the Peabody Museum (Vol. III, p. 286) is a description by Miss Fletcher of some ceremonies in which the hoop and the mirror played a part. "The neophyte held one, having a circular mirror, fastened by four cords, from which he cast a reflection of the sun from time to time upon the ground, or held up the hoop, and flashed the mirror." The explanation given by this author of the significance of the mirror in these ceremonies differs from that secured by the writer; but Miss Fletcher's account seems to refer to a form of ceremony pertaining to the elk rites not mentioned in his notes.

<sup>2</sup> Wissler (The Journal of the American Folk-Lore Society, October-December, 1905).

and those mental states generally known as "confusion of mind." Some of them believed and still believe that the power in the whirlwind can be invoked to confuse the mind of an enemy. In common with many other American tribes, the Dakota believe the whirlwind to be associated with the fluttering wings of a moth, but they also associate this with the cocoon

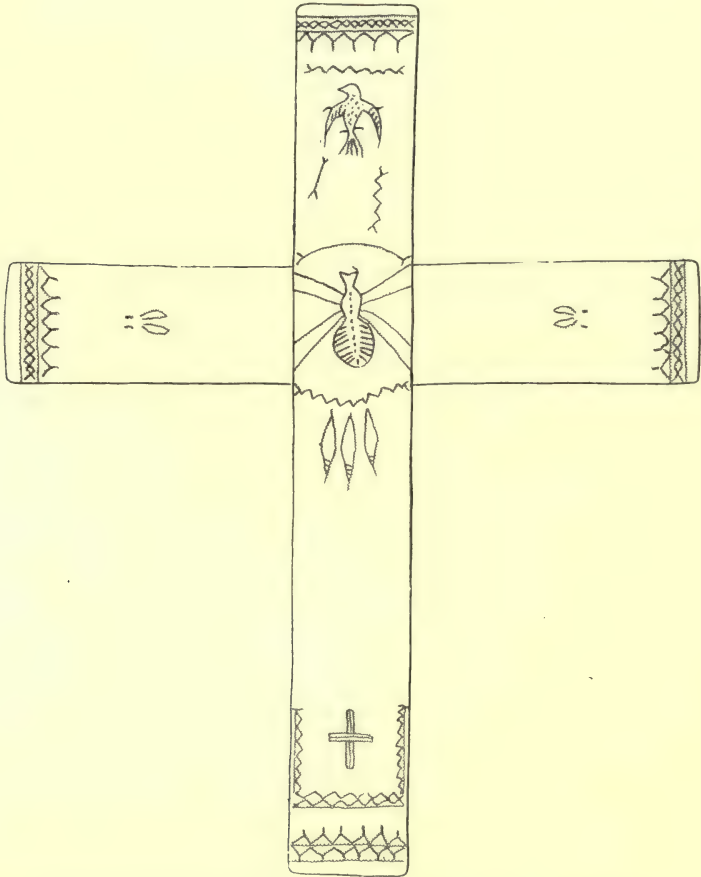


Fig. 18 (50-2095). Engraved Metal Cross. Collected by R. Cronau.  
Length, 23 cm.

of the same moth; and in symbolic representation the design representing the power of the whirlwind is of an elongated diamond-shape, and refers to the cocoon. The protection or aid of the whirlwind was secured by prayers, and these prayers were symbolized by the cocoon worn upon the



person, by its image in stuffed buckskin, or by its graphic representation, sketched or painted. The power of the whirlwind was supposed to have been associated with the power of the spider-web. As an illustration of

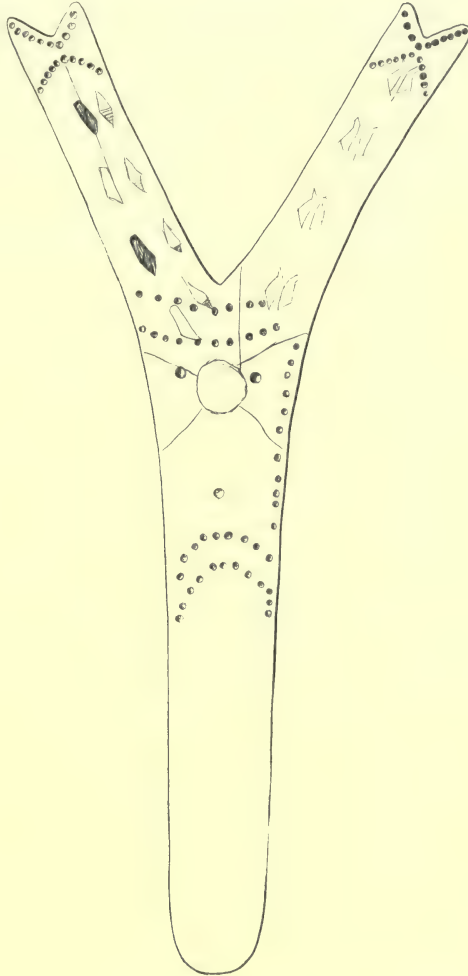


Fig. 19 (50-2898). Engraved Bone Object. Collected by R. Cronau.  
Length, 24 cm.

this, we find engraved upon a German-silver cross (Fig. 18) the spider, and near it three representations of the whirlwind cocoon. Between the spider and these three designs is a zigzag line, implying the mystic power connection of the same. Again, on a forked bone object (Fig. 19), the use

of which is unknown, occur a number of incised designs, among which is again what seems to be the spider-web, the tracks of a quadruped (probably the buffalo), and four designs representing the whirlwind cocoon, accompanied in each case by another design which cannot be determined, but which resembles the footprints of a person. It is interesting to note that

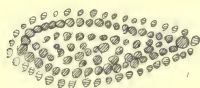


Fig. 20.

Fig. 20 (50-4380). Whirlwind Design, from the Handle of a Club. Length, 5 cm.

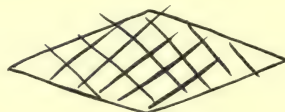


Fig. 21.

Fig. 21 (50-4244). Whirlwind Design, from a Popgun. Length of design, 7.5 cm.

the German-silver cross also bears the tracks of the buffalo, or some ruminant animal, in association with the spider. In the absence of direct information, the writer hesitates to offer any interpretation of the design upon these specimens, although he feels that they could be interpreted with reasonable certainty.

The design of the whirlwind resembles a feather-design, and no doubt the two are often confused. The difference seems to be, that, when representing the whirlwind, half of the design is filled with parallel or crossing lines; while, when representing feathers, half of the design is filled in with color (see Fig. 19). The feather-design is more fixed in form than that of the whirlwind. Fig. 20 is a representation of the latter, from the handle of a club, where it appears in a series with the spider, lizard, elk, and turtle. Another form of the same design is repeated in a series on a wooden popgun (Fig. 21).

#### THE THUNDER.

The thunder is a very important deity among all the Indians of the Plains, and is usually associated with military exploits. While the Dakota generally regard the thunder as a bird, usually symbolized by the eagle, yet they sometimes speak of it as a horse, a man, or a dog. The horse always appealed to them as a creature of mysterious origin, and in many cases was assumed to have been given by the thunder. In any event there is an association in their minds between the power of a war-horse and the thunder. The thunder is often represented by a zigzag or wavy line, usually in red; but this symbol really represents the power of the phenomenon in the abstract, because the Indian does have the conception of a force in

nature. Consequently this graphic symbol is also a general sign for the presence of mysterious supernatural power. The whistles made from the leg and wing bones of eagles, and used among the Plains tribes, are generally employed by the Dakota to symbolize the cry of the eagle as a representative of the thunder-bird. In battle, or sometimes in stress of great trial, they are sounded to call up the power of the thunder to rescue the unfortunate one. As a rule, a zig-zag line is scratched down the sides of these whistles. In this connection it is interesting to note the following:—

“Before daylight I set off with five Indians. . . . This caused a halt, as we were surrounded and began to suspect that the enemy had planned to cut us off. The Indians put on their war-caps, uttering some few words which I could not hear distinctly, and then began to whistle with a small bone instrument which they hung around their necks for that purpose.”<sup>1</sup>

This account (1807) by an acute observer is interesting, because our present knowledge enables us to understand the muttered prayers and the use of the whistle.

The whistle shown in Fig. 22 is interesting because of the objects that accompany it. The whistle is from the wing-bone of an eagle, and near the top is a small bag containing the medicine of the owner. The feathers of the yellow-winged woodpecker are attached thereto, because this bird is considered as an associate of the thunder-bird, or at least it holds some relation to the thunder, since the Dakota



Fig. 22 (50-3023). Whistle, of Bone.  
Length, 19 cm.

have observed, that, when a storm is approaching, this bird gives a peculiar shrill call not unlike the sound of the whistle spoken of above. This they

<sup>1</sup> *New Light on the Early History of the Greater Northwest*, p. 436.

interpret as speaking to the thunder. Consequently, the feathers of this bird, when attached to the whistle, are supposed to put the individual also in a position to speak to the thunder. This bird has a large dark spot on the throat, which is said to represent the moon and to be further evidence of the sacred character of the bird. Thus we have a combined charm representing the woodpecker and the eagle, — two birds closely associated with the thunder.

The ceremony of offering a filled pipe to the thunder was frequently observed by the Dakota. One man stated that once, when the camp was threatened by an approaching storm, he filled a large pipe, went to the top of a hill, and, facing the storm, made an offering to the thunder by extending the stem upward, and praying, with the result that the storm divided, and passed around the camp without serious damage to his people. In the decoration of pipe-stems, a bunch of horsehair is attached (usually colored red), and this is often spoken of as an emblem of the thunder-horse. This horsehair is to signify the presence of the power of the thunder, as manifest in the horse, in all ceremonies connected with the pipe. It is worth while noting that in this case we have an illustration of a peculiarity of religious lore, — the indirect symbolizing of a power by one of a series of objects in which that power is manifest.

The United States emblem of the eagle with outstretched claws, holding arrows and the lightning, is regarded by the Dakota as an appeal on our part to the thunder-bird; and statements to the contrary are usually interpreted as white men's lies to deceive the Indians and to guard the power. There is little doubt that the Dakota manner of drawing the thunder-bird has been modified by the United States emblem, and that their own idea of his power has been influenced accordingly.

#### THE SPIDER.

The association between the spider, the spider web, and the thunder, is very close — so close, that it is difficult to understand the conception of the power of the spider without considering the power of the thunder. The spider is often spoken of as the "spider-man." It is also associated with the mythical elk. It was supposed to have great power. The observed fact that a spider manufactures a web, and that this web is not destroyed by bullets or arrows (since they pass through it, leaving only a hole), is cited by some individuals as the basis for the conception that the spider has power to protect people from harm. On the other hand, the spider is spoken of as a friend of the thunder; and it is a general belief that the thunder will never harm the spider-web, or, what amounts to the same,

that the spider-web itself is a protection against thunder. As previously stated, the spider-web is represented by a peculiar four-cornered design. This design is sometimes said to represent the heavens, in which case the four points represent the four directions, the home of the winds, the four thunders, etc.; the supernatural character of the design being indicated by lightning-symbols extending from the four corners.

In a preceding paper,<sup>1</sup> the spider-web design was discussed in its rela-

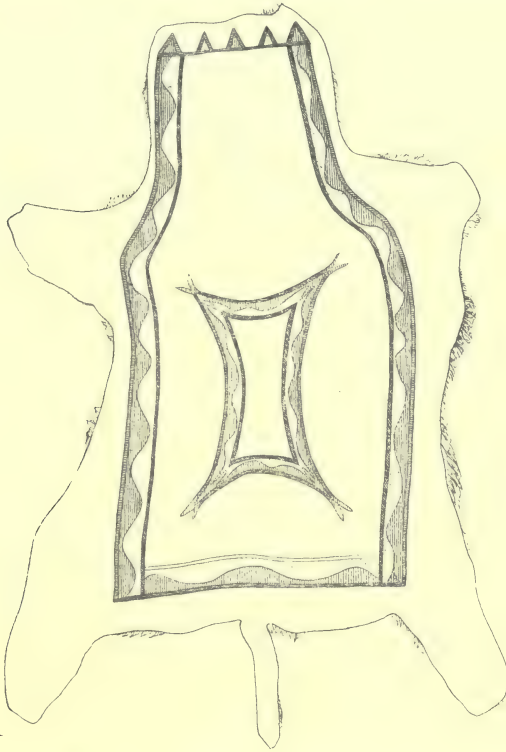


Fig. 23 (50-3095). Design of a Spider-web.

tion to decorative art, where it was noted that among some divisions of the Dakota is a belief in a double woman,<sup>2</sup> to whom, among other things, certain ceremonial uses of this design are attributed. According to information secured by the writer, this character was also associated with the elk ceremonies, where she was often represented by two women tied together by

<sup>1</sup> Wissler (Bulletin of the American Museum of Natural History, Vol. XVII, p. 248).

<sup>2</sup> Dorsey (Eleventh Annual Report of the Bureau of Ethnology, p. 480).

a cord (about two feet in length), from the middle of which hung a doll or a ball. Women often receive power by dreaming of this character. Some such women are supposed to perform a kind of ceremony, somewhat secret, in which a child is taken out to a lonely place, where a swing or hammock-like structure is made in the form of the spider-web design, supported by the four corners, and the child is placed upon it. This is to bring good fortune to the child. A design of the spider-web might then be placed upon the robe of the child as a symbol of its having experienced the ceremony (Fig. 23).

The men, however, use this design for military protection, in which connection it is not thought of as being associated in any way with the mythical double woman. It is, however, closely associated with the medicine-bow. This was a very sacred military object with the Dakota, of which only four duplicates could be had. It consisted of a bow of plain wood, of the usual length, to the end of which was attached a spear-head. Fastened to the bow was a stick somewhat longer, sharpened at one end, and decorated with feathers and other symbolic objects. The purpose of the stick was to support the bow, since all such sacred objects would lose their power if allowed to touch the ground. The bow was not used as a weapon, but was carried as a standard, because of its supposed magical power over the enemy. The figure of the dragon-fly was usually painted upon the bow and its support, as well as dots representing insects that fly swiftly, and zigzag lines representing thunder. Feathers of the eagle, the magpie, the hawk, and, in fact, of all birds swift of wing, were likewise attached to it. The association between these insects and birds was the same as that previously noted; that is, since they were swift in motion, and difficult to strike, they represented the qualities desired by the bearers of the bow. These bows have long since passed out of existence, but survive in models made for commercial purposes.

The account of the origin of the medicine-bow is as follows:—

“A man dreamed of the thunder, and afterwards called in four men to assist him in making the medicine-bow. They went through the preliminaries (the sweat-house, etc.), after which a special tent was erected. The ground inside of this tent, where the dreamer and his four companions sat, was covered with sage-grass. A young man was called in to act as their assistant. He was sent out to cut elm sticks. He went out slowly, and after a time came back with the sticks. Then he was sent out to get together the feathers of swift flying birds, pieces of buffalo-hide, paints, etc. He went around the camp, and begged these of the people.

“Then the four men set to work making the sticks under the direction of the dreamer. The dreamer gave a bow to one of the men, and a piece of buffalo-hide in which to wrap the sticks, also a wooden bowl from which to eat.

“After a time, the faces of the men were painted red. When the sticks were

finished, four men came in wrapped in buffalo-ropes, each carrying a drum. Now the four men who had prepared the sticks were ready to receive the bow, and the drummers began to drum and sing. Then the man who dreamed about the bow carried it outside of the lodge, pointing it toward the west. He was followed by the whole company, and, after singing a song, they took a step forward and pointed the bow to the north; another step again, then pointed to the east; and then a step forward, pointing to the south. Then they ran toward the west, then toward the east, then toward the north, and then toward the south. [The significance of this is, that the thunder resides in the four directions of the heavens, and also goes in all directions, so that the carrying of the sticks toward the various points of the compass puts them in touch with the thunder.] Then they went back to the sweat-house, and the ceremony was complete.

"The man who owns one of these bows must not wear iron on his person, he must never give his food to any one else after eating from it himself, and he must never allow the bow, or any part of it, to touch the ground."<sup>1</sup>

The owner of a medicine-bow should have a buffalo-robe with special decorations, consisting of a spider-web design of the character previously described, from the corners of which extend wavy lines representing the thunder. Sometimes the picture of a thunder-bird was drawn above the spider-web design, or a few tail-feathers of the eagle were attached to the robe. The spider-web design on the robe of an owner of a medicine-bow was to symbolize the thunder, for, as stated by the informants, the spider is a friend of the medicine-bow. None of these robes are now in existence; but sketches were made for the writer, one of which is reproduced in Fig. 24.

The body-painting for the medicine-bow was rather elaborate. In the first place, the whole body was smeared over with a brownish-red paint, representing the earth in a buffalo-wallow. There were two ways of decorating the face. In one, a curved line was drawn, extending from the corners of the mouth around over the forehead, the ends of the lines being forked to represent lightning. Wavy lines, also with forked ends, were drawn down the arms and the legs. These lines were in black or blue. Blue bands were painted around the ankles, arms, wrists, and shoulders, representing the power of the lightning.

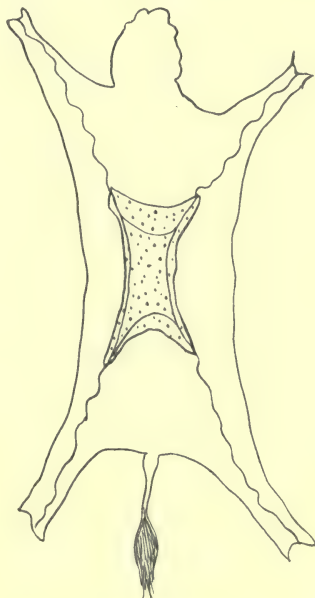


Fig. 24. Sketch of a Robe for the Medicine-bow Owner. Drawn by a Native.

<sup>1</sup> Narrated by an Ogalala man.

These bands were often covered with wristlets and anklets of rabbit-fur, because the rabbit was in some way associated with the medicine-bow. In the other painting, a crescent, representing the moon, was placed upon the forehead and a line drawn from ear to ear across the bridge of the nose. In this form, the body-painting was the same as in the preceding, except that one of the lines upon the leg was straight instead of wavy, and it was said to signify the desire for ability to think straight or to possess presence of mind, in contrast to the state of mind supposed to be produced by the power of the whirlwind.

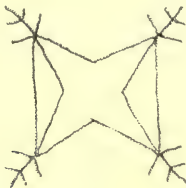


Fig. 25



Fig. 26.

Fig. 25 (50-2093). Design on a Metal Belt-ornament. Width, 2 cm.  
 Fig. 26 (50-3124). Design of Spider-web on a Straight Pipe. Length, 25 cm.

The spider-web design has been mentioned in connection with shield and other designs, and a retrospect indicates a peculiar graphic resemblance in it to the older type of star-designs shown in Plate VI. The writer uses the term "older" on the authority of two Indians. Some incised designs on metal ornaments worn by a woman, of the form shown in Fig. 25, seem to be a combination of the older star-design and that of the spider-web. Another design (Fig. 26) scratched on the bowl of a straight pipe of red stone was also said to represent the spider-web. There is another design used by the Dakota in ceremonies relating to the buffalo; but it is rectangular in form with projecting corners, and is considered a distinct symbol.

#### CONCLUSION.

The first point that appears in the consideration of these designs and their interpretations is the animistic basis upon which they rest. The Indian has observed nature, and singled out those qualities and situations that are not only wonderful from his point of view, but greatly to be desired as means to his own ends. He then proceeds on the assumption that these originate in and are due to some hidden agency, from which it follows, that, if he can put himself in the place of one of the favored living creatures, he will in turn be the object upon which this hidden agency will act. If he can be the bird that rides the storm in safety, he will in turn ride suc-



cessfully the analogous storms of his own sphere, and, like the child that in its own mind is the policeman when it thrusts a club into its waistband, he feels that he is the bird calling to the thunder when he sounds the bone whistle, and mutters his song-prayer. That this is true only of the great Indian or the devotee, speaking in relative terms, and that the mass of Indian-kind follow in blind imitation of the more sensitive few, may be true; but the phenomena, for all that, are none the less ethnic.

One characteristic of the foregoing protective designs is, that they are usually animal motives to the almost entire exclusion of plant and inanimate forms. While it is true that the phenomena of the heavens hold a prominent place in this art, such phenomena are often interpreted as results of the activity of animal-like beings, and consequently are so expressed in art. The conditions leading to such a result are doubtless many and intricate; but the tendency to ignore plant-forms in protective conceptions may be due to the inactive character of the more inanimate world. Inert things are not easily conceived of as guardians or protectors. On the other hand, the Indian may not see the logical necessity of carrying his view to the utmost bounds of the universe. Pots and kettles may have an animistic presence within themselves; but perhaps this does not appeal to the Indian, because the living creatures are so much nearer to him and the analogy between their lives and his is not difficult to perceive. The mystery in the animal forms that come and go, in the storm, and in the heavenly bodies, reaches the mind unaided; but the plant and mineral wonders require a more microscopic eye. That there was a time when the animals were as the people is the striking thought in many Indian myths, and this indicates a belief in the fundamental life-identity of all moving creatures.

There is, however, one interesting suggestion in the interpretation of protective powers. In all of these conceptions we find less appeal for the direct destruction of enemies than for a shielding protection to enable the man himself to be the destructive agent. His prayers are, that he may be swift and impossible to hit in order that he may strike down the victim.

Again, there are in every part of the preceding paper examples of the close association between powers, or at least power-symbols, that are from many points of view incongruous; as the mirror and the hoop, the spider, the thunder, and the elk. There is in these a tendency to coalesce into conceptions of larger wholes in which the power becomes more general, tending toward the definite abstraction of a power-unit, or identity of forces in nature. These larger conceptions, that are really much more complex than indicated in this brief paper, seem to represent a growth, or at least an accumulation of ideas, on the part of a people who have not felt the need of systematically unifying them, or expressing them as an objective unit.



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GROS VENTRE MYTHS AND TALES.

BY

A. L. KROEBER.

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## INTRODUCTION.

The Gros Ventre myths and tales herewith presented do not exhaust the traditions of the tribe: they include, however, the majority of the more important stories known to them, and are probably representative of the mythology and tales of the tribe. They were collected in the winter and early spring of 1901, at the Fort Belknap Reservation in northern Montana, as part of the work of the Mrs. Morris K. Jesup Expedition.

Naturally there are many similarities to the Arapaho traditions. As a larger body of Arapaho traditions has been published with extended comparative notes,<sup>1</sup> such notes have not been added to the present Gros Ventre traditions; but references have been made to the corresponding Arapaho versions, under which the comparisons will be found.

Among the more important Arapaho traditions and episodes which have a widespread distribution, but which have not yet been found among the Gros Ventre, are the story of the origin of death; of the woman who married a dog; of the young man who disguised himself as a woman, and cut off seven heads; of the well-known imitation of the host by the trickster in various ways; of the diving through the ice by the trickster to obtain food in imitation of his host; of the young man who was tempted by his sister-in-law, and then buried in a pit by her; of the turtle's war-party; of the deceived blind man, a favorite Eskimo and northern Athabaskan tradition; and the well-known Plains story of the buffalo and elk women, or buffalo and corn women. The story of the girl who was born from the foot of a young man exists among the Gros Ventre, but was not obtained. It is very probable that some of these stories will be found among the Gros Ventre. An account of the origin of death similar to that of most of the Plains tribes is almost certain to exist. The story of the seven heads—being common to the Arapaho, Kootenai, and Sarcee, tribes surrounding the Gros Ventre—is also very likely to exist among them. One would expect the same of the story of the woman and the dog, though it is to be remembered, in this connection, that some of the northern Arapaho deny this to be a story of their tribe.

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<sup>1</sup> G. A. Dorsey and A. L. Kroeber, *Traditions of the Arapaho* (Field Columbian Museum Publications, Anthropological Series V. Chicago, 1903).

Of the more important stories and incidents occurring in the present Gros Ventre collection, but wanting in the larger Arapaho collection, the following may be mentioned: the separation of the tribe while crossing the ice; the very widespread incident of the hero who is swallowed by a monster, and kills him by cutting his heart; the boy who is abandoned by his parents, and raised by buffalo-bulls; the tale of a young man who enters a tent among a hostile tribe to marry a girl; and the tale of the bad wife as told by the Blackfeet.

Some of the mythical incidents that have the most common distribution in central North America, but that so far have not been found among either the Arapaho or Gros Ventre, are the story of the theft of light or the sun; of the theft of, or some other means of obtaining, water; of the supernatural being that has been wounded by a human being, so that a human medicine-man only can extract the weapon; of the person or pursuer who crosses a body of water or a chasm on a leg, usually of the crane, and is shaken off; of the hero who transforms himself into a leaf or small object, which is drunk by a woman, as whose son he is reborn; of the bathing women with bird-skins, one of whom is captured; of the visit far to the east to the sun; of the unfaithful wife who has a snake or water-monster as her lover, — one of the most persistent traditional ideas in northeastern America; the common conception of the origin of mankind or the tribe from the lower world or successive lower worlds; and a tradition of a visit to the land of the dead, other than in stories told as the actual experience of persons recently alive or still living.



## MYTHS AND TALES.

## 1. THE MAKING OF THE EARTH.

There was water everywhere. A person sent the Duck, the Otter, the Beaver, and the Turtle to dive for earth. All the other animals lost their breath before they reached the bottom. They had to come up again. But the Turtle said, "I am the one who can get it." He dived, and brought up mud. When the person scattered the mud, earth was made. He made the mountains by pouring a little earth from his hand. He also made streams and trees. It is not known who he was. Perhaps he was Nix'a<sup>nt</sup>.<sup>1</sup>

## 2. ORIGIN MYTH.

The people before the present people were wild. They did not know how to do anything. Nix'a<sup>nt</sup> did not like the way they lived and did. He thought, "I will make a new world." He had the chief pipe. He went out doors and hung the pipe on three sticks. He picked up four buffalo-chips. One he put under each of the sticks on which the pipe hung, and one he took for his own seat. He said, "I will sing three times and shout three times. After I have done these things, I will kick the earth, and water will come out of the cracks. There will be a heavy rain. There will be water over all the earth." Then he began to sing. After he sang three times, he shouted three times. Then he kicked the ground and it cracked. The water came out, and it rained for days, and over all the earth was water. By means of the buffalo-chips he and the pipe floated. Then it stopped raining. There was water everywhere. He floated wherever the wind took him. For days he drifted thus. Above him the Crow flew about. All the other birds and animals were drowned. The Crow became tired.

<sup>1</sup> The Gros Ventre myths and tales here recorded were obtained from seven informants, who have been designated as follows: —

M Bill Jones, one of the oldest men of the tribe, Nos. 5, 18, 25, 41.

N Watches-All, an old woman, Nos. 26, 28, 30, 32, 33, 39, 40, 45-50.

P Flea, a young man, Nos. 2-4, 20-23, 29.

Q Blackbird, an old man, Nos. 1, 6, 16, 17, 38, 42, 43.

R Assiniboine, a young middle-aged man, Nos. 14, 15, 27, 34, 35, 37, 44.

S Paul Plumage, a young man, Nos. 7, 19.

T Black Wolf, a middle-aged chief, No. 33.

It will be seen that the traditions told by Flea, one of the youngest of the informants, are of a higher character than the others. Nos. 7 and 19 were obtained as texts in Gros Ventre. All the others were recorded in English.

The Gros Ventre distinguish between myths and tales, which they call *hã<sup>a</sup>tã<sup>a</sup>'ã<sup>a</sup>tya<sup>a</sup>* and *waa<sup>a</sup>tseã<sup>a</sup>'a<sup>a</sup>* respectively. The first thirty of the following traditions may be regarded as myths; the last twenty, as tales.

The present myth is by informant Q. Compare Traditions of the Arapaho, *op. cit.*, tales Nos. 1, 2, 3, 6, and note, p. 6.

Pronounce *x* like German *ch* or Spanish *j*; *tc*, like English *ch*; *ã*, as in English *bad*; *a<sup>a</sup>* (nasal *a*), like French *an*; *ã<sup>a</sup>*, similarly nasalized; *ç*, like English *th* in *thin*; *ö*, nearly as in German.

It flew about crying, "My father, I am becoming tired. I want to rest." Three times it said this. After it had said so three times, Nix'a<sup>nt</sup> said, "Alight on the pipe and rest." Repeatedly the Crow cried to him, and each time was allowed to alight on the pipe. Nix'a<sup>nt</sup> became tired sitting in one position. He cried. He did not know what to do. After he had cried a long time, he began to unwrap the chief pipe. The pipe contained all animals. He selected those with a long breath to dive through the water. First he selected the Large Loon (bääŕeiby<sup>hi</sup>). The Loon was not alive, but Nix'a<sup>nt</sup> had its body wrapped up in the pipe. Nix'a<sup>nt</sup> sang, and then commanded it to dive and try to bring mud. The Loon dived. It was not halfway down when it lost its breath and immediately turned back. It came up almost drowned at the place where Nix'a<sup>nt</sup> was. Then Nix'a<sup>nt</sup> took the Small Loon's body and sang. Then the Small Loon dived. It nearly reached the mud at the bottom. Then it lost its breath and went up again, and, nearly dead, reached the place where Nix'a<sup>nt</sup> was. Then he took the Turtle (bää'n). He sang and it became alive, and he sent it and it dived. Meanwhile the Crow did not alight, but flew about crying for rest. Nix'a<sup>nt</sup> did not listen to it. After a long time the Turtle came up. It was nearly dead. It had filled its feet and the cracks along its sides with mud. When it reached Nix'a<sup>nt</sup>, all the mud had been washed away and it was nearly dead. Nix'a<sup>nt</sup> said, "Did you succeed in reaching the mud?" The Turtle said, "Yes, I reached it. I had much of it in my feet and about my sides, but it all washed away from me before I came to you." Then Nix'a<sup>nt</sup> said to it, "Come to me;" and the Turtle went to him. Nix'a<sup>nt</sup> looked at the inside of its feet and in the cracks of its sides. On the inside of its feet he found a little earth. He scraped this into his hand. Meanwhile the Crow had become very tired. Then Nix'a<sup>nt</sup>, when he had scraped the earth into his hand, began to sing. After he had sung three times, he shouted three times. Then he said, "I will throw this little dust that I have in my hand into the water. Little by little let there be enough to make a strip of land large enough for me." Then he began to drop it, little by little, into the water, opening and closing his hand carefully. And when he had dropped it all, there was a little land, large enough for him to sit on. Then he said to the Crow, "Come down and rest. I have made a little piece of land for myself and for you." Then the Crow came down and rested. After it had rested, it flew up again. Then Nix'a<sup>nt</sup> took out from his pipe two long wing-feathers. He had one in each hand, and began to sing. After he had sung three times, he shouted three times, "Youh, hou, hou," and spread his arms, and closed his eyes. When he had done this, he said to himself, "Let there be land as far as my eyes can see around me." When he opened his eyes, then indeed there was land. After he

had made the land, there was no water anywhere. He went about with his pipe and with the Crow. They were all that there was to be seen in the world. Now Nix'a<sup>nt</sup> was thirsty. He did not know what to do to get water. Then he thought, "I will cry." He cried. While he cried, he closed his eyes. He tried to think how he could get water. He shed tears. His tears dropped on the ground. They made a large spring in front of him. Then a stream ran from the spring. When he stopped crying, a large river was flowing. Thus he made rivers and streams. He became tired of being alone with the Crow and the pipe. He decided to make persons and animals. He took earth, and made it into the shape of a man. He made also the shape of a woman. Then he made more figures of earth, until he had many men and women. When he thought he had enough persons, he made animals of all kinds in pairs. When he had finished making these shapes, he named the tribes of people and the kinds of animals. Then he sang three times and shouted three times. After he had shouted, he kicked the ground, and there were living pairs of beings standing before him, animals and men. The reason why men are dark in color is that earth is dark. Nix'a<sup>nt</sup> called the world Turtle because the Turtle was the animal that had helped him to make the world. Then he made bows and arrows for men, and told them how to use them. The pipe he gave to a tribe which he called haā'ninin (the Gros Ventre). Then he said to the people, "If you are good and act well, there will be no more water and no more fire." Long before the water rose, the world had been burned. This now is the third life. Then he showed them the rainbow, and said to them, "This rainbow is the sign that the earth will not be covered with water again. Whenever you have rain, you will see the rainbow; and when you see it, it will mean that the rain has gone by. There will be another world after this one." He told the people to separate in pairs and to select habitations in the world for themselves. That is why human beings are scattered.<sup>1</sup>

### 3. *TEBIAA<sup>NTA<sup>N</sup></sup>*, THE TWO WOMEN, THE BALD EAGLE, AND *NIX'A<sup>NT</sup>*.

There was a lone tent. Two sisters lived in it. One was older, the other young. *Tebiaa<sup>nta<sup>n</sup></sup>* ("cut-off-head") knew that the two women lived alone there. One morning, one of them went out to get wood. In front of the tent she found a fat deer, freshly killed and untouched. This

<sup>1</sup> Told by informant P. Compare Arapaho, *op. cit.*, Nos. 1, 2, 3, 6, and note, p. 6. For the recession of the water before stretched arms, compare also Arapaho, No. 5. The idea of the previous race occurs in Arapaho, No. 6, p. 15, footnote, and in No. 129, p. 299.

happened every night. The fourth night the two women watched. One of them said, "Perhaps it is *Naxaa<sup>n</sup>tsts*' ('with-projecting-teeth,' another name for *Tebiaa<sup>n</sup>ta<sup>n</sup>*). If it is he, it will go hard with us, for he is powerful." In the middle of the night they saw a person rolling a dead deer toward them. When he came near they saw that it was *Tebiaa<sup>n</sup>ta<sup>n</sup>* indeed. After he had left the deer he went off again. As soon as he had gone, the two women began preparations to flee. The older stuck an awl in the ground on the side of the tent where she had her bed, and said to it, "When *Tebiaa<sup>n</sup>ta<sup>n</sup>* comes in, tell him, 'Go to my younger sister. She is young, and is the one whom you ought to have for your best wife.'" The younger sister stuck a quill-flattener (*isöwa<sup>n</sup>*) at the side of her bed, and told it, "When *Tebiaa<sup>n</sup>ta<sup>n</sup>* comes rolling to you, say to him, 'Go to the older woman. She knows best how to work. You should have her for your best wife.'" At night *Tebiaa<sup>n</sup>ta<sup>n</sup>* came to the tent. The women had gone. Only the awl and the quill-flattener were there. When he arrived, he saw the deer lying there, still untouched. He became angry, and said, "I worked hard to kill this deer for you. It is bad that you did not touch it." He went inside. The two bones looked like women. He went to the side where the older sister's awl was. It said to him, "Roll to my younger sister. She will be your best wife, for the older wife does the work for the tent and for her husband." Then he began to roll to the younger sister's bone. It said to him, "Roll back to my older sister. Let her be your best wife. I am young, and better able to move around quickly, and can do more work about the tent." Then *Tebiaa<sup>n</sup>ta<sup>n</sup>* became angry. He rolled violently to one to strike her. The woman disappeared, and he struck the awl, which pierced his face so that he cried out in pain. The other woman disappeared at the same time. When he had pulled the awl from his face he said, "You will not escape from me. I will kill you." He jumped out of the tent, looked, and smelled about to find where the women had gone. He found their trail, and rolled after them. They were already far away. They looked back constantly, fearing that he would follow them. Then, from the direction in which they had come, they saw him rolling. One of them said to the other, "Oh, my older sister, what shall we do! *Tebiaa<sup>n</sup>ta<sup>n</sup>* is rolling on our trail. What shall we do to escape him? Do something supernatural." "I will try something," said the older. "I will try to delay him so that we shall leave him far behind us. Let it be foggy before *Tebiaa<sup>n</sup>ta<sup>n</sup>*, so that he will lose our tracks." Then there was a fog between them and the head, and he lost their trail and strayed from it. He looked for it, and after a time found it again, and followed them. Then they saw him coming once more. Then the older sister said to the younger, "Pity me, my younger sister. The head is pursuing us again.

What shall we do to flee from him? Now it is your turn to do something supernatural, so that we may leave him behind us." "Yes, I will try. Let there be a deep ravine between him and us. Let it be boggy and hummocky, so that it will be long before he passes through it." Then there was such a valley behind them. When Tebiaa<sup>nta</sup><sup>n</sup> got into the valley, he struck the hummocks, and bounded back and stuck in the swamp. It was long before he crossed, and the women had got far ahead. He said to himself, "These women will not hide in a hole anywhere. If they do, I shall overtake them and kill them. They shall not go to the sky, for if they go to the sky, I shall not be able to reach them. That is the one place in which I cannot kill them." After a while the women saw him again, and the younger one said, "My older sister, do something supernatural again! I am getting tired." "Yes," said the older, "I will try. Let there be a river between us and the head, and along it let there be thick thorny brush, and rose-brush as thick as can be, so that Tebiaa<sup>nta</sup><sup>n</sup> will have great difficulty in passing through." Then there were a river and thorny brush behind them. Tebiaa<sup>nta</sup><sup>n</sup> came up. It was very difficult for him to pass. He was all scratched when he got through. The women were already far away. After a while they saw him on their trail again. Then the older sister begged the younger to use her supernatural power to delay the head. Her younger sister said, "I will try again to bring something between us and the head. Let there be cactus as thick as can be." Then there was a dense cactus behind them. When Tebiaa<sup>nta</sup><sup>n</sup> reached the cactus, he stopped. He tried to roll around, but it extended indefinitely. Then he thought, "I will go through." Then he really rolled through it; but he was full of spines, and bleeding. He stopped and pulled out all the cactus-spines. Then he followed the women again. They saw him coming. Both of them said, "I can do nothing more supernatural. I have done all. We must try to run." As they ran, they saw a man sitting on a high bank. He had his hair in a large knot above his forehead. When they reached him they said, "Please pity us. We are running for our lives from the person who pursues us to kill us." "Run around me four times," he said, and they did so. "What is the person's name?" he asked. They said to him, "Tebiaa<sup>nta</sup><sup>n</sup>." "That is bad. He is more powerful than I. But I will try." He loosened the knot of hair on his forehead. It had never been combed. The hair covered him entirely. He hid one of the women under each arm. When Tebiaa<sup>nta</sup><sup>n</sup> came, he said, "Have you seen my prey going by here?" "Yes, they have just passed by," said the man. The head went on, and smelled. Finding no tracks, he came back to the man. "They never went by here," he said. "Yes, they went by," said the man; and the head went on again. As soon as he was out of sight,

the man said to the women, "Run over there, where there is a Bald Eagle. Perhaps he will help you." Then Tebiaa<sup>n</sup>ta<sup>n</sup> came back and said to him, "Tell me this time where my prey is." "I have told you," said the man. The head looked around and saw the women's tracks. He followed them again. The older sister said, "Now, my younger sister, try to run as hard as you can. Tebiaa<sup>n</sup>ta<sup>n</sup> is on our trail again." They reached the Bald Eagle. "Bald Eagle," they said, "pity us, because we are poor: try to save our lives." The Eagle said, "Go around me four times. I will help you. I will try to save you from Tebiaa<sup>n</sup>ta<sup>n</sup>; but he is very powerful. Now each of you get on one of my wings and shut your eyes." He flew down from the bank where he had been sitting, dived into the water, swam underneath a long distance, came up again, and flew off. Tebiaa<sup>n</sup>ta<sup>n</sup> came there, dived into the water, swam under it, emerged, and followed their trail. He flew after them through the water and the air. He nearly caught the Eagle. When he came too near, the Eagle swooped aside. Thus they fought and dodged for a long time. Below where they were struggling there was a tent. It was Nix'a<sup>n</sup>t's tent. His two sons were lying flat on their backs, looking up into the sky. They began to see what was going on there. Whenever the head nearly touched the Eagle, the boys cried "Wuuu!" Nix'a<sup>n</sup>t heard his boys crying "Wuuu," and saw them looking up in the air. He went outside, lay down on his robe, looked up, and cried "Wuuu!" But he saw nothing. The boys asked him, "Father, why did you say that?" "I like to say that, because you boys say it. What are you looking at above?" "Father, we are looking at your friend the Eagle. He is dodging about. On each of his wings sits a woman. Tebiaa<sup>n</sup>ta<sup>n</sup> is pursuing them." "I am sorry," said Nix'a<sup>n</sup>t. "Tebiaa<sup>n</sup>ta<sup>n</sup> is powerful. Nevertheless I will try to do something for the Eagle and the women. Therefore, my sons, gather wood as fast as you can, and I will cut willows and build a sweat-house. Also gather stones, and then light the wood and heat the stones in the fire." Nix'a<sup>n</sup>t got willows, bent them round, and covered them with robes. Then he gave each of his boys a club. He said to one, "Stay here at the door and hold it up." To the other one he said, "Stand at the back and hold up the robes there." The boys stood at their places. Nix'a<sup>n</sup>t stood at the entrance of the sweat-house, and cried, "Bald Eagle, come down and sweat in my sweat-house." Four times he cried it. Then the Eagle heard him and came flying down. Nix'a<sup>n</sup>t said to him, "Go in at the entrance, and fly out at the other end." The head was now close at the Eagle's tail. The Eagle flew in, and out again. As soon as he had gone through, the boy at the back of the sweat-house put down his robes. The other one closed the door. Tebiaa<sup>n</sup>ta<sup>n</sup> was caught in the sweat-house. Hot stones were lying in a small pit in the

centre of the sweat-house. Nix'a<sup>nt</sup> poured water through a small hole in the top straight on the hot rocks. It steamed inside. Whenever the head pressed against the robes, the boys struck him with their clubs. At last he was killed. The Eagle sat there breathing hard. Thus Tebiaa<sup>nta</sup><sup>n</sup> was killed.<sup>1</sup>

#### 4. NIX'A<sup>NT</sup> OBTAINS SUMMER AND THE BUFFALO.

Nix'a<sup>nt</sup> was on his way, going visiting. He arrived at a camp. There was deep snow, and the people had nothing to eat. To whatever tent he went, he got nothing to eat. The people had nothing. He asked them, "Why do you not try to do something to obtain food?" "We cannot do it," they said. "There are no buffalo. We starve. There is only one old woman who has food. She is very stingy of it." At some distance there lived an old woman who kept the buffalo. She gave no food. Nix'a<sup>nt</sup> said, "I will try to make the old woman give up her food." Walking about the camp, he saw a boy, a chief's son, just old enough to speak. He took the boy by the shoulders and said, "Child, are you hungry?" "Yes, I am hungry," said the boy. "Would you like to see large herds of buffalo?" "Yes." "Would you like to see the ground bare?" "Yes. I am becoming tired of playing on the snow. I should like to see the bare ground, so that I could play on it." "When I let you go, you must run to your father's tent, and cry. When your kin ask you, you must say nothing, but continue to cry. Only when I come and ask you, you must say, 'I should like to see large herds of buffalo and the bare ground to play on; for I am tired of the snow.'" Then the boy ran to his father's tent and began to cry. All asked him why he cried. But he said no word, crying continually. He cried day and night. His father thought he would invite man after man in the camp to ask the boy why he cried. He asked all the men to come. But the boy never answered. Then he thought, "I will ask Nix'a<sup>nt</sup>. He is wise. Perhaps he will persuade the boy to tell why he is crying." Then he called, "Nix'a<sup>nt</sup>!" and Nix'a<sup>nt</sup> came in. He took the boy in his arms and said, "Well, poor child, what are you crying about? Your parents can hardly sleep, because you continually cry. You must be crying about something that is very hard. I want you to tell me what it is." Then the boy stopped crying, and said, "I cry because I am hungry, and should like to see large herds of buffalo. I should like to eat back-fat (nanii) and unborn calves. I should like to see the bare ground, for I am tired of play-

<sup>1</sup> Told by informant P. Compare Arapaho, Nos. 5, 6, 35, 124. The Magic Flight is found also in No. 27. Compare note to Arapaho, No. 6. See, also, No. 26 for the calling back of the pursuer. The pursuit by a round rolling object is found in Arapaho, Nos. 5, 6, 33-35, 81-124.

ing in the deep snow." Then Nix'a<sup>nt</sup> said to him, "You shall have what you want. You shall eat calves and fat from the back, and shall play on the bare ground." The boy was satisfied, and cried no more. Nix'a<sup>nt</sup> said to the boy's father, "Get an old man to cry out, 'Let the people move elsewhere. Nix'a<sup>nt</sup> has found out from the boy what he wants and what he cried for.'" Then the people moved camp, and Nix'a<sup>nt</sup> changed into a little dog. The dog was scabby, with loose hanging ears. He remained at the camp-site after the people had left it. The old woman who kept the buffalo had a little grand-daughter who worked for her. The little girl said, "Grandmother, I want to go to the camp-site to pick up things that have been lost." But the old woman said, "No, don't. Nix'a<sup>nt</sup> was in the camp. He is very deceitful." "I will not go far, only to the nearest tent. Let me go!" Then the girl went there. When she arrived, she saw the dog, who wagged his tail at her. She pitied him, and said "I will raise him." She took him back with her. "Grandmother, I have found a poor scabby dog. I want to raise him to be my dog," she said. The old woman said to the dog, "You are a scabby dog indeed! You are not a dog at all. You are Nix'a<sup>nt</sup>." Then she said to her grand-daughter, "No, I do not want you to take this dog into the tent. Tie him outside." So the girl tied him outside, but fed him well; and he became fat, and his scabs fell off, and he grew fast. Soon he was able to carry a load of wood on a travois. The girl used to take him with her into the woods. At last the old woman began to think that he was really a dog. She allowed him to come into the tent with them. But at times she still looked at him suspiciously. Sometimes she still said, "You look like a dog; but you are no dog. You are Nix'a<sup>nt</sup>." After a time their meat was all gone. At the back of the tent hung an untanned buffalo-skin. The girl raised this, and the dog saw a hole beyond. Soon a young buffalo-cow came out. Just as she emerged, the old woman struck her on the back of the head with her hammer, and killed her. Many other buffalo tried to come out; but the girl and the old woman put the skin down again. They pulled out the young cow, and skinned her. The dog was there with them. The old woman had begun to like him. She now thought that he was really a dog. By the skin curtain there was an old greasy skin sack. The dog saw the old woman go to this, take a pinch from it, and throw it outside. Thereupon there was no snow about the door. Now Nix'a<sup>nt</sup> knew what to do. One day the girl took him far out into the woods with her. Then he turned into Nix'a<sup>nt</sup>. He said to the girl, "You thought me a dog, but I am Nix'a<sup>nt</sup>." *Penem monstravit et ei raptæ vim attulit. Puella fortiter clamavit, "Avia, Nix'a<sup>nt</sup> mecum copulat!"* The old woman answered, "I told you he was Nix'a<sup>nt</sup>. You would not believe me. It is your own fault." Taking her hammer,



she ran towards them. When she arrived, Nix'a<sup>nt</sup> released the girl, ran off, and entered the tent. He seized the bag and ran into the hole behind the curtain. There he turned dog again, and, barking, drove all the buffalo out. The last one to emerge was a bull. Nix'a<sup>nt</sup> ejus in testiculis adhæsit. Taurus cum testes suos tactos sensisset, eos in corpus retraxit, ita ut Nix'a<sup>nt</sup> sub ventre celatus est. Thus he passed out by the old woman without being seen. As the buffalo ran, he threw out what was in the bag. Everywhere the snow disappeared, and it was summer. When the bag was emptied, he went back to the old woman, threw her the bag, and said, "That is all I wanted from you." Thus Nix'a<sup>nt</sup> obtained buffalo and summer. Then he killed a cow and took the unborn calf, and cut the cow's back-fat and the tongue and some of the entrails. He carried this meat on his back, following the trail of the people. He reached their camp at night. Then he asked, "Where is the tent of the boy's father?" Being shown it, he went there and entered, called the boy, and said to him, "Here is what you asked for. Now eat it. To-morrow you will see summer and large herds of buffalo." Then the boy's father told an old man to go out and cry, "Nix'a<sup>nt</sup> has come back. You will see herds of buffalo and the summer to-morrow. He has brought some parts of buffalo to show that it will be so." That night there was a strong Chinook wind. That is why now we sometimes get the Chinook winds. Next morning, indeed, the people saw the bare land and herds of buffalo.<sup>1</sup>

##### 5. NIX'A<sup>NT</sup> IS TAUGHT TO CALL BUFFALO.

A certain man, when he was visited and had no food, would go on a hill, sit down, and sing, "Hí'itānā<sup>n</sup> wu'katyīi." Then the buffalo would come running toward him in strings. Nix'a<sup>nt</sup> came to him and cried, wishing to learn the song. The man gave him the song, but said, "Do not use it too often. Sing it only when you need buffalo." Nix'a<sup>nt</sup> started off. Soon he sat down and sang. Then the buffalo came toward him in strings. He sang four times. The fourth time the buffalo did not stop approaching him, and all lay down on him. Cum ano solum eminente cuberet, lepus qui venisset cum eo copulavit. Nix'a<sup>nt</sup> denique cum emerisset abiit. Lepusculos qui profugerunt inquinans peperit. Sæpius ita cum accideret, Nix'a<sup>nt</sup>to displicebat. Togæ margini lapides imposuit, inquinavit, exsiliit, et ut lepores interficeret pedibus togam protrivit. Sed solum togam fœdavit.<sup>2</sup>

<sup>1</sup> Told by informant P. Compare Arapaho, Nos. 122, 133.

<sup>2</sup> Told by informant M. Compare No. 15, and Arapaho, Nos. 32, 33.

6. NIX'A<sup>NT</sup> AND THE MOUSE.

Nix'a<sup>nt</sup> cum feminam trans flumen dormientem videret, ab mure ut penem ad eam portaret petiit. Mus penem transportavit, sed terræ asperæ parti anteposuit, ita ut Nix'a<sup>nt</sup> penem vaginæ inserere cum vellet se læsit et clamavit.<sup>1</sup>

7. NIX'A<sup>NT</sup> AND THE MICE'S SUN-DANCE.

Nix'a<sup>nt</sup> was travelling. As he went, he heard the noise of the sun-dance. Then he stopped. He wanted to hear where the noise of the dance came from. He could not discover it. Where he stood, there lay an elk-skull. He sat down on it. When he sat down, he heard the noise of the dance clearly. "Yä! This must be the place, and I was looking for it at a distance." Then he looked into the skull, and saw the mice holding a sun-dance. As he looked in, he said to the hole through which he looked, "Become larger!" Then it grew larger. As often as he told it to stretch, it stretched. Finally he succeeded in thrusting his head through, and the mice scattered and ran out. Then his head stuck fast in the skull. Nix'a<sup>nt</sup> began to cry, because he did not know what to do. He could not even see. He got up and wandered off. He struck something with his foot, and said, "Who are you?" "I am a cherry-tree," it answered. "Indeed! I must be near the river," said Nix'a<sup>nt</sup>. And he continued to feel about him with his feet. When he touched something he said, "What are you?" "I am a cottonwood," it said to him. "Indeed! I must be very near the river," said Nix'a<sup>nt</sup>, and went on. Again he felt something with his foot, and said, "What are you?" "I am a willow," it said to him. "Indeed! I must be very close to the river now." Then he walked very carefully. In spite of all his care, he felt himself falling. "What are you?" he asked. Then it splashed, and he floated down the stream. He came floating to where there was a camp. People were swimming there. As soon as the swimmers saw him, they said, "Look out, there comes a bax'aa<sup>n</sup> (water-monster)," and all ran on the bank. When he had floated near them, he said, "I allow only girls to get me." Then two girls went into the water on each side of him, and caught his horns. Then they pulled him to shore. One of them went ashore, but he caught the other and lay with her. As soon as the others saw him seize her, they ran back to the camp. "Ejus virginitatem Nix'a<sup>nt</sup> violat," omnes clamaverunt. Puellæ mater malleum portans ad eum decurrit. Adhuc puellæ concubebat. In dorsum eum

<sup>1</sup> From informant Q. Compare Arapaho, Nos. 29-31.

percussit. Nix'a<sup>nt</sup> dixit, "Tua percussio meis impetibus in filiam tuam vim majorem dat. The place where you can kill me is in the middle of the head." The woman struck the top of his head, and broke the elk-skull. Nix'a<sup>nt</sup> got up and ran. All the women pursued him, but could not catch him.<sup>1</sup>

#### 8. NIX'A<sup>NT</sup> EATS FAT.

Nix'a<sup>nt</sup> found some fat floating in the stream. He asked, "How much does one bite off you when he meets you?" "A little piece only, alioquin diarrhœam aegrescas." Nix'a<sup>nt</sup> bit off as much as he could. Then he went ahead down stream, and again met the fat. He asked it and was told the same, but again bit off all he could swallow. He met it repeatedly, until at last he swallowed it all. Tum abiit. Cito diarrhœa afflictatus est, Tantum inquinavit ut abire coactus est. Iterum cum inquinaret tanta excrementa defluerunt ut eum abegerunt. Denique dum semper inquinavit in tumultum ascendit. Inquinare continuavit donec defluxus eum circumdederat et quasi insulæ tumulo institit.<sup>2</sup>

#### 9. NIX'A<sup>NT</sup> EATS HIITCENI.

Nix'a<sup>nt</sup> radices quæ hiitceni appellantur edebat. Diu edebat. Tum crepuit. Cum creparet, sursum jactus est. Perpetuo altius jactus est. Tandem mulierem liberosque suos omnibus cum rebus familiaribus in se ponere jussit ut terra retineretur. Sed cum iterum crepisset omnes sursum pulsi sunt.<sup>3</sup>

#### 10. NIX'A<sup>NT</sup> AND THE BIRD WITH THE LARGE ARROW.

Nix'a<sup>nt</sup> met a Bird which had an immense arrow. He taunted it, saying that it was not able to use the arrow. At last the Bird said, "Well, I will shoot you with it." Nix'a<sup>nt</sup> went off. Several times he stopped, thinking he had gone far enough. But the Bird always told him, "Go farther, for I will kill you if you stand so near." Then at last the Bird shot and the arrow came flying. Nix'a<sup>nt</sup> was frightened, ran, turned, and dodged, but could not escape the arrow. He ran as hard as he could, but it came nearer and nearer. He took refuge behind a rock. The arrow struck the rock and turned it over, so that it rolled on Nix'a<sup>nt</sup>. He could not get out. At last the Night-hawk came flying by. It shot past the

<sup>1</sup> From informant S. Compare No. 15, and Arapaho, Nos. 52, 53.

<sup>2</sup> Compare Arapaho, No. 34.

<sup>3</sup> Compare Arapaho, p. 60, footnote 1. Pronounce *tc* like English *ch*.

rock, venting wind each time. The fourth time, it broke the rock. Nix'a<sup>nt</sup> got up. "Come here," he said to the Bird. The Night-hawk came to him. Nix'a<sup>nt</sup> took it, and said, "Why did you do that to me? I was very comfortable under the rock." Then he pulled the Night-hawk's mouth wide open.<sup>1</sup>

#### 11. NIX'A<sup>NT</sup> LOSES HIS EYES.

Nix'a<sup>nt</sup> met a Bird that was sending its eyes into a tree. Then he cried, and begged the Bird, until at last it gave him the power. It told him, "You must do this only when it is necessary." Nix'a<sup>nt</sup> went off. He tried his new power, and his eyes successfully left him and returned to him. After a time they remained in a tree. He could not get them back. Then he cried. A Mouse came to him, and Nix'a<sup>nt</sup> asked it to lend him its eyes. The Mouse lent him its eyes, and Nix'a<sup>nt</sup> was able to find his own. But his own eyes had already shrivelled on the tree. He soaked them in water until they swelled. Then he put them back in his head.<sup>2</sup>

#### 12. NIX'A<sup>NT</sup> KILLS HIS WIFE.

Nix'a<sup>nt</sup> was out on the prairie, crying for his wife, who had died. A man came to him, and asked, "Why do you cry?" He was accompanied by his wife. Nix'a<sup>nt</sup> told him, "I am mourning for my wife, who has died." Then the stranger motioned with a stick as if to strike his wife. The fourth time, he struck her. Then she turned into two women. He gave one of them to Nix'a<sup>nt</sup>. Then Nix'a<sup>nt</sup> was glad. He went on with his new wife. He found a man crying for his dead wife. Then he motioned four times, and struck his wife and doubled her, and gave the man one of the women. He found another man, and a third, and gave them wives. Then he met a fourth man who was crying for his wife. Nix'a<sup>nt</sup> motioned, and, when he had motioned four times, he struck his wife on the head. Then she fell dead.

#### 13. NIX'A<sup>NT</sup> AND THE BEAR-WOMEN.

The myth of Nix'a<sup>nt</sup>'s diving for the reflection of fruit in the water, and of his adventures with the Bear-Women, is found among the Gros Ventre as among the Arapaho, with only the following differences. Nix'a<sup>nt</sup> found berries, not plums. He climbed on top of the tent, and from there dropped the berries down inside. While the Bear-Women were eating their own children, they sent one little girl out to get wood for the fire.

<sup>1</sup> Compare Arapaho, Nos. 19 and 33.

<sup>2</sup> Compare Arapaho, Nos. 16, 17.

Nix'a<sup>nt</sup> said, "I will get it," and went out. Then he threw wood into the door until it was blocked. Then he ran, calling, "I have made you eat your own children." The dialogue about the flint-birds, fire-birds, and smoke-birds, is missing. In all other details, the Gros Ventre version resembles the Arapaho.<sup>1</sup>

#### 14. NIX'A<sup>NT</sup> AND THE DANCING DUCKS.

Nix'a<sup>nt</sup> was going along the river in the thick timber. Then he came to an opening in the woods. There he stopped and thought what to do. He sat with his head down. Suddenly he stood up. He shouted loudly, "All ducks, prairie-chickens, and cottontail-rabbits come here! I will make a dance for you." Then the birds came flying to him, and the rabbits ran up. He made them all stand in a circle and close their eyes. He said, "You must keep your eyes shut when you dance." Then he sang, and they danced. He began to break the birds' necks. Meanwhile he sang, "As you dance, you must not look!" At last a little prairie-chicken dancing at the end opened its eyes and saw him. It flew up crying, "Nix'a<sup>nt</sup> is killing you all!" Then the remaining birds all flew off and the rabbits ran away. Nix'a<sup>nt</sup> said, "Nix'a<sup>nt</sup> always accomplishes what pleases him. Nix'a<sup>nt</sup> is always fortunate. Now he has a feast." Then he made a fire. He put the ducks and prairie-chickens and rabbits that he had killed into the ashes under the coals. Then he said, "Nix'a<sup>nt</sup> is sleepy. I think I will sleep." Ano jussot, "Wake me if any one comes." Then he went to sleep. Wolves and coyotes came. They smelled around. They ate all the meat, and left only the bones. At last Nix'a<sup>nt</sup> woke up. He coughed. He said, "Now I shall have a feast." He found only bones. He looked all around. There was nothing left. Ano suo dixit, "I told you to move and wake me if any one came." He took a firebrand, and suum anum attrivit. Tantum dolore affectus est ut ano eminente cuberet ut ventus eum refrigeraret.<sup>2</sup>

#### 15. NIX'A<sup>NT</sup>'S ADVENTURES.

##### (a) *With the Mice's Sun-dance.*

Nix'a<sup>nt</sup> was out on the prairie. Then he heard a noise. He said, "There must be a camp near by." He ran one way, listening, then another. But he always came back to the same place. He stood on a skull in order to look about. Then the noise was under his feet. He looked in, and saw people dancing. There were men, women, and children.

<sup>1</sup> Compare Arapaho, No. 49, also 50.

<sup>2</sup> Told by informant R. Compare Arapaho, Nos. 26, 27.

They were mice that were making the sun-dance. Nix'a<sup>nt</sup> watched the dance. He wanted to see. He continually told the opening of the skull to stretch wider. It became large enough for him to look in with both his eyes. As he continued to look, he liked the dance better. He told the hole to stretch wider. He wanted to get to the women inside. At last the hole stretched over his head. It contracted around his neck. The Mice ran out. Nix'a<sup>nt</sup> could not get his head out from the skull. He wandered about. He asked the trees and bushes what they were. He came to sagebrush, then to a rosebush. Then he came to a large cottonwood. When he found this he said, "I am still at a distance from the river." Then he came to a birch. He said, "That is the kind of tree with many kidneys on it." Next he came to a young cottonwood. Then he said, "Now I am near the river." Then he came to the small willows, and then he fell down the bank into the river. He went down with the current. He came floating to women and girls who were bathing. He said, "I will give beads to whomever pulls me ashore." [The tale continues like No. 7, until the elk-skull is split from his head.] Then he got up and ran off, all the women running after him. He said, "I wish there were a hole I could enter." Then there was a hole and he went in. He came out on the other side. He found white clay. He put some over his right eye. He took a stick, peeled the bark off so that it looked white, and laid it across his arm. Then he went back to where the women were, and asked them what they were doing. They told him. Then he abused Nix'a<sup>nt</sup>. He said, "He is always doing such things. Why do you not dig him out? Then you can pound him to pieces." Then all the women crawled into the hole. He blocked the entrance with wood, and set it on fire. Then he smothered them.

(b) *With the Women who loused him.*

Then he went on to the river. As he went along he saw two pretty young women. They sat lousing each other. He said, "That is a nice thing they are doing." He pretended to scratch his head and catch and bite his lice. "I have too many lice," he said. Then he said, "Do you not want to louse me?" They said, "Yes." Then they sat opposite to each other, stretching out their legs, and told him to lay his head on their laps. Then he was satisfied. Soon he went to sleep. They took burrs, and filled his hair with them. They went off. The burrs made his hair stretch. They pulled the skin of his forehead up. Then he sat up. He could hardly close his eyes. At last he cut off all his hair. Then he covered himself with mud, and went home, crying. His wife saw him coming. She said, "There comes the fool! He has been doing something again."

When he was at a little distance, he began to cry harder. At last she became impatient and went out to him. Then he said, "Those bad people who visited me! They told me, 'Your wife is dead.'" Then he kissed his wife.

(c) *With his Daughters.*

After he had been at his tent a while, he pretended to be sick. He would not eat, and became very thin. He had two daughters. They were unmarried, and young and pretty. Now Nix'a<sup>nt</sup> seemed nearly dead. Then he said, "Old woman, I shall leave you soon. There are those skin-scrapers, and sleighs of ribs, and stone hammers, which I made for my daughters. I want them buried with me. Put me into that crooked tree here. Do not tie me: only wrap me in my robe, and put those things in with me. There is a man called One-eyed Owl. He always has white clay over his right eye. He carries a sharp tomahawk (kaahainou). Give him both my daughters when he comes, and put up a tent for him. Give them to no one but him." Then he became worse, and died. His wife and daughters mourned for him. They cried. They buried him as he had said. He lay in the tree for four days. Then a coyote passed. Nix'a<sup>nt</sup> called it and said, "Howl, and call all the coyotes and wolves." The coyote sat down and howled until they all came. Nix'a<sup>nt</sup> broke all the skeletons that were there, and scattered them about. He broke and scattered the implements that were buried with him. Then he said to the wolves, "Now howl, 'We have eaten Nix'a<sup>nt</sup>.'" Then they howled, "We have eaten Nix'a<sup>nt</sup>;" and he ran into the brush. When his wife and his daughters heard what the wolves howled, they screamed and cried. Nix'a<sup>nt</sup> remained out four days more. Then he made himself a pointed tomahawk, and painted his robe white. He put white clay over his right eye. He also covered a scar on his cheek. Then he came and sat on the hill near the tent. One of the girls went out. She saw him. "He looks like the man that my father was telling of," she said. She went in and told her mother. The woman looked out and saw him. "That is the one," she said. "Both of you go and take his robe. Take hold of it on each side, and bring him in. Do not be ashamed. He is the one your father mentioned." Then the two girls went out and brought him. The woman put up a tent for him, and the girls sat by him on the bed, one on each side. At night they lay down, one on each side of him. Then he slept with them both. Thus they did many nights. The two girls were very beautiful, and he too was a fine-looking man in the day. One of the two girls noticed that at night he was not good looking. Then she saw a scar under his right eye, and thought, "He looks like my father." She could

not help thinking it was he. "I think it is Nix'a<sup>nt</sup> my father who has married us," she said to her mother. "You foolish one! Your father is dead," said the woman. Several times the girl said the same to her mother. At last one night the woman raised the tent-door a little and looked in. Indeed it was Nix'a<sup>nt</sup>! She cried, "Ah! is that how you die, Nix'a<sup>nt</sup>, to marry your daughters?" She ran to get a club, and he ran off.

(d) *With the Woman who crossed the River.*

Then he continued to go. He saw a woman going in his direction. He overtook her. He pretended to be a woman. "Where are you going, my friend?" he said. "My husband beat me and I am going away. Where are you going?" she said. "My husband beat me too, and I am leaving also. Let us go together," said Nix'a<sup>nt</sup>. Then they went together. They came to a river. "Go first," said the woman. "No, you go first," said Nix'a<sup>nt</sup>. Then they both lifted up their dresses. "Oh! your legs look like a man's," said the woman. "Have you never heard tell of the woman whose legs look like a man's?" said Nix'a<sup>nt</sup>. *Cum longius in flumen introiissent, vestes altius levaverunt.* "O, clunibus viro similis es!" dixit femina. "Nunquam fama illam feminam accepisti cujus clunes viri illis similæ essent?" dixit Nix'a<sup>nt</sup>. *Pæne cum transiissent penis Nix'a<sup>nt</sup>to e manibus prolapsus aquam percutiens sonum dedit.* He picked it up hastily. "What did you drop?" asked the woman. "It is too bad! It was a love-root. I am sorry I dropped it," said Nix'a<sup>nt</sup>. When they had crossed, *subito penem ei monstrans,* "Aspice, amica!" Nix'a<sup>nt</sup> dixit. *Exterrita in terram cecidit. Ad eam adiit libidinamque explevit. Tum iterum profectus est.*

(e) *With the Sleeping Woman.*

He came to a camp. He looked into a tent and saw a pretty woman asleep. He went in, sat down, and waited for her to wake up. When she did not awake, he went out, and, *cum excrementum in extremum baculi cepisset,* put it on her dress. Then he came in once more and coughed. Still she did not wake up. Then he pushed her thighs, saying, "Surge, lectum inquinavisti." At last she awoke. Then Nix'a<sup>nt</sup> pretended that he was about to cry out, but the woman hastily told him, "Do not!" Four times he made as if to call out loudly, "Hæc femina lectum inquinavit," sed summissa voce susurravit. *Mulier dixit,* "Si taces, me tibi dabo." "Bene, si te possidere me sines, tacebo." "Cautus sis, fratres prope dormiunt," mulier dixit. *Tum Nix'a<sup>nt</sup> libidinam explevit.*



(f) *With the Buffalo he called and the Rabbit.*

Then he went on again. He saw a man sitting on a high bank. His legs were hanging over the cliff. He had two round rattles. He sang, and struck the rattles on the ground. Then the buffalo came in strings on each side of him, and fell over the bank and were killed. Then Nix'a<sup>nt</sup> cried. He said, "Pity me!" The man said, "What do you wish?" Nix'a<sup>nt</sup> cried louder. At last he persuaded the man to let him have the power of calling the buffalo. The man gave it to him, saying, "You must not use the song for nothing. You must only use it when the camp is very hungry." Then Nix'a<sup>nt</sup> went off. Soon he began to try his power. He sat at the edge of a bank, and sang and rattled. The buffalo came in strings, and fell over the bank. He left them and went on. Three times he called the buffalo. When he called them the fourth time, the buffalo came and pushed him over the bank, and fell on top of him. Anus ejus solus eminent. Lepus advenit et cum anum vidisset, cum eo copulavit. Nix'a<sup>nt</sup> lay there. After a time he saw a Coyote. "Come here, Coyote," he said. "What is it?" asked the Coyote. "Call all the coyotes and wolves," said Nix'a<sup>nt</sup>. The Coyote went on a hill, and howled. All the coyotes and wolves came, and ate the buffalo, and dragged away the bones, until at last Nix'a<sup>nt</sup> emerged. He went on. Tum inquinavit. When he looked back, he saw little rabbits scampering away. He said, "Good!" He was pleased. Three times he saw rabbits run off. Quater cum inquinare pararet, he picked up rocks, spread out his robe behind him, and weighted its edge with rocks. Tum inquinavit, and suddenly jumped out from his robe. "I will get you this time!" he cried as he stamped about on his robe. Then he lifted up the edge and looked under. He thought he had killed rabbits, but there was only excrement. His robe was soiled. He began to run toward camp as hard as he could, crying loudly, "Come out, all! The enemy pursue me! Mount your horses! Inquinantes Piegani me persequuntur! Celeriter nisi venietis, togam meam inquinabunt!" The people hastily mounted, rode, came there, and found him toga inquinata. "I told you to hurry," said Nix'a<sup>nt</sup>.<sup>1</sup>

## 16. ONE-EYED OWL AND HIS DAUGHTER.

A man lived alone with his family. He had a pretty daughter. He said, "When I die, let my daughter marry a one-eyed man who has white

<sup>1</sup> Obtained from informant R. Compare, for the first episode, Nos. 7 and 13, and Arapaho, Nos. 49, 50, 52, 53; for the second, Arapaho, Nos. 53-55; for the third, No. 16, and Arapaho, Nos. 42, 43; for the fourth and fifth respectively, Arapaho, Nos. 36 and 37; for the sixth, No. 5, and Arapaho, Nos. 32, 33.

clay on his eye." Then he pretended to be sick. He told his wife, "When I am dead, do not bind me up, but lay me on the prairie." Then he seemed to die, and she put him out on the prairie. He called the wolves, and told them to howl. "We have eaten the person here." He gathered bones and laid them by his blanket. He went away, painted one of his eyes white, and came to his own tent. His daughter, coming out of the tent, saw him, and told her mother, "There is the man that my father wanted me to marry." Her mother said to her, "Let us put up a tent for him." Then they put up a tent, and the girl married him. He always went off in the morning and came back at night. Then the girl saw that he had a scar, which her father had had. She said to her mother, "He looks like my father." Her mother said to her, "Tie a string from your bed to mine, and pull it when he enters." At night he came, and the girl pulled the string. Then the woman came from her tent and found her husband. She beat him nearly to death.<sup>1</sup>

#### 17. THE MAN WHO WENT TO WAR WITH HIS MOTHER-IN-LAW.

There was a camp-circle. A man went off. At a distance he built two brush shelters. The next day he came back. He sat in his lodge and did not speak. His wife asked him, "What is the matter?" He did not answer. She asked him again and again. At last he said, "I saw many men going to war with their mothers-in-law in order to steal horses for them." Then his wife said, "I will ask my mother to go with you." She asked her mother, and her mother consented. Then they started off together, the man riding in front and she behind. They came to the place where he had been, and each slept in a shelter. In the morning the man went out as if to look for tracks. When he came back he said, "I cannot find the tracks of the people I saw. I do not know where they can have gone." Then they staid there over night again. The man had put stones near his bed. He threw them at his mother-in-law's shelter. Soon she said, "Some one is troubling me here. There is a ghost about. Let me come into your shelter." He consented. After a time he again threw stones to where she was lying. She said again that she was being disturbed, and asked, "Una dormiamus." Iterum assensus est. Tum se frigere questus est. Mulier rogavit, "Qua parte frigēs?" "Hic," dixit. Iterum rogavit, "Qua parte? Sumus soli. Nullus cognitum habebit. Dic mihi qua parte te frigere." "Hic, tange," dixit. Tum illa tetigit. Erectus ei penis fuit. Dixit, "Inserere ut calescat volo." Muliere assensa penem inseruit. Illic vixerunt donec mulier filium peperit, postquæ domum redierunt.<sup>2</sup>

<sup>1</sup> From informant Q. Compare No. 15, and Arapaho, Nos. 42, 43.

<sup>2</sup> From informant Q. Compare Arapaho, Nos. 39, 40.

## 18. THE KIT-FOX AND THE GHOST.

The Kit-fox started. He went along a path in the woods. As he went, he smelt something that stunk. He stopped and sniffed. The odor came from a dead person buried in a tree. The Kit-fox said, "It stinks." Then the dead person came down from the tree and asked, "What were you saying?" "I said it smelled good," said the Kit-fox. "No, you said something bad of me." "No, I said, 'It smells like sweet-grass about here.'" The ghost at last allowed him to go. The Kit-fox went off. When at some distance, he called to the ghost, "I said, 'Something smells bad here.'" Then the ghost pursued him. He came near, and almost caught him. The Kit-fox ran into a hole just as the ghost caught the end of his tail and pulled it off. After a time the Kit-fox came out again and cried.<sup>1</sup>

## 19. FOUND-IN-THE-GRASS.

A man camped alone. In the morning he would go to hunt, and in the evening he came back. "If a person comes while I am away, do not ask him to come in," he said to his wife. "Even if he is just about to come in, do not cause him to enter." And surely, when he was away, somebody came there; but his wife said nothing, and the person merely walked around the tent. Sometimes he made as if to enter; but the woman would not say anything, and he did not come in. Then her husband returned, and asked her, "Has that person been here?" "Yes, he came," she told him. "Indeed!" he said to her. "Now, even if he seems about to come in, you must not tell him to enter." Then he went hunting again. After he was gone some time, that person came there again. He made as if to come in, but he did not. Then he opened and shut the door several times. Then the woman could restrain herself no longer, and told him, "Come in!" Then the man came in. She cooked for him to eat, and after she had cooked she gave him the food; but he said, "That is not the kind of plate I use." Then she changed the plate; but again he said, "That is not the kind of plate I use." Then she continued to give him other plates; and he said the same thing to her, until she had used all the plates and dishes. She did not know what to give him. Then she thought what kind of plate to use. She took off one of her moccasins and gave it to him as a plate. "That is nearly it," he said to her. Then she took off one of her leggings and used it as a plate. "Very nearly," he told her. Then she thought, "I will try my dress for a plate." Then she took

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<sup>1</sup> From informant M.

off her dress, and spread it out for him as a plate. "That is very nearly it," he said to her. Then she lay flat on her back and made a plate of her belly. "That is it," he told her. She was pregnant. After the man had eaten, he cut her open. Then he drew out one of her children, and threw it to the door. "Kā'a<sup>n</sup>en will be your name," he told it. Then he drew out the other and threw it away. "Nüiçā'<sup>n</sup> will be your name," he said to it. She had been with twins,<sup>1</sup> this woman he had cut open. After he had done this, he went out and disappeared. After a time the man who was the husband of this woman who had been ripped open, returned from the hunt, and his wife did not appear. When she did not come out, he became frightened. He dismounted and threw off his meat. "I told her so," he said to himself. Then he went inside. There she lay at the back of the tent. He cried when he saw his wife lying dead on her back. He went out on the prairie and cried. He mourned day and night. When he came back to his tent, his arrows were scattered about. Then he put his arrows back into the quiver. Whenever he was away, the arrows were scattered about the tent. He continued to gather them up and put them back into the quiver. When he had done this repeatedly, he watched for those who took his arrows out. Going out doors, he lay on his face near the tent and began to cry. It sounded as if he were far off. While he cried, he heard a child speaking. It said, "Nüiçā'<sup>n</sup>, let us play. Our father is far away, crying." Soon he again heard children speaking. "I beat you," they said to each other. "Look, look at it closely," they said. Then, when he heard them say it again, he got up and ran into the tent. One of the boys escaped, but the one who was looking at the arrows most closely he caught. The child scratched him and cried, and said, "Let me go." The man said, "Come, my son, be quiet. I want you to live with me. I will make you a bow and arrows. You can always shoot with them." Then the boy became quiet, and they remained together. Soon after, the man said, "Well, my son, I will go out as I did when I caught you. I will do it again, because I am trying to catch your younger brother. After I begin to cry, you must say to your younger brother, 'Let us play together,' and, when you beat him, you must say, 'Look close!' When you say that to him, I will come in." When he had told his son what to do, he went out and lay down on his face and began to cry. And indeed Kā'a<sup>n</sup>en soon called, "Nüiçā'<sup>n</sup>, come here! Let us play! Our father is crying at a distance." "No, I will not, for you smell like your father," his younger brother said to him. "You need not touch me," he told him. "No, I do not want to. You smell like your father," Nüiçā'<sup>n</sup> told him. He had difficulty in persuading him.

<sup>1</sup> The older of Gros Ventre twins, if boys, is given the name Kā'a<sup>n</sup>en. The younger is sometimes called Nüiçā'<sup>n</sup> "second."

At last he came in, and they played together. When Kā'a<sup>n</sup>en beat him, he said, "I beat you." Then the man got up and ran into his tent. There lay Niiçā<sup>n</sup> looking closely at the arrows. Just as he was about to escape, his father caught him. He cried and scratched, and said, "Let me go!" "Be quiet, my son. You will live with me. I will make you a bow and arrows, and you can always shoot with them," said his father. Then he quieted down. Thus their father caught them both. He made bows and arrows for both of them. Then Kā'a<sup>n</sup>en said to him, "Now, father, make a sweat-house and lay our mother down in it." Then he did as his son told him. Then Kā'a<sup>n</sup>en said, "Step aside," and he went to one side. Then Kā'a<sup>n</sup>en shot up, and as he shot he said, "Look out, look out, look out, my mother!" Then he said to his brother, "Now it is your turn." Then Niiçā<sup>n</sup> shot up, calling, "Look out, look out, look out, my mother!" Whenever they shot, the sweat-house shook. Kā'a<sup>n</sup>en shot upward four times, and Niiçā<sup>n</sup> four times; and when each had shot up four times, their mother ran out from the sweat-house. Thus they restored their mother to life.

After a time, their father said to the boys, "Now, my sons, when you are out shooting, never pick up an arrow after you have shot it." Then when they went shooting, they never picked up their arrows after they had shot them. Once, when they had started to return, they had used up all their arrows. Near where they were going sat a bird. Then Niiçā<sup>n</sup> said to his brother, "My older brother, I will go back and pick up one of my arrows. I want to shoot this bird." "No, our father told us never to pick up our arrows after we had shot them." Nevertheless, Niiçā<sup>n</sup> ran back and took one of his arrows. As soon as he took it, the dust rose behind them. When Kā'a<sup>n</sup>en saw it, he ran toward their tent, and Niiçā<sup>n</sup> followed him. Kā'a<sup>n</sup>en just got in. Just as his younger brother took hold of the door, the wind blew him away together with it. He was blown far away. There was a camp near the place to which he was blown. A dry lake was near the camp. It was there that he came down. When the women of the camp had put up their tents, they went out to cut grass at the lake. They carried it home on their backs. An old woman went out while the rest were already coming back. When she reached the lake, there was no longer anybody there. Then she saw a bunch of grass. "I am glad that there is some left. I will cut it," she said to herself. Then she went to it and began to cut it. As she cut it, a child cried. "I am glad to find a child. I will have it for my grandson," the old woman said to herself. Then she took Niiçā<sup>n</sup> home. When she got to her tent, she said, "I found this child to have for myself. I found it in the dry lake as I was cutting grass for bedding. Found-in-the-Grass will be his name." Then the old woman raised him. When he had grown up to be a boy, a man who had pretty daughters that were not married,

said to an old man, "Cry out, 'Any one that may catch a porcupine, or any two young men that may catch porcupines, will marry my daughters.'" Then all the young men set traps. Found-in-the-Grass said to his grandmother, "Make me a trap, grandmother. I will also trap porcupines." He made her laugh, trying to do what he was too young for. "What do you want a wife for? You cannot even keep yourself clean," his grandmother said to him. "No, grandmother, you must make me a trap and I will set it." Then she made him a trap, and when she had made it, he took it and went out with it. He set it right in the trail. Then it became night. In the morning all the young men got up and went to look at their traps. But first of all, just as it was beginning to be light, the Crow went out flying, and looked at the traps of all. When he had examined all the traps, he went to the trap that Found-in-the-Grass had set; and this was the only one that succeeded in catching a porcupine. Then the Crow stole it, but left a quill. Found-in-the-Grass came and looked at his trap. He found it as he had set it. But a porcupine-quill lay there. Then he thought, "It must be that somebody has stolen it." He went back, and said to his grandmother, "Grandmother, I think somebody stole the porcupine from me: here is a quill." "Indeed!" she said to him. Not very long after he had told her that some one had robbed him, an old man cried out, "The Crow is the one who has succeeded in trapping a porcupine." "Grandmother," said Found-in-the-Grass, "it must be he who stole my porcupine. Take this quill and show it to that man, the father of those two young women." The old woman took the quill and showed it to the man. "Here is a porcupine-quill. I came to show it to you. The Crow who said that he trapped it, stole his porcupine. He stole it from my grandson." This she said to the man. "Yes," he told her. "Well, then, the Crow and Found-in-the-Grass must each marry one of my daughters. Well, which of you two wants to marry Found-in-the-Grass?" he said to his daughters. The oldest one said, "I will not marry him. He has a big belly, and has mucus on his nose, and his hair is sticky and tangled." Thus she spoke about Found-in-the-Grass. "The Crow is the one I will marry," she said. The younger said, "Found-in-the-Grass is the one I will marry. I would not marry the Crow, for he has a large nose, and he is only a bird." Thus the younger one said. But the older one said to her, "Who would want to marry him, that Found-in-the-Grass with the big belly!" "Who would marry the Crow! He is only a bird with a big nose," her younger sister said to her. Thus the Crow and Found-in-the-Grass were married. After a time there was a famine. The Crow said to an old man, "Cry out, 'The Crow will go after buffalo. He says, 'Build an enclosure.'" Tell them that." Thus he told the old man, and flew off. He was gone a long time.

In the evening he came flying back alone. As soon as he started, the people had all made a large enclosure for the buffalo. Now he came back and said, "I flew everywhere, but I saw no buffalo." Then they had made their enclosure in vain. The Crow had failed. After a while Found-in-the-Grass said to an old man, "I want you to cry out, 'Found-in-the-Grass will go to get buffalo. He says, 'Make an enclosure.''" Thus he told the old man. Then he sent his wife to her father. "Go and tell your father that I want him to go with me to hunt," he said to his wife. When she entered her father's tent, her older sister was there. As soon as she entered, her older sister said, "Where are you going, you wife of the big-bellied child with the dirty nose? Why do you leave him? You should not let him out of your sight." "And what are you doing here? Why do you leave your husband the Crow, the one with the big nose? You should not let him out of your sight. My husband is changed every night. In the evening he goes out: when it is dark he comes in again, and, when he comes in, he is a good-looking young man. He is perfumed. Your husband the Crow cannot do that!" But her older sister said, "Found-in-the-Grass is not the kind to be changed in the night." Then Found-in-the-Grass and his father-in-law went hunting. When they had gone, Found-in-the-Grass said to his father-in-law, "Now go up on this hill and watch me from there." There was a large flat place. Found-in-the-Grass went there and began to gather buffalo-chips. Then he placed them here and there in pairs on top of each other. When he had covered the large flat here and there with chips, he went down (into a gully) out of sight. Soon he reappeared. As soon as he appeared, buffalo stood all about. Then he took a buffalo-chip and burned it. After he had burned it, he went towards the wind to cause the buffalo to smell it. When he had done this, he ran to where the enclosure was, and all the buffalo followed him. He dropped out of sight, and right there the buffalo followed him over the bank. But he had jumped to one side. Thus Found-in-the-Grass satisfied the people's hunger. Then he went home to call his wife to shoot the buffalo in the enclosure. His quiver was of otter-skin. Then his wife shot the buffalo. While she was killing them, her sister came to her and said, "Let me have the bow: let me do the shooting." "No," said her younger sister. "What do you want to kill them for? If you want to do the killing, you should kill them with your husband's, the big-nosed Crow's, bow and arrows." After she had killed all the buffalo that were in the enclosure, Found-in-the-Grass said to the people, "Do not take for your own the one that is scabby. It is for my grandmother to skin." This one that he called scabby was the fattest of all. Then all the people began to butcher. Found-in-the-Grass, and his wife, and his grandmother, together skinned the

scabby one. He filled a gut with blood, and put it on his wife's back. "Carry home this gut filled with the blood which we have obtained," he told her. Just as she started to go, he stabbed the gut in which the blood was. As soon as he had cut it, his wife was wearing a red robe and a red dress and red leggings. The blood had changed to clothing. His sister-in-law saw him do this, and came over to him. "I wish you would do to me as you did to your wife. That is why I came," his sister-in-law said to him. "Yes," he said. "Get blood, and I will do to you as I did to your younger sister." Then she got blood and put it on her back, and he cut the gut. When he cut it, blood ran down all over her. Thus Found-in-the-Grass ridiculed his sister-in-law.<sup>1</sup>

## 20. CLOTTED-BLOOD.

There was an old man who had four daughters and a son-in-law. As his daughters grew up, his son-in-law married them until he had all four. The son-in-law was bad. He and his wives never lived with the old man. They lived in another tent. The son-in-law would go hunting and take the old man with him. The old man did all the butchering, but his son-in-law gave him no meat. The old man got only bones to boil for the marrow. Once they went hunting, and drove the buffalo under a steep bank. The son-in-law shot several. They ran away wounded, fell, and died. The old man, following their tracks, came to where a buffalo that had been shot through the lungs had coughed out a piece of clotted blood. Then he pretended to fall down. He picked up the blood and put it into his quiver. When he and his son-in-law came together again, his son-in-law asked him, "What did you pick up in that place?" The old man said, "I did not pick up anything. I fell down. I took a thorn out of my foot." When they had finished butchering, they took the meat home. The young man kept it all, and the old man had only the blood which he had hidden. Then he told his wife, "Put a kettle on the fire. We will cook this blood." The old woman did so. When the water boiled, she threw the blood in. Then a child cried. The old man said, "Take the child out. It will be our son." Then the old woman took it out from the kettle. It was a boy. The son-in-law heard the child crying. He told his youngest wife, "Run to the tent and see what the child is. If it is a girl, I want to marry her when she is old enough. If it is a boy, they must throw him away and kill him." The young woman went over. She was the only one of the daughters who cared for the old people. Sometimes she stole food for them. She asked her par-

<sup>1</sup> From a text obtained from informant S. Compare Arapaho, Nos. 19-143. For the disastrous consequence of shooting an arrow, compare Arapaho, Nos. 6, 141, 142.



ents what the child was. The old man said to her, "It is a boy, but you must say, 'It is a girl.'" The young woman went back and told that it was a girl. The man said, "Take some of this refuse over and let the old woman drink it, so that she will have milk to raise the child." The old man knew that the child was supernatural. He said to his wife, "Swing the child on the southwest side of the tent (to the right of the door), then swing it on the northwest, then at the northeast, then at the southeast." The old woman swung the child at the west (right) of the door. While she was swinging it, the child began to laugh. When she swung it for the second time, at the northwest of the tent, it began to talk. When she swung it the third time, it became a large boy, who nearly jumped off the swing. When she swung him the fourth time, at the left of the door, he jumped off. He was a fine-looking young man. Then he told his father, "Make me a bow from the last rib of a buffalo, and make me four arrows from the neck-tendons of buffalo." Then the old man made the bow and arrows. He made them well, and put stone points on the ends of the arrows. The young man asked him, "When are you and your son-in-law going hunting?" The old man said, "I do not know. I go whenever he tells me." At night the son-in-law sent one of his wives to tell the old man to be ready to hunt the next morning. Very early the next morning the old man and Clotted-Blood went out. The son-in-law sent one of his wives to tell the old man to come. The old woman cried back, "He has gone ahead." The woman told what her mother had said. Then the son-in-law said, "I will find him, and when I find him I will kill him." Clotted-Blood had already killed a fat buffalo. The man saw the buffalo, came near, and called, "Look about you for the last time, old man, before I kill you." Clotted-Blood had said to the old man, "Take this kidney and eat it. Let him see it. Turn around, and hold it up so that he can see you eat it." He himself was hiding, lying behind the buffalo. The man said, "What are you eating there? Drop it!" The old man was frightened, and nearly let the kidney fall. Clotted-Blood said to him, "Hold it fast and eat it!" Again the man ordered him to drop it. Clotted-Blood ordered him, "Hold it, else I will kill you before him!" Now the man was very close. Then Clotted-Blood stood up beside the old man. The man stopped, looked at him, laughed, and said, "Well, there is my brother-in-law." Clotted-Blood said, "Yes, I am your brother-in-law. I have been waiting a long time to see you. You have treated my father badly." He rolled up his sleeve, and put an arrow on his bow. The man jumped back. Clotted-Blood shot him in the right side. When he tried to pull out the arrow, it stretched. The more he pulled, the farther it stretched. He could not pull it out. Then Clotted-Blood shot him in the other side.

When he tried to pull out the arrow, it stretched. He could not pull it out. Then he fell down. The boy had killed him. Even while he was dying, he continued to speak: "You cannot escape me. You cannot get where I will not find you." Clotted-Blood told his father to get wood and make a large fire. The old man made a fire. Clotted-Blood told him, "Cut off the legs and arms of the dead man." The old man refused. He said, "My son-in-law was very wonderful. I do not wish to do this." "Well, I will do it," said the young man. He cut off an arm, and threw it into the fire. The arm spoke: "You can go to no place where I will not get you." Clotted-Blood did not care. He cut off the rest of the limbs, and threw everything into the fire. When he had burned up the dead man altogether, he asked his father, "Which of your four daughters tried to help you?" The old man said, "My youngest daughter is the only one that ever loved me. She alone helped me. The others never helped me." Then they started to go back. "We will leave this meat. You will not need it. You will have plenty when you get back," said Clotted-Blood. Then he killed three of the women and their children. Only the youngest woman and her child he did not kill. He burned the bodies up, as he had the man's. Then they went into the man's tent and took all the property. They had plenty to eat.

Clotted-Blood asked the old man, "My father, are there any people in the land besides you?" "Yes, there are many tribes," said the old man. "I will go visiting," said Clotted-Blood. The old man told him, "Do not go. No one ever returns. There is something that kills them." But the young man was determined to go. Then the old man said to him, "If you will go, I will tell you all the dangerous places. The first is a tree. Every one that passes on the trail by that tree is killed." Then Clotted-Blood started. He saw the tree. "There is the tree," he said. He came near it. The tree began to sway. Then he tried to go around it. It was impossible. He had to pass by the tree. Then he made a motion to go under. The tree nearly fell, and he jumped back. Then again he made a motion to go past, but jumped back. Then he went far back, and ran. When he was under the tree, it fell and broke. Then Clotted-Blood was a down feather floating in the air. It lit on the ground and he was a man again. The tree had been hollow. The people it had killed were inside. Some were dead, some were only bones. Some were not yet dead. Clotted-Blood took them all out. He caused those who were not dead to live. Then he burned the tree. He told the people, "Go back where you came from. Why did you let this tree kill you? You should have known better. You are not children."

Then he came to a bridge which was supported in the middle by a

buffalo-head. Whenever he tried to step on it, the bridge gave way. Then he stepped on it as if to cross, and the bridge went down. Three times he stepped on it and the bridge went down. The fourth time, he walked out on it. Just as the bridge began to sink, he jumped, and reached the land on the other side of the water. The bridge went down and never emerged.

Then he came to a great wolf. His father had told him, "Even if you stand far away, the wolf will suck you towards him." Then Clotted-Blood stood at a distance, and said to the wolf, "Now draw me in. I have heard that you draw people toward you." Then the wolf began to suck. The young man walked toward him. He pretended that he was being drawn along, and made motions as if resisting. "Indeed you are wonderful! You are really drawing me toward you!" he said. He went toward him as fast as he could walk. The wolf lay there with his mouth open. Without stopping, Clotted-Blood went right on, and jumped down his throat. Inside he found people. Some were alive, some nearly dead, some dead, and some were only bones. Above him he saw the heart hanging and beating. Then he said, "Let us dance. You sing and I will dance." Then the people sang for him. He tied a knife to the top of his head, and danced. When he jumped, he pricked the heart. Each time, the wolf leaped. Then Clotted-Blood jumped high and pierced the heart, and the wolf fell dead. Then he reached up and cut it off. Then he cut the sides of the wolf open, and came out with the people. Then he went on.

He met an old woman. She had a large wooden dish which she held up toward people. It drew them toward it, and when they struck the dish they were burned. He went toward the old woman and called, "Old woman, come out with your dish. I wish to be drawn by it." "My grandson, I have been wishing for a long time to see you," said the old woman. Clotted-Blood continued to tell her, "Bring your dish and point it at me." Then at last she brought it out. He was really drawn by the dish. As he went, he made himself go faster. When he came near, he turned into a down feather, which was blown over her head, and lit behind her. Then he turned to himself again, seized the old woman from behind, and began to turn the dish toward her. She said, "Pity me, my grandson!" He said, "You are the old woman who destroys people with her dish." He continued to play with her. Then he turned the dish toward her, and she was drawn into it and consumed. Then he put the dish on a large flat rock, pounded it with mauls, broke it up, and burned it.

He came to a large camp, whose chief was a large Bull. The first tent he came to was an old tent outside the camp-circle. He went in and found an old woman. She said, "Well, my grandson, what are you doing here?"

This place is dangerous. Go back before they find you have come here. I pity you. Go back." "To whom do you refer?" asked Clotted-Blood. Then she told him about the powerful Bull. Clotted-Blood said, "That is the one I came to see." The old woman urged him again to go back. He said, "He is the one I came to see. I will not go back. Cook for me. I am hungry." The old woman continued to urge him to go back; but he said, "Cook for me. I am hungry." When the Bull learned that he was in camp, he sent for him. The Bull was accustomed to gamble with any one that came. He had everything prepared for playing. Clotted-Blood went to him. They played with a wheel and sticks. Clotted-Blood let him win everything except his bow and four arrows. Then he began to win. He won everything the Bull had. When the Bull had only one thing left to bet with, he became angry. As they ran, following the wheel, he snorted. Next time, as they ran after it side by side, he was more angry. He turned his head, hooked the young man, and tossed him. As Clotted-Blood flew up, he turned to down. When it lit, he was a man again. The Bull's horn was broken. "When one does that to me, it is what makes me angry," said the Bull. He charged, and tossed the young man again. Again Clotted-Blood turned to a plume, and when it reached the ground, he was a man. At once he ran for his bow. The Bull's other horn was broken. "When one does that to me, it is what makes me still more angry," said the Bull, and charged again. Then Clotted-Blood turned to down and flew entirely over him. He was wondering what to do to wound him, for the Bull was altogether of bone. He was impenetrable. That is why all were afraid of him. The Bull charged again. Clotted-Blood turned to a down feather, jumped over him, lit behind him, and shot him in the anus. The arrow went in out of sight. The Bull fell, and Clotted-Blood cut him to pieces. Then a crier called to the camp, "Clotted-Blood has come. He has killed the powerful Bull. He has killed all that was dangerous on the way. The people are free again." Clotted-Blood gave all his winnings to the old woman. He asked her, "Where is there another camp?" She told him, "There is one down stream. Do not go there. The people are powerful." But Clotted-Blood started.

When he reached the camp, he went into an old tent. An old woman said, "There is my grandson Clotted-Blood! You had better go back. If they find you here, you will never go away alive." Clotted-Blood said, "Give me to eat. What is it you refer to?" When he had eaten, the old woman told him, "There is one who has a swing at the river. He kills all that swing with him." Then Clotted-Blood said, "That is what I want. I have heard of that swing, but I have never swung. I wish to try it. That man is the one whom I have come to see." When it was found out that

he was in the camp, the man who swung people sent for him, saying, "Tell him to come to swing." Clotted-Blood made answer, "It is good. I will come. He is the one whom I wished to see. I shall come to him soon." Then he went to him. On a tree that leaned over a steep bank there was a swing. Below it there was deep water. Then the man swung him. Clotted-Blood said, "Good! this is good." Then he said, "Now you in your turn swing." Then he swung the man. Then Clotted-Blood in turn went on the swing again. The man swung him. He swung him hard, and when he was far out, he cut the rope, and Clotted-Blood fell. When he was near the water, he turned into a down feather. It was blown along by the wind, hovered, and lit just across the river at the edge of the water. There he stood as a man again. Then he went back. He said to the man, "It is much pleasure to swing, is it not? Let us continue. Now it is your turn. Get on the swing." Then the man went on. Clotted-Blood swung him hard. When he was above the water, he cut the swing. The man fell into the deep water. A large water-monster (*bi'icã<sup>n</sup>* or *bax'aa<sup>n</sup>*) was in the water. This was the guardian spirit of the man that had the swing. He swung people in order to feed them to this animal. Then it swallowed him. But it knew the man, and brought him to shore. He came back to Clotted-Blood. Clotted-Blood said, "Let us continue to enjoy ourselves by swinging. Now it is my turn." Then he swung. Then the man cut the swing, and he fell. He allowed himself to fall into the water. He fell straight into the water-animal's mouth. Inside of it he found people whom it had eaten. He cut up the animal. Then he came out. He went back to the man, and said to him, "I have found you out. It is you who have been inflicting suffering on the people. I shall make you suffer." Then he shot an arrow into his side and another into his other side. He killed him. Then a crier called out to the camp, "Clotted-Blood has arrived. He has killed the man with the swing and his supernatural animal. We are free again. We will live happily from now." Clotted-Blood asked the old woman, "Is there another camp?" She said, "Down the river. But do not go. The people there are powerful." "I am travelling in order to see such places," said Clotted-Blood, and started.

Then he came to the camp and went into an old woman's tent. [The original here repeats the dialogue between him and the old woman.] In this place there was a man with a sharp leg. He caused those who came, to play at kicking with him. Clotted-Blood put a limb of a cottonwood under his robe. They played, and he proved superior to the man. Then the man kicked at him with his sharpened leg. Clotted-Blood threw the stick out, and the other's foot pierced it. Then a large cottonwood-tree stood there. In the top of it stuck this man. Clotted-Blood left him there

to starve. Then a crier called to the camp, "Clotted-Blood has killed the one that kicked. We are free again. He has killed every dangerous being that he has met."

Then Clotted-Blood asked his way to the next camp from the old woman. He came to another old woman's tent. [The original repeats the incident in full.] The old woman told him, "A chief gives his daughter to those who come visiting. Then he asks them to do something that will kill them." When the chief learned that Clotted-Blood was in the camp, he sent for him. He said to him, "I have been waiting for you. I wish you for my son-in-law." Clotted-Blood said, "Yes, I am glad to have a wife, for I am poor." After he had been given the girl, his father-in-law first wished him to get a burning coal. His wife told Clotted-Blood what her father wanted, and that he must go to a certain light that was shining. Clotted-Blood went. He knew at once what the light was. It was the morning star. So he got it and brought it back. Then his father-in-law sent him to get sticks of cherry-wood for arrows. He told him to go to a certain thicket. There he had four bears that killed all who came. Clotted-Blood took his bow and went toward the thicket. The bears came out and rushed at him. He jumped about, avoiding them, and shot. He killed them all. Then he cut up their skins into thongs. He made a big bundle of the cherry-sticks, put the fat of the bears in with it, and, tying the whole together with the bearskin thongs, carried it home. Then he sent it to his father-in-law by his wife. The old man was frightened, and blushed. He did not know what to say. When he had made his arrows ready for feathering, he told his daughter to send her husband to get feathers. He told her to ask him to go to a rocky precipice where birds that had suitable feathers lived. Clotted-Blood went there and found a nest with two young ones in it. Then he went into the nest and sat with the young birds. He watched them. Whenever they opened their eyes, lightning flashed. Whenever they moved, it thundered. "You are wonderful little birds," he said. He took the little female by the bill, and twisted it. "How does it cloud up when your mother comes?" he asked. The Bird said, "It clouds up very dark. My mother is terrible. She comes with hard rain, and with thunder and lightning." "Oh, yes! your mother is very powerful," said Clotted-Blood, and twisted the bird's bill again. Then he twisted the bill of the young male, and asked him, "How does it cloud when your father comes?" The Bird said, "The clouds are white when my father comes, and he comes with heavy hail and thunder and lightning, for my father is very powerful." "Oh, yes! your father is very powerful," Clotted-Blood said, and twisted his nose. Then he saw a black cloud coming. Soon the sky was clouded all over, and it rained and thundered, and there was lightning. Clotted-

Blood went into a cavity in the rocks. When the shower was over, he saw a white cloud come very quietly; he could hear the roar of the hail. Then the old female Thunder spoke to him from the cloud, "What are you doing there among my children? Go away! You will make me angry." Clotted-Blood came out from the young birds. He said, "Very well. Let me speak to you first. If you are powerful, you will be able to pull my arrow out." Then he shot his arrow into a solid flat rock. It went half in. "If you can pull it out, you can kill me," he said. Then the female came down, and the thunder roared, and the lightning flashed, and she seized the arrow, and rushed up. The arrow stretched, and lengthened, and pulled back with all its force, and she was dashed on the rock. Then the male Thunder went far up, and came down violently, seized the arrow, and pulled it until the arrow snapped back, and he was dashed against the rock. The two Thunders were not dead, but they could not move. They said, "Pity us! We will give you our power if you will let us live." Clotted-Blood said, "Very well, I will not destroy you altogether. I will leave your young ones so that there will be some thunders. But I will kill you, for I need your feathers." Then he wrung their necks and took their feathers; but he left the young ones. That is why there still are thunder and lightning. Then he went home. "Take these feathers to your father," he said to his wife. Then she took them. The old man was very much frightened when he saw the feathers of the powerful birds.

Then his father-in-law told him, "There are seven buffalo-bulls. Go and kill them. I want the sinew of their shoulders to put on my arrows." Clotted-Blood went and saw the seven bulls. He approached them very cautiously. Nevertheless they saw him. One of them charged on him. He stood still, and the buffalo struck at him with his sharp horn. Then only a down feather flew there, and the buffalo's horn was broken. Then the rest charged, until all seven had broken a horn. Then they ceased attacking him. There was a large rock that rose a little above the ground. Clotted-Blood said, "I will not kill you if you can knock this rock out of the ground. If you cannot loosen it, I will kill you." Each of the bulls still had a horn. One of them made medicine and charged at the rock. He struck it, and broke his horn. Six of them charged it, and broke their horns. Then the seventh, an old one, charged. He knocked the rock loose. Clotted-Blood said, "I will kill you all. Only this old one knocked the rock out, and shall live." Then he shot the six, and killed them. He cut the sinew from their shoulders, and took their horns in his robe. Then he went back. He gave the horns and the sinew to his father-in-law. His father-in-law was angry because he overcame everything. He told him to get him flint for arrow-points. The place was under a high cliff. Clotted-

Blood went. When he stood at the place, the cliff fell. He turned into a feather, and the wind from the falling bank blew it away. It lit, and he stood there a man. The cliff was all down. Where it had fallen, the flint was exposed. Then he filled his robe with it for his father-in-law. At night his father-in-law sent him to get water at the river. Clotted-Blood took a bucket. When he came near the river he saw two lights. They were the eyes of a water-monster (bi'ičā<sup>n</sup>). He tried to go aside, but the animal drew him. When he found he could not keep away, he took its horn, and stepped on the middle of its head. He filled his bucket, cut off its horns, and took them back with him together with the water. He told his wife, "Take this water and these horns to your father. Tell him he can have them." The old man was angry. He had thought the water-animal would surely kill his son-in-law. He said, "My son-in-law is indeed a powerful man. He has killed everything he has met." Then he went to kill him himself. He took his bow. He went out and called, "Come out, my son-in-law! You have killed all my powerful beings (nana<sup>n</sup>hi'ičihii). Now I will kill you." Clotted-Blood said, "My father-in-law, I did not destroy your beings. Why do you want to kill me?" He went outside. The old man shot at him, and he stepped aside. The arrow went into the ground. His father-in-law continued to shoot until all his arrows were gone. Then Clotted-Blood took his bow and arrows. He had only four arrows and a down feather, which he always wore tied at the back of his head. He said, "My father-in-law, you have been shooting at me much. Now I in my turn will shoot. I have waited for this a long time. You have killed many men. Now you in turn will die." Then he shot, and killed his father-in-law. He cut him to pieces and burned him up.<sup>1</sup>

## 21. MOON-CHILD.

The Sun and the Moon disagreed about women. The Moon said, "The women outside of the water and outside of the brush (human females) are the prettiest down below." The Sun said, "No, they are not. Whenever they look at me, they make faces. They are not pretty: they are the worst-looking women in the world. The women in the water are the most beautiful. When they look at me, they look just as if they were looking at their own people. I think them the most beautiful women on earth." He meant the Frog. The Moon said, "You think the Frog is a pretty woman? You surely have poor judgment of women. The Frog has long

<sup>1</sup> From informant P. Compare, for the first part of the story, Arapaho, Nos. 130, 131, also 132, 133; for the swing, No. 5; for the sharpened leg, Nos. 57, 108, 109; for the thunder-birds, Nos. 139-143; for the tasks set by the father-in-law, No. 129.



legs. She is green, with spots on her back, and large lumpy eyes. I do not think one like that pretty." The Sun said, "Well, we will compete in this. As soon as I have set, I will go to the earth and get the Frog. I will bring her up here to be my wife." "Very well," said the Moon. The Sun got the Frog without any trouble, and brought her up with him during the night to his mother's tent. The Frog hopped. With each leap, she urinated. Then his mother asked, "What ridiculous thing is that?" He said, "My mother, be still. That is your daughter-in-law." Then his mother was silent. During the night the Moon shone, and selected a woman on earth. When he disappeared early in the morning, he went to the earth. The woman that he had chosen was troubled all night, and could not sleep. She did not know what troubled her. She could not satisfy herself. Early in the morning she took a rawhide rope and told her sister-in-law to come with her to get wood. They both went to the woods. When they came among the trees, they saw a porcupine. The woman said, "I will kill this porcupine, for I want to use its quills for embroidery." She pursued it, and, when the porcupine ran up a tree, she climbed after it. The porcupine kept climbing up. Several times she could almost touch it. Whenever she rested, it rested only a little distance above her. Thus it continued to do until they reached the sky. The tree reached to a hole in the sky, and the porcupine went in through this. When the woman had climbed up to the hole, she saw a young man standing at the side of it. He said to her, "Let us go to my mother's tent." They went, and, when they arrived at the tent, he went inside. The woman remained outside. The man said, "My mother, ask your daughter-in-law to come in." Then his mother went outside. As soon as she came out, she called gladly, "Oh, what a fine-looking daughter-in-law I have! Come in!" Then the girl went in. The Frog was sitting beside the Sun, and the woman sat down next to the Moon. So their mother-in-law had two daughters-in-law to use for her work. The woman did much for her, but the Frog did little. Whenever she was sent anywhere, she hopped along. When the mother-in-law forgot that she had a Frog as a daughter-in-law, she sometimes startled her by her hopping. Then their mother-in-law one day boiled the thickest part of a paunch. When she had boiled it, she cut it in two pieces, and gave one to the woman and one to the Frog. "Now, my daughters-in-law," she said, "I want you to eat this paunch. I will have the one that makes the most noise in chewing it for my best daughter-in-law." Then the woman was the best, for she had good teeth. She made much noise in chewing. The Frog, instead of chewing the paunch, took a piece of charcoal. But while she chewed it, her blackened saliva ran down from each side of her mouth. The Moon did not like the

Frog, his sister-in-law. He said, "Wherever the Frog is sent to go, she only hops and urinates. You should not move at all, Frog. Whenever you move, you urinate, dirty one!" Thus the Moon spoke to the Frog whenever she was sent on an errand. At last the Sun could hold his patience no longer. He picked up the Frog, and threw her against the Moon's face. "Because you do not like her, the Frog shall always stick to your face. But I will have your wife." That is why there is black on the moon. Then the Sun took the Moon's wife. The woman had had a son by the Moon. The boy was already old enough to talk. The woman did not like the country in the sky. When her husband the Sun was hunting, she would go out on the prairie and cry, feeling lonely. Once she found the hole through which the Moon had taken her up to the sky. When she looked down, she saw people and the things she used to see. She went back to her tent. When her husband went hunting again, she told him to bring her all the sinews in one buffalo. Then he did what she asked. But he forgot one sinew. When he went hunting again, the woman went out on the prairie, and began to twist the sinew into a long string. When she had finished it, she left it out on the hills, and came back. Her husband went hunting again. As soon as he was gone, she prepared to go to the place where the hole was. She tried repeatedly to leave her boy; but he begged her, "Please, mother, do not leave me behind! Take me with you!" Then she took him. She tied the sinew rope to a stick, and tied the other end around her chest. Then she descended, climbing down with her hands. When she got down to the end of the string, she was about as high above the earth as a tent. She could do nothing, for she had no knife. She hung helpless. When her husband the Sun missed her on arriving at his tent, he looked for her everywhere. At last he came to the hole. Then he saw his wife hanging below, swinging. Then he took a stone and spit on it. He said to the stone, "When I drop you, fall straight on the woman and strike her head, but do not touch the boy." He dropped the stone, and it killed the woman. The string broke, and she fell to the ground. The boy remained near his mother. Even when she was rotten, and when only her bones remained, he played about her. There was a field near by, and every night he went and stole from it. It belonged to an old woman. She missed what she had planted, and watched. Then she caught the boy. She spoke very kindly to him: "Is that you, my grandchild Moon-child?" "Yes, it is I, my grandmother." "Come and live with me. I want you to work about the tent." Then he went with her. He lived with her, but whenever he was out doors he spoke with his father in the sky. Once the old woman warned him: "Do not go to that place. If you go there, you will see a tent. There are only pretty girls in it. If they see you,

they will invit  you to come to them. You will be able to do nothing but go to them, because they are very beautiful." Then the boy wondered why his grandmother told him not to go there. Instead of following her warning, he decided to go and at least look at the tent, and see what kind of a tent it was. Then he went in that direction. Then, indeed, he saw very pretty girls playing outside the tent. As soon as they saw him, they said, "Is that you, Moon-Child?" "Yes," said the boy. They said, "Come and play with us. You are so handsome! If you wish, you can select one of us to be your wife." Then the boy went to them. He picked up a flat rock and put it away out of sight on his body. When he came to the tent, the girls embraced him, and kissed him, and put their arms around him; and as each one touched him, she said, "Take me for your wife." One of them said, "We want you to tell myths." The boy said, "Very well. But when I tell myths, I do not allow people to lie on the bed in the usual way. I want them to lie with their heads toward the fire." Then the girls lay down as he told them, and he began to tell myths. He had put the flat rock under him for his seat. One of the girls turned into a snake, and went underground. While he was telling myths, he felt the snake try to dash up into his body. It smashed its head on the stone. He felt it, but continued to tell myths until all the girls went to sleep. Then he took out his knife. The girls were lying with their heads on the logs along the edge of the beds all around the fire. He went on talking. As he talked, he went around and cut off their heads. Just as he got to the last one, she turned into a large snake and went underground. She said, "You will be overtaken some day. You cannot always have stone for your seat. You will be caught somewhere." The boy answered, "You will live underground." After he had killed the snakes, he went back to his grandmother. She told him to watch the field closely. Then he guarded it. As he walked around it, watching, he found a tent. An old woman stood there. She said, "Is that you, my grandchild Moon-child?" "Yes, it is I," he said. "Will you come in and have something to eat?" she asked. "Yes, I will come in," he said. He went in, and she gave him food. While he ate, she began to put wood into the fire. She made a large fire. She said, "When persons come into my house, I play with them after they have eaten." The boy said, "Yes, I will play with you." Then they wrestled. When she thought he was getting out of breath, she pushed him toward the fire. He turned aside, however. Thus they continued to push each other toward the fire. At last the old woman became tired, and he threw her into the fire. He held her there until she was consumed. This old woman had always stolen from his grandmother's field. Meanwhile the boy never forgot what the snake had said to him. When he went to sleep, he stuck an arrow up

near his head, and said to it, "If the snake comes, fall on my face." Then, indeed, the snake came, and the arrow fell on him, and he woke and got up. But one night he was very sleepy. He stuck the arrow tightly into the ground, and went to sleep. The snake came to where he was lying. The arrow tried to fall. It tried several times. But it could not fall. The snake was close. Then it made a dash, and shot into the boy's anus. "Well, at last I have you. You said I would not catch you. This is the last you will live. Now you will die." Thus the snake said to the boy. But he answered, "No, I do not think I will die. You will become hungry, or out of breath, and you will leave me." The snake said, "No, I will remain in you until you die." The boy said, "No, I do not think you will. I think you will go out from me before I am dead." The boy lived some time with the snake in him. Then he died. The snake was in him still. After a time he had become nothing but bones. The snake would not leave him. He continued to lie there. Then the Moon wondered where his boy was. He never saw him going about any more. At last the boy was tired of lying on the ground so long. He said to his father, "Do something for me. I am tired of lying." Then the Moon made a cold rain. The snake crawled about under the bones, and at last went to find shelter. As soon as it had gone out from him, the boy stood up alive, just as he had been before. He caught the snake and cut it to pieces. He said, "You thought you would kill me. You were deceived. Instead of killing me, you are dead yourself." As the boy rose from his bones, his mother at the same time also got up alive.<sup>1</sup>

## 22. THE BOY WHO WAS RAISED BY THE SEVEN BULLS.

There was a camp. A boy and a girl were lovers. The girl became pregnant. Her mother asked her what made her belly swell. She would not acknowledge, but said that she was sick. When she was about to deliver, she told her mother, "I have had a lover and am pregnant. I am ashamed. Let us throw the child away." The camp moved, and she and her mother fell behind. She was in great pain. When the rest of the camp was out of sight, they stopped, and the girl gave birth to a boy. Her mother dug a hole in a buffalo-wallow, put the child in, and covered it with earth. Then they left it. The child cried and struggled, and partly uncovered itself. Seven old Buffalo-bulls were near by. They were following the trail of the camp. One went to the wallow in order to wallow in it. He heard a sound he did not know. Then the others came, until

<sup>1</sup> From informant P. Compare Arapaho, Nos. 134-138, and note to No. 137, p. 339.

all seven were there. They found the child and looked at it. They pitied it. One of them said, "Let us raise it. We will have it for our son." Then the first Buffalo began to wallow. As he wallowed, he licked the boy all over. Then another one licked him. When all seven had licked him, he was no longer a baby, but a boy. The Bulls told him to climb on the Bull who had first found him, and to hold on to his mane. Then they went off. The Bulls thought the boy hungry, but did not know what to give him to eat. They asked him, "Will you eat grass with us?" "No, I cannot eat it," the boy said. "What do you eat?" "I do not know," said the boy. One of the Buffalo said, "They eat buffalo." At first the Bulls did not know how to kill a cow for him. They planned. They got a cow among themselves, and killed her with their horns. They told the boy, "Break a stone, and use the sharp edge to cut her up with." The boy broke rocks, and used the points and edges for a knife. Thus he was happy, for he had much to eat. He played with his fathers. When he found feathers, he would tie knots in the long hair of their manes, and fasten the feathers there. He also tied feathers to their tails. Then the Bulls told him to make a bow. He knew nothing of the life of his tribe, therefore they instructed him. They told him, "Go into the woods and cut a piece of cherry-wood. Make it so long. Cut also seven sticks of cherry-wood for arrows. Season these. Shape the wood into a bow and arrows. Then cut sinew, and twist it into a bowstring." The boy did all this. Then they told him how to attach feathers to the arrow with sinew, and how to break flint into shape for arrow-points. When the boy had finished his bow and arrows, his fathers told him to kill his game himself. They carried him into a herd on their backs. In the middle of the herd he would jump off, and kill the cow he thought the best. The Bulls loved the boy very much, and never became angry at what he did. Sometimes the boy in play cut thongs of rawhide and tied their feet together; but they did not become angry. Each in his turn, they carried him over the country. He lived with them until he was a young man. Then his fathers took him to a large herd in which there was a powerful Bull. He kept only young Cows in his herd. Whenever any Bull approached, he drove him away. One of the Seven Bulls told the young man, "You must be very careful when we come to this herd, for the Bull is jealous and powerful. Do not even go near the Cows, or you may lose your life." When they reached the place where the herd was, they saw the dangerous Bull. The Seven Bulls watched the young man closely. But he escaped from them, and went toward the herd. One of the young Cows came running to him. "I heard that the Seven Bulls had a good-looking young man. Are you he?" she said. "Yes." "You are indeed handsome." Then she began

to try to attract the young man's desire, and at last succeeded: he went to her et eam olfactavit. Then a young Bull, a servant of the powerful Bull, went and said, "A young man, the son of the Seven Bulls, is with one of your young wives." The Bull became angry. He came swiftly to where the young man was standing with the Cow. When the young man saw the Bull, he fled. The Bull said, "It is useless for you to try to escape. I will overcome you together with your fathers, the Seven Bulls." When the young man reached his fathers, they said, "We must save our son, even though we die for it." They got up and stood around him with their tails raised. One of them went out to meet the powerful Bull. The powerful Bull broke all his legs so that he was unable to move. Then another one went, but was disabled; and another; and so all went against him, and had their legs broken. Then the powerful Bull said to the young man, "Now it is time for you to be killed." The young man said to him, "I do not think you will kill me. Perhaps you will kill me; but I do not think so." He rolled up his sleeve, preparing to shoot. He had a white plume on his head. The Bull charged on him, and tossed him up; but only the white plume flew up in the air. When it came down, there stood the young man. The Bull tossed him repeatedly, but did not injure him. Then the young man shot the Bull. His arrow nearly went through him. Then he went to the other side of him, and shot another arrow nearly through him. Then he killed the powerful Bull. After he had killed him, he told his seven fathers, "I will try to heal you." He went to the one who had first found him, drew his bow on him, and said, "Get up, or I will shoot you." Four times he made a motion as if to shoot. The fourth time, the Bull got up well and sound. Then the young man took another of his seven arrows, and pretended four times to shoot one of the others, and this one arose sound. With each of his seven arrows he cured one of the Bulls. Each of the seven thanked him. They said, "You have shown that you think well of what we have done for you." Then one of them said, "It is time for you to go to your own people. We have raised you. You are a man. Now it is time for you to go. We cannot change you into a buffalo. Go to your father and mother." Then they went to look for the camp where his parents were. They went one behind the other, and the young man rode them in turn and played with them. When they came near the camp, they all stopped. "Your people are very near. You had better go to them. We thank you for restoring us to life." The young man thanked them for having raised him to manhood. As he was about to leave them, he stopped and said, "I do not like to leave you, my fathers. I love you. If I go to the camp, I shall not know my people. I shall not understand them if they talk to me. I shall not know my father and mother." The

Bulls said to him, "You will know your father and mother when you reach the camp. You will understand the people when they speak to you, and they will understand you. You are a human being: we are animals. We cannot turn you into an animal. That is why we tell you to leave us. Now go. When you are near the camp, stop. Many young women will be playing ball. The ball will roll straight to you, and stop in front of you. Then pick it up. One of the young women will follow the ball, and will come to you. She is your mother. When she comes to you, you must give her the ball, saying, 'Here is the ball, my mother.'" The young man did all this. When he said, "Here is the ball, my mother," she was ashamed. Instead of acknowledging him as her son, she ran home, crying. All the other young women were surprised to see him following her. She entered the tent, and he entered it after her. There he saw her father and mother. He said to them, "My grandparents, I am here. I am your grandson." When he had said this, his grandmother spoke. She said, "How is it that we are your grandparents?" "Do you not know," said the young man, "that, when the people were moving camp, my mother gave birth to a child? After I was born, you buried me in a buffalo-wallow. Seven old bulls found me. They brought me up until I was a man." His grandfather was surprised. He had known nothing of what his wife and daughter had done. When the young man had finished telling about himself, the girl stopped crying, and his grandmother took him in her arms and kissed him as her grandson. When night came, the young man said, "Now I will go and look for my father. I want my mother to go with me." Then they went out. Many young men were gambling with hiding-buttons in a tent. The young man and his mother went there. He looked in at the men gambling. While he looked, one party guessed right. Then the others threw the buttons (*kāačhāan*) to them, and the man that picked them up was his father. As soon as he saw this, the young man went in and said, "My father, let us go home." The man was surprised and got up. The young woman had come in too. Then all three went out and to their tent. That is how the young man found his father and mother.<sup>1</sup>

### 23. WHITE-STONE.

There were seven brothers and one sister. Every morning one of them went hunting and did not return. The oldest was the first to go. Then the next oldest went to look for his brother. He also did not return. Thus they continued until all were gone. When the woman knew that her

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<sup>1</sup> Told by informant P.

brothers had all been killed, she went into the hills and cried. She thought she would kill herself. She swallowed a white stone that was near her. After she had swallowed it, her abdomen began to grow larger day by day. She gave birth to a boy. She said to herself, "I am so glad that I have a son. His name shall be White-Stone (Na<sup>n</sup>khaanä<sup>'ntyän</sup>)." She made a swing for her baby at the left of the door, the southeast side of the tent. She swung the child four times, and it began to smile. Then she made a swing on the northeast side of the tent, and swung the baby four times. Then it began to talk. Then she put the swing on the other side of the tent, at the northwest corner. After four swings, the child almost jumped off. Then she put the swing near the door again, at the southwest of the tent, and, after she had swung him four times, he jumped off as a boy. The woman made him a bow of a short rib and an arrow of neck-tendons (hityii'ta<sup>n</sup>). Then the boy asked his mother, "In what direction did my uncles go?" She said, "Do not seek them. It must be a very dangerous place to which my brothers went, or they would have come back." "Nevertheless, mother, I wish to go to that place. Therefore tell me in which direction they went." At last she told him. There was a hill not far from the tent, over which they had gone. The boy went to the hill, and when he had gone over the top, he saw a buffalo-bull standing. He started to creep up on him. The buffalo stood still. The boy noticed at once that it was the buffalo that had been the cause of his uncles' deaths. When he came near, he shot it. He killed it. He began to cut the skin in order to flay it. Then an old woman came toward him. When she reached him, she said, "You drew blood from my buffalo." "Yes, grandmother." Then she imitated the boy's speech, "Yes, grandmother." She told him that he must take the entire bull, and carry it on his back to her tent. The boy said, "It is impossible to carry so heavy a load as the meat of a whole bull. Besides, I have nothing with which to carry it." "Use your bowstring," she said. The boy said, "My bowstring is not strong enough." She said, "Use it anyway, you have nothing else. I want you to carry the bull." The old woman had an iron cane. She had done thus to the boy's uncles. When they had got to her tent and stooped to lay down the load of meat, she had struck them in the back of the head with her cane, and killed them. When the old woman told the boy so often to carry the bull, he became angry. He knew that it was she who had killed his uncles. He took his bow and said to her, "And I want you to carry the bull to your tent on your back. You must be the one who has killed my uncles. I am glad that I have found you to-day. This is your last day." Then the old woman began to speak kindly to him, "Is that you, my grandson White-Stone? I have been longing to see you. I am glad to see you



to-day. Do not compel me to carry this bull. I have nothing to carry it with." "Well, grandmother, I am glad to see you too. To-day you shall repay the death of my uncles. You have a belt with which you can carry the meat." When the old woman knew that she must carry the bull, she took it on her back. Then she asked, "Where are we going with this bull?" White-Stone said, "You should know where we are going. Have you a tent?" "Yes." "Take it there." He took the cane away from her. On the way she became tired, and wanted to rest. "Grandson, please let me rest," she said. "No, I do not wish you to rest. You will have time to rest when you reach the tent." When they were at the tent, and she stopped to unload, he struck her on the head with her cane, and killed her. Then he saw his uncles lying around outside of the tent. He said to them, "You are men. You are not boys to be killed by an old woman like this." Then he took hold of the seven dead bodies, and dragged them into the tent. After he had dragged them in, he closed the door and stepped aside. He shot an arrow up in the air, and when it descended he called, "Look out, look out, look out, my uncle!" and one of them jumped up and ran out. Then he shot and called out again, and he could see the tent move; and again one of them jumped out. He shot up again, and another one came out of the tent. He shot up a fourth time and called, "Look out, look out, look out, my uncles!" and all four emerged from the tent. Thus he brought all his uncles to life. He took them home with him. After he had brought his uncles back, he asked his mother, "Where is there a camp?" She did not want him to go away. He insisted. Finally she told him where the camps of the people were. Then he went in that direction. He came to a camp and went into an old woman's tent. As soon as he had entered, she looked at him and said, "Is that you, my grandson White-Stone? Where did you come from, and where are you going?" "I came from home, and I am visiting here." The old woman said to him, "Do not stay here long. Go back. Bone-Bull (iça<sup>n</sup>nä<sup>n</sup>tyä<sup>n</sup>) is here. He is very jealous towards strangers. If you stay long, you will have trouble with him." White-Stone said, "I do not like to go home. I came here in order to see people. I wish to stay." The old woman warned him: "Do not go near the tent of Bone-Bull. You will get into trouble with him." The bull had a beautiful young wife. White-Stone asked, "Which of the women is Bone-Bull's wife?" The old woman pointed her out to him, and he saw that she was a beautiful woman. White-Stone dressed himself finely. On his head he wore a white plume. He also carried his bow. Then he went and stood at the place where the women got water. As soon as the young woman saw him, she took a bucket and went for water. When she was filling her bucket, he went to her, caught her around the back, and began

feeling her breasts. She ran back to her tent, and cried, "Bone-Bull, White-Stone has touched my breasts." Bone-Bull came out. He ran in all directions, he was so angry. "You cannot go very far, young man," he called to White-Stone. Meanwhile White-Stone was standing at one place. The bull came to him very angry. "You cannot escape me," he said. But White-Stone had been standing still. The bull ran against him, and hooked him. The horn with which he struck him flew to one side, broken. White-Stone said, "You also cannot escape very far from me." When the bull had hooked him, the plume on his head flew up, and White-Stone with it. He dropped on the bull's back. "When persons do things like this, it makes me still angrier. You will not be able to escape me," said the bull. He hooked White-Stone with his other horn. This horn broke also, and White-Stone again flew up with the plume and lit on the bull's back. Then White-Stone took his bow, and shot him in the anus. After he had shot him behind, he went in front of him, and shot him in the mouth. This arrow went straight to the heart. After he had killed him, he built a fire, and put the body in and burned it to ashes. Then he went to the old woman and said to her, "From to-day you are free. I have killed Bone-Bull." Before this, the people did not go out doors in the daytime. They were afraid of the bull. Now the people were rid of him, and happy that White-Stone had killed him.<sup>1</sup>

#### 24. THE WOMEN WHO MARRIED THE MOON AND A BUFFALO.

Two women were lying out doors at night. One of them said, "I wish I had the moon for my husband." The other said, "I wish I had that smallest star for my husband." The next day, when they were getting water, the Moon appeared to the women as a porcupine on a dead tree. When the woman who had wished to have the moon as a husband saw it, she climbed up the tree after it. She came near it, but never reached it. The Moon caused the tree to stretch up and up. The other woman called to her, "You are rising," but she did not listen to her. Thus she continued to ascend until she reached the sky. Then the Moon took her and married her. Then she had a child. When the Moon went hunting, she went to dig hiitceni-roots. The Moon told her, "Do not dig the roots of a blue flower." Then she dug the plant with the blue flower, and there was a hole in the sky. She looked down and saw her home. Then she became sad. Her husband noticed it and asked her, "Why are you sad?"

<sup>1</sup> Told by informant P. For the restoration to life in the sweat-house, compare No. 40, and Arapaho, Nos. 5, 6, 119; for Bone-Bull, No. 81; for the child born from a stone, No. 6; for the bow of rib, and arrow of tendon, Nos. 139-142; for a general parallel, the myth of Light-Stone, No. 85.

She told him that she wanted to return to the earth. He said to her, "I will send you home." Then she made a rope of sinew and a bag of skin. With this the Moon let her down. The people were on the prairie playing. An old man with sore eyes was lying on his back. As he looked up, he saw a speck. Then he told others. They ridiculed him. Then they looked and saw it also. They all watched. The thing came nearer. At last they saw that it was a woman. Then she reached the earth, and returned to her people.

The other woman, who had wished for a star, was approached by a buffalo-bull when she was getting water. He said to her, "I am the one you wished for." She denied it. Then he asked her, "What did you say at night?" Then she remembered that she had wished for the faintest star. He said, "I am he." Then he took her away. No one knew where she was. At last the hunters found her in the middle of the herd. But they could not reach her. Then the Gopher said, "I will rescue her." He dug a long hole, and excavated under the place where she was sitting. Then the woman fell into the hole. Only her robe was left in the position in which she had been sitting. Then the Bull told her to get up. She did not answer. He became angry, and struck her with his horn. He found her robe empty. Then he sent the buffalo out in pursuit. The woman, having returned through the underground passage, fled with her father and mother. They came to three trees, and climbed one of them. All the buffalo came there and went by. At last came an old buffalo who was scabby. He rubbed his sides against the tree. The woman had to urinate. She could restrain herself no longer. The urine flowed down on the old bull. He looked up and saw the woman. He went after the other buffalo and brought them. They hooked the tree with their horns until it fell. It fell on one of the other trees. Then the people climbed on that. Then the buffalo butted this tree until it fell on the middle tree. Then this tree told the people, "Climb on me." The buffalo all went to strike this tree also. At last all of them broke their horns. [End uncertain.]<sup>1</sup>

## 25. THE WOMEN WHO MARRIED A STAR AND A BUFFALO.

One night two girls were lying out doors with their faces toward the sky. They wished for stars. They would say, "I want that one," and then, "I want that one." Then a star came down and took one of them up. The other one remained on earth. Once she saw a buffalo-bull running by, and said, "I wish you were my husband." When she went to get water,

<sup>1</sup> Compare No. 25, and Arapaho, Nos. 12, 81-84, 144.

she saw a young man standing by the path. He told her, "I am the one you wanted to marry." He took her with him, and she lived surrounded by a buffalo-herd. Her husband looked for her, and found her in the middle of a buffalo-herd. Then the Gopher burrowed underground to where she was, and took her back with him. The woman and her husband climbed a tree. When the Buffalo-bull missed her, he ran about, searching. At last he smelled her, looked up, and saw her in the tree. All the buffalo began to hook the tree with their horns. They finally cut the tree down, and when it fell, killed the man. The Bull took the woman back with him into the herd. The people asked the Badger to help them. He dug underground to where the woman was. He made a hole there, into which she fell. Then he took her back with him through the burrow. Then her brother-in-law fled with her. The Buffalo followed their tracks by scent. The man and the woman reached the camp, followed closely by the Buffalo. The woman ran inside a tent. The Bull stood outside, shaking his tail. Then he went in. The people could not stop him nor wound him. He took the woman back with him. The people all went to bring her back. They saw her in the herd, but could not rescue her. Then they sent the Bald Eagle. He seized her by her head, and flew off with her. All the buffalo looked up and saw her soaring through the air. They could do nothing. Then the woman came back to her people.<sup>1</sup>

## 26. THE DESERTED CHILDREN.

There was a camp. All the children went off to play. They went to some distance. Then one man said, "Let us abandon the children. Lift the ends of your tent-poles and travois when you go, so that there will be no trail." Then the people went off. After a time the oldest girl amongst the children sent the others back to the camp to get something to eat. The children found the camp gone, the fires out, and only ashes about. They cried, and wandered about at random. The oldest girl said, "Let us go toward the river." They found a trail leading across the river, and forded the river there. Then one of the girls found a tent-pole. As they went along, she cried, "My mother, here is your tent-pole." "Bring my tent-pole here!" shouted an old woman loudly from out of the timber. The children went towards her. They found that she was an old woman who lived alone. They entered her tent. At night they were tired. The old woman told them all to sleep with their heads toward the fire. Only one little girl who had a small brother pretended to sleep, but did not. The

<sup>1</sup> From informant M. Compare note to the preceding version.

old woman watched if all were asleep. Then she put her foot in the fire. It became red hot. Then she pressed it down on the throat of one of the children, and burned through the child's throat. Then she killed the next one and the next one. The little girl jumped up, saying, "My grandmother, let me live with you and work for you. I will bring wood and water for you." Then the old woman allowed her and her little brother to live. "Take these out," she said. Then the little girl, carrying her brother on her back, dragged out the bodies of the other children. Then the old woman sent her to get wood. The little girl brought back a load of cottonwood. When she brought it, the old woman said, "That is not the kind of wood I use. Throw it out. Bring another load." The little girl went out and got willow-wood. She came back, and said, "My grandmother, I have a load of wood." "Throw it in," said the old woman. The little girl threw the wood into the tent. The old woman said, "That is not the kind of wood I use. Throw it outside. Now go get wood for me." Then the little girl brought birch-wood, then cherry, then sagebrush; but the old woman always said, "That is not the kind of wood I use," and sent her out again. The little girl went. She cried and cried. Then a bird came to her and told her, "Bring her ghost-ropes (tsöökāñäna<sup>n</sup>tsö), for she is a ghost." Then the little girl brought some of these plants, which grow on willows. The old woman said, "Throw in the wood which you have brought." The little girl threw it in. Then the old woman was glad. "You are my good grand-daughter," she said. Then the old woman sent the little girl to get water. The little girl brought her river-water, then rain-water, then spring-water; but the old woman always told her, "That is not the kind of water I use. Spill it!" Then the bird told the little girl, "Bring her foul, stagnant water, which is muddy and full of worms. That is the only kind she drinks." The little girl got the water, and when she brought it the old woman was glad. Then the little boy said that he wanted to go out ut mingeret inquinaretque. Puella anui dixit, "Avia, fraterculum oportet mingere inquinareque." "In tabernaculo mingito!" "Quandocunque urinat flumen fecit." "In tabernaculo inquinato!" "Cum inquinat semper montem fecit." "Well, then, go out with your brother, but let half of your robe remain inside of the tent while you hold him." Then the girl took her little brother out, leaving half of her robe inside the tent. When she was outside, she stuck an awl in the ground. She hung her robe on this, and, taking her little brother, fled. The awl made the sound of the boy qui inquinare conatus est. The old woman called, "Hurry!" Then the awl answered, "My grandmother, my little brother is not yet ready." Again the old woman said, "Now hurry!" Then the awl answered again, "My little brother is not ready." Then the old woman said, "Come in

now, else I will go outside and kill you." She started to go out, and stepped on the awl. The little girl and her brother fled, and came to a large river. An animal with two horns (a bax'aa<sup>n</sup>) lay there. It said, "Louse me." The little boy loused it. Its lice were frogs. "Catch four, and crack them with your teeth," said the Water-monster. The boy had on a necklace of plum-seeds. Four times the girl cracked a seed. She made the monster think that her brother had cracked one of its lice. Then the bax'aa<sup>n</sup> said, "Go between my horns, and do not open your eyes until we have crossed." Then he went under the surface of the water. He came up on the other side. The children got off and went on. The old woman was pursuing the children, saying, "I will kill you. You cannot escape me by going to the sky or by entering the ground." She came to the river. The bax'aa<sup>n</sup> had returned, and was lying at the edge of the water. "Louse me," it said. The old woman found a frog. "These dirty lice! I will not put them into my mouth!" she said, and threw it into the river. She found three more, and threw them away. Then she went on the Water-monster. He went under the surface of the water, remained there, drowned her, and ate her. The children went on. At last they came to the camp of the people who had deserted them. They came to their parents' tent. "My mother, here is your little son," the girl said. "I did not know that I had a son," their mother said. They went to their father, their uncle, and their grandfather. They all said, "I did not know I had a son," "I did not know I had a nephew," "I did not know I had a grandson." Then a man said, "Let us tie them face to face, and hang them in a tree and leave them." Then they tied them together, hung them in a tree, put out all the fires, and left them. A small dog with sores all over his body, his mouth, and his eyes, pretended to be sick and unable to move, and lay on the ground. He kept a little fire between his legs, and had hidden a knife. The people left the dog lying. When they had all gone off, the dog went to the children, climbed the tree, cut the ropes, and freed them. The little boy cried and cried. He felt bad about what the people had done. Then many buffalo came near them. "Look at the buffalo, my brother," said the girl. The boy looked at the buffalo, and they fell dead. The girl wondered how they might cut them up. "Look at the meat, my younger brother," she said. The boy looked at the dead buffalo, and the meat was all cut up. Then she told him to look at the meat, and when he looked at it, the meat was dried. Then they had much to eat, and the dog became well again. The girl sat down on the pile of buffalo-skins, and they were all dressed. She folded them together, sat on them, and there was a tent. Then she went out with the dog and looked for sticks. She brought dead branches, broken tent-poles, and rotten wood. "Look at the tent-poles," she said to her

brother. When he looked, there were large straight tent-poles, smooth and good. Then the girl tied three together at the top, and stood them up, and told her brother to look at the tent. He looked, and a large fine tent stood there. Then she told him to go inside and look about him. He went in and looked. Then the tent was filled with property, and there were beds for them, and a bed also for the dog. The dog was an old man. Then the girl said, "Look at the antelopes running, my brother." The boy looked, and the antelopes fell dead. He looked at them again, and the meat was cut up and the skins taken off. Then the girl made fine dresses of the skins for her brother and herself and the dog. Then she called as if she were calling for dogs, and four bears came loping to her. "You watch that pile of meat, and you this one," she said to each one of the bears. The bears went to the meat and watched it. Then the boy looked at the woods, and there was a corral full of fine painted horses. Then the children lived at this place, the same place where they had been tied and abandoned. They had very much food and much property. Then a man came and saw their tent and the abundance they had, and went back and told the people. Then the people were told, "Break camp and move to the children, for we are without food." Then they broke camp and travelled, and came to the children. The women went to take meat, but the bears drove them away. The girl and her brother would not come out of the tent. Not even the dog would come out. Then the girl said, "I will go out and bring a wife for you, my brother, and for the dog, and a husband for myself." Then she went out, and went to the camp and selected two pretty girls and one good-looking young man, and told them to come with her. She took them into the tent, and the girls sat down by the boy and the old man, and the man by her. Then they gave them fine clothing, and married them. Then the sister told her brother, "Go outside and look at the camp." The boy went out and looked at the people, and they all fell dead.<sup>1</sup>

## 27. THE GIRL WHO BECAME A BEAR.

There was a large camp. Many little girls were playing. They were all little. Only one was older. She played with the rest in the brush near the river. She said to the others, "All go and bring something to eat. Whoever does not bring the last rib is not loved by her parents." The children all ran home, and each one brought back a short rib of a buffalo. Then they cooked and ate the meat, and the oldest girl took eight of the ribs. She said, "Now we will play bear. I will play that these are my

<sup>1</sup> From informant N. Compare No. 3, and Arapaho, Nos. 127, 128.

white claws." Then they played bear. Suddenly she turned into a bear. She killed all except her little sister. Her little sister ran home and brought the news. Soon the Bear came loping toward the camp. All took up their weapons: old and young men used clubs and spears and arrows. None of the arrows penetrated her, and she would catch and kill the men that fought her. Thus she did until she had killed every one in the camp, excepting her little sister, who had run, and hidden in a dog-hut. The Bear knew that she had not killed her little sister, and went to the dog-hut. She said, "Come out, or I will kill you." So the little girl came out. Her elder sister told her, "Take four of the largest tents you can find, and make one tent of them for me. You must get juniper (çäätouwuusöön), and cover the floor of the tent with it." When the little girl had done all this, the bear lay down and groaned and groaned. She rolled and sprawled in pain from her wounds. The little girl sat by the door, afraid. She said, "Sister, may I go to get water?" Her sister said, "Yes; but you must be quick. Do not try to run away. If you try to escape, I can catch you. You can go nowhere where I cannot catch you. You cannot go into a hole where I cannot catch you. If you go into the water, I will catch you." Then the little girl went out. Her six brothers had been away. Now they came back; but when they found the camp deserted, they were afraid to enter it. So they lay down behind a hill. When they saw their little sister going for water, they went to meet her. "Why is the camp empty?" they asked. She said, "My sister turned into a bear, and killed all the people." Then her brothers said to her, "You must go back. Roast this buffalo-fat from the paunch, and when it is hot, throw it between her legs as she sprawls. Then run away. But first you must ask her, 'Is there any spot in which you can be killed? Is there anything that will kill you?' Ask her that. Then throw the fat on her, and flee." Then the little girl went back and asked the Bear as her brothers had told her. The Bear asked her, "Who told you to ask me that? Some one must have told you." The little girl said, "No. I only wanted to know it." The Bear said, "Yes, some one must have told you to ask me." But the little girl answered "No. I only wanted to know, because you have killed every one in camp, and I thought you were powerful." Then the Bear said, "I cannot be killed except in the little finger of my left hand. And I cannot be killed by any arrow except an arrow of tendon." Then the little girl roasted the fat. When it was hot, she threw it between the Bear's legs, so that she rolled about in pain. Then the girl ran to her brothers. Then they ran along the river, going through the water. When they had gone a distance, the little girl looked back, and saw the Bear coming. She said, "There is my sister!" The Bear was following their tracks through the water. When the people



saw that they could not escape her, they stopped, and began to shoot the Bear. Their arrows had no effect. The youngest brother had a bow made of tendon and an arrow of the same. Now he drew his bow at the Bear. He stretched it four times, and shot. He struck her in the little finger, and she died. Then they made a fire and burned her. Whenever a spark flew out of the fire, they heard the Bear roaring there, and quickly ran to it and threw it in the fire again; and when some of her fat spattered out, it roared like a bear, and they threw it back. Thus they entirely consumed the Bear. But one spark they did not see. Then they started. They travelled the entire night. Then the little girl looked back. "There comes my sister!" she said. Then they ran. They ran, and became very tired. Then the oldest brother said, "Let there be a deep swamp behind us, so that the Bear will become fast in the bog." Then there was a swamp. They went more slowly again, and recovered their breath. Looking back, they saw the Bear coming again. They ran. Then the next brother said, "Let much timber be between us and the Bear. Let it be very dense, so that the Bear cannot pass through it; or, if she does pass through, that it will be a very long time." Then there was timber behind them, and they went more slowly. Then they saw the Bear coming again, and the third brother said, "Let there be a very deep canyon behind us. Let it be so large and steep that the Bear cannot descend into it; or, if she does descend, that she cannot come out of it." Then there was a canyon, and they watched the Bear enter it. At last they saw her emerge, and they ran again. Then the fourth brother said, "Let a river be behind us. Let it be large and deep and very swift, so that she cannot swim it, or, if she does swim it, let her be carried far down stream." Then there was a river behind them. After the Bear entered it, they did not see her. They thought her drowned, and went on slowly. At last, after a long time, the Bear came on again. The people were very tired. They said to the fifth brother, "Cannot you do something? We are very tired. We have done what we could. It is all that we can do." Their brother answered, "Yes. Let there be a terrible fire behind us, which the Bear will be afraid to pass through." Then there was a fire. At last the Bear passed through it and came on again. They said, "There comes the Bear!" and ran. Then they asked the last brother, "Cannot you do something? We are very tired. If you cannot do something, we shall surely be killed." "Yes," he said. "Let there be cactus. Let them be exceedingly thick. Let them be so that the Bear cannot pass over them, or, if she does pass over them, let it be a very long time." The Bear went into the cactus-thickets. They could not see her any more. They went far on. Then the little girl said, "There comes my sister again!" "What can we do now?" they said. They ran on.

“Sister, can you not do something? Perhaps in your life you have dreamed something. Perhaps you are able to do something wonderful.” The little girl said, “Yes. Let us run on until we get to this flat place. Then I will do it.” They ran until they came where it was flat. There they stopped. The brothers said, “Now we shall see what she can do.” The Bear was close up. The girl made them all stand facing the east. The two oldest were in front, and behind them the two next, then another, and behind him the youngest. She herself was back of them all. Then she said, “My brothers, all our relatives are dead. We should not be happy if we lived here alone and without them. We will go above and we will live there.” Then she called her oldest brother by name. “Now my brother,” she said, and kicked a little ball that she always carried in her dress on a string. Then he flew up. Then she did the same with the others, one after the other. Only two brothers were left. The Bear was very near, and she kicked the ball twice, as fast as she could. Then, just as the Bear reached her, she kicked the ball for herself, and they had all become stars in the sky. The Bear stood looking upward, but could not catch them. They are *täbiitciçaa*<sup>1</sup> (cut-off-head, *Ursa major*).<sup>1</sup>

## 28. SHELL-SPITTER.

There were two girls, sisters. The older sister said, “We will go to look for Shell-Spitter.” There was a man who was poor and who lived alone with his old mother. He was the Loon (*cē’ibyhi*), and his mother was Badger-Woman (*baxaouuçä*). He heard that two girls were looking for Shell-Spitter. He went to the children of the camp, and took their shells away from them. The girls arrived, and asked for Shell-Spitter’s tent. It was shown them, and they went to it. There stood the Loon. “What are you girls looking for?” he said. “We are looking for Shell-Spitter.” “I am he.” “Let us see you spit shells.” He had filled his mouth with shells, and now spit them out. The two girls stooped, and hastily picked them up, each trying to snatch them before the other. Then he took them to his tent. His tent was old and poor. His mother was gray-headed. He said to them, “I have another tent. It is fine and large. I have brought you here because there is more room to sleep.” The girls went inside.

<sup>1</sup>From informant R. Another version, obtained from informant M, showed the following differences. The Bear told her little sister, whose back she had scratched, not to tell that she was hurt. If she did tell, all the dogs in the camp would howl. When the little girl came back, her mother tried to make her carry a baby on her back. She cried from pain. Her mother questioned her, and she told. The dogs howled, and the Bear came. The story then continues as above, except that her six brothers give the little girl a rabbit to use for its fat in order to burn the bear. The six brothers become the Pleiades, the girl sitting a little at one side of them. Compare Arapaho, Nos. 80, 105, and, for the so-called Magic Flight, Arapaho, No. 6. The Magic Flight is found also in No. 3, and in Arapaho, Nos. 6, 35, 124.

Soon some one called to the Loon, "Come over! they are making the sundance!" "Oh!" he said. "Now I have to sit in the middle again, and give away presents. I am tired of it. For once they ought to get some one else. I am to sit on the chief's bed in the middle of the lodge." He told his mother, "Do not let these women go out." Then he went out, and the old woman guarded the door. When she was asleep, one of the girls said, "I will go out to look." She stepped over the old woman, and went to the dance-lodge. Looking in, she saw the people dancing on the Loon's rump. On the bed in the middle sat a fine man. Whenever he spit, he spit shells. The ground all around him was covered with them. Then the girl went back, and called to her sister, "Come out! They are dancing on this man; but the one who spits shells sits in the middle of the lodge." Then they both went to the lodge. They went inside and sat down behind Shell-Spitter. Then the man on the ground, on whom the people were dancing, saw them. He jumped up. He killed Shell-Spitter, and ran out. He said to his mother, "I told you to watch, and not to let those women out." Then he told her, "Dig a hole quickly!" She quickly dug a hole inside the tent. He entered it, and then she followed him. The people came, but could do nothing. When they stopped trying to shoot, Badger-Woman came out of the hole, singing in ridicule of Shell-Spitter's death. Before the people could reach her, she dropped into the hole again. She did this repeatedly.<sup>1</sup>

## 29. YELLOW-PLUME AND BLUE-PLUME.

There were two boys, brothers. One wore a yellow plume on his head, the other a blue one. They were playing with a wheel painted yellow. The one with the yellow plume rolled it toward the one with the blue plume. This one threw at it and missed it. The wheel kept on rolling. The boy with the blue plume followed it. At last the wheel rolled into the tent of an old woman. When the boy came to the tent, he said, "Grandmother, did the wheel come into your tent?" "Dirty boy, your wheel did not come in here. But come in for a while," she answered. The boy went inside. "I am glad to have you here, dirty boy," she said. "Perhaps this will be the last of your life. Now wait here while I go to get wood to make a fire." She went out, got rotten wood, brought it in, piled it up, and lit it. She wanted to smother the boy. She closed the door, and put logs along the edges of the tent, that he would not escape. The tent filled with smoke; but where the boy sat there was no smoke. Looking around, he saw an

<sup>1</sup> From informant N. Compare Arapaho, Nos. 89, 121.

awl, took it out of its handle (case?), and stuck it into the ground by the door. The old woman said, "Are you still there?" and the awl answered, "Yes." "Dirty child, you should have been burned by this time," she said. After a time she asked again, "Are you still there?" "Yes, I am still here," said the awl. The boy sat altogether untouched by the smoke. The old woman asked again, and the awl gave the same answer. She asked a fourth time, and the awl answered again. Then she said, "You are still speaking, dirty boy: you should have been smothered by this time." She took away the logs with which she had closed the tent. She looked in and saw the boy. "Dirty child, there you are still sitting! You are the first one I have not succeeded in smothering to death. Now I want you to go for water." Then the boy went for water. He brought back clear water. The old woman said, "That is not the kind of water I drink." The boy went to get another bucketful, and again brought clear water. When he came back, the old woman told him again, "That is not the kind of water I use." Again he brought some, and she told him she did not use that kind. This time she said to him, "If you get the same kind of water again, I will kill you." The boy went out to the stream, thinking what kind of water he should get, thinking as hard as he could. A person above his head spoke to him, "Go where the spring is, and there get water. That is the kind of water the old woman drinks." The boy ran to the spring, which was dirty and scummy. When the old woman saw the water, she said, "You may live, for that is the kind of water I use. Now you may go home, because you have brought it. If you had brought me the wrong water again, I should have killed you at once." So the boy went out, taking his wheel with him. When he was off some distance, he called, "Dirty old woman, you did not succeed in doing what you wanted. I am more powerful (holy) than you." He had left the awl sticking in the ground at the door. The old woman had not seen it. When the boy called to her thus, she became angry, got up, and cried back, "Why do you talk to me like that, dirty boy? You were about to be allowed to live. Now I will kill you." She started to go out and stepped on the awl, which pierced her foot. She lay down and went no farther. The boy came back, and told his brother (the one with the yellow plume), "Brother, while I was away, I was in danger from an old woman. She tried to kill me, but somehow I escaped her." "We will kill her with a flood of water," said his brother. The old woman's tent stood in a deep gully. Then they flooded her house with water, and she was drowned. That was the end of her life.<sup>1</sup>

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<sup>1</sup> From informant P.

## 30. THE SWALLOWS AND THE SNAKE.

There was a high bank where the swallows (byiiteibiyaşçaha<sup>n</sup>) lived. A snake went there and ate all the young swallows. When the swallows tried to resist the snake, it blew something yellow out of its mouth and killed the swallows, so that they fell into the water. The swallows went and got the tsöötsohih'a<sup>n</sup> (small birds) to help them, and then the byiitciyehih'a<sup>n</sup> (another species of small birds); but the snake killed them with its yellow breath. Then the swallows went to ask the bluebirds to help them. The bluebirds came; but the snake breathed hard, the yellow came out, and the bluebirds fell into the water dead. Again the swallows flew away, and got an owl; but the snake killed it in the same way. The swallows flew away and got an eagle to help them. The eagle also fell into the water dead. They got a duck, and then a bullet-hawk (äädy<sup>i</sup>); but the snake breathed, and killed them. Then they brought the birds called akō'uuhuh'a<sup>n</sup>, and these, too, were killed. Then they asked the night-hawk to help them. The night-hawk tried to break wind against the snake, but was killed. Then the swallows got bax'a'a<sup>n</sup>, the thunder. The snake breathed yellow at him; but he flew by unhurt, turned in his flight, and came back. Then the snake breathed red towards him, and then blue, and then black; but it did not hurt him. The fifth time, the thunder seized the snake with his bill, threw it up in the air and cut it in two.<sup>1</sup>

## 31. THE ORIGIN OF THE TSÖÖYANEHI DEGREE OF THE DOG-DANCE.

The people were travelling. They left a shaggy<sup>2</sup> dog behind them. Then the dog followed the trail of the camp. An old man went out on the hills. He saw something following the trail, and wondered what it was. He went toward it to see. He saw that it was a dog, and pitied it. Then the old man went to sleep by the dog. The dog knew that the old man pitied him, and in return he pitied the old man. In his sleep, the dog appeared to him and said, "I will give you a dance. It is to be called 'Shaggy Dog' (tsööyanē'hi)." Then he told the old man how they were to make the dance, what they were to wear, and how they were to dance. The dog gave him a whistle and a forked rattle and a head-dress of owl-feathers and a shirt covered with feathers. The old man after a time gave them to another, and so they were passed on to the present.

<sup>1</sup> From informant N. The snake, undoubtedly, is to be conceived as one of the bax'aa or bi'icā, the supernatural serpent-like water-animals that are the enemies of the thunder.

<sup>2</sup> The original says smooth-haired, but his shirt is rough with feathers. The Arapaho also call this dancer "shaggy dog." Probably long-haired is meant. Compare the Arapaho account of the origin of the women's buffalo-dance, No. 14.

## 32. THE ORIGIN OF THE CHIEF PIPE.

A certain man was jealous of a young man, and poisoned him. Before the young man died, he said, "Do not tie me up. Do not look at my tent for four days." Then he died. He was laid inside his tent together with much property. The people kept away. After four days a storm came. It rained and thundered, and there was lightning in the dark. Then a cloud came down. It went up again. It had taken the tent and all the property with it. It left in their place a pipe resting on two forked sticks. The bowl of the pipe was to the south. At this end lay buffalo-chips (to make fire, with the smoke of which to incense the pipe) and sage (on which to lay the pipe) and a bag of red paint. Around the pipe-stem was calico of different colors. Under the pipe sat the young man alive. The thunder had pitied him. After this the pipe was handed down from one man to another. Whenever it was given to a new keeper, the people took everything away from him, just as the thunder had taken everything from the man who first received it. At last a man died, and the pipe was buried with him. The pipe was called "chief pipe."<sup>1</sup>

## 33. SEPARATION OF THE TRIBE.

Long ago the people were crossing a large body of water. Perhaps it was a lake, perhaps it was a river. They were travelling north or south. Some had crossed, some had not yet crossed, and some were on the ice. A little girl saw a horn sticking out of the ice. She asked her grandmother, "Chop it out for me? I want it for a spoon." Her grandmother refused. Then the little girl began to cry. The old woman went back and chopped the horn out. Then blood flowed. The horn must have belonged to some animal under the water, which began to move. The ice broke up. All that were on the ice were drowned. The people on the two shores never came together again.<sup>2</sup>

## 34. THE CAVE OF THE BUFFALO.

To the northwest from the present Gros Ventre reservation there is a hole in a hill. The mouth is as large as a house. When the people hunted near this hole, they always saw large herds of buffalo. Buffalo-trails led

<sup>1</sup> From informant N.

<sup>2</sup> From informants N and T. Similar traditions are found among the Sarcee (Wilson, Report of the British Association for the Advancement of Science, 1888), Cheyenne (Grinnell, *American Anthropologist*, 1892, p. 163), and Blackfeet (*ibid.*).

toward the hole from all directions. All about, the ground was beaten into dust, and there were piles of manure. When the buffalo were hunted, they ran into the hill. Sometimes all entered it before any could be killed. Once two brave men went into the cave. They had long sticks with which they felt the sides and top of the hole. They kept going farther, and the hole grew larger. At last they could no longer touch the top or the sides of the cave with their sticks. Then they became afraid that they would not find their way back in the dark. They returned. They could hear the noise of buffalo running inside. It is thought that it is here that all the buffalo have disappeared.<sup>1</sup>

### 35. THE WOMAN AND THE BLACK DOG.

Outside an old woman's tent a young man lay at night, waiting for women. There was a man who had a beautiful wife. In his lodge were many people, smoking and talking. The young man outside saw this woman come out and take firewood in. Then she came out again and went off ut defecaret. *Canis niger eam secutus est. Pedibus ei blanditus est quasi festinaverit. Mulier dixit, "Retine! Nimis festinas. Mane donec inquinaverim." Cum inquinavisset, longius abiit et in manus genuaque descendit. Tum canis eam texit.* The young man thought, "She is a beautiful woman. She should have taken one of the many handsome young men for her lover." When the visitors had left the tent, he went in. He said to the man, "You are a good-looking young man, and you have a beautiful wife. But she has done something bad." The man said, "Yes? Whatever you say shall be done." *Juvenis dixit, "Multi sunt juvenes, sed canem pro adultera ista habet." Vir mulieri suæ dixit, "Ne id fecisses. Homo pro amatore a te eligendus fuit."* Then he killed her. He was deeply ashamed.<sup>2</sup>

### 36. THE MAN BORN FROM A HORSE.

In spring, when the mares foal, a mare gave birth to a person. This newly born human being was like a colt in that he stood up at once and walked about. Soon he talked. The man to whom the mare belonged that had given birth to the person, called the people. When they had come and stood about in a circle, he said to the colt-person, "I have called all

<sup>1</sup> From informant R. The general idea is common on the Plains.

<sup>2</sup> Told by informant R in answer to the question whether he knew the myth of the woman who had children by a dog, told by the Arapaho. This myth does not seem to be found among the Gros Ventre.

these people in order that you may find your father." The colt-person got up, walked around the circle, looked at every one, and said to a man, "You are my father." The man did not hesitate, but went to him and acknowledged him as his son.

### 37. THE WOMAN AND THE HORSE.

The people sent out two young men to look for buffalo. They killed one and were butchering it. Then one of them said, "I will go to that hill and look around; do you continue to butcher." He went on the hill, and his companion went on with the butchering. The one on the hill looked about him with field-glasses. At Many-Lakes he saw a large herd of wild horses. He continued to look at them. Then he saw a person among them. Then he saw something streaming behind the person. He thought it was a loose breech-cloth. He called his companion, and said to him, "Look!" Then they went nearer. They saw that it was indeed a person. They thought that it was something unnatural (*kaxtawuu*). Therefore they did not try to disturb the person, but went back. They asked the people, "Did you ever miss a person?" An old man said, "Yes. A man once lost his wife as the camp moved. She was not found." Thereupon the young men told what they had seen. The people thought it must be this woman. The whole camp went there. All the people mounted their best horses in order to catch her. When they approached the place, they surrounded the whole country. All of them had mirrors. When they had gone all around, they turned the mirrors and reflected with them, signalling that the circle was complete. Then they drew together. The four that were mounted on the fastest horses started toward the herd. The wild horses ran, but, wherever they went, they saw people. The person in the herd was always in the lead. The people continued to close up on the horses. When they got them into a small space, they began to rope them. Six of the horses and the woman escaped. She was exceedingly swift. The people headed them off, and at last drove them into an enclosure. With much trouble they at last succeeded in fastening one rope on her leg and one on her arm. Then they picketed her at the camp like a horse. *Pubis suæ crines equi caudæ similes facti erant.* At night a young man went out. He lay down on the ground near her, looking at her. Then the woman spoke: "Listen, young man. I will tell you something. You must do what I tell you. It is the truth. Long ago the camp was moving. I was far behind. I saw a large black stallion come. He had a rope on him. I jumped off my horse and caught him, thinking he belonged to some one in camp. When I had hold of the rope, he spoke to me. He said,



'Jump on my back.' Then I climbed on him. He is the one that took me away. He is my husband. I have seven children by him, seven young horses. There is one, that gray one; there another one, that spotted one; there a black painted one; there a black one." She showed him all her children. "That is my husband," she said of a black horse that was tied near by. "I cannot go back to the tribe now. I have become a horse. Let me go. Let us all go. Tie a bell on a horse of such a color; then you will be lucky in getting horses. If you will let me loose, I will give you forty persons (you will kill forty enemies). If you do not loose me, many of the tribe will die." Then the young man went to his father and told what the woman had said. The old man went outside and cried it out to the people. Then they freed her and the horses. They ran amid flying dust, the woman far in the lead.<sup>1</sup>

### 38. THE LITTLE GIRL WHO WAS MARRIED BY A BEAR.

A camp moved and a little girl was left behind. She started to follow the people's tracks. At last she stopped, sat down, and cried. A bear called her by name, and said, "Stay with me. I am rich. I can kill buffalo, deer, and any kind of game." Then the girl began to make a tent. She set it up. The bear approached her, turned into a man, and married her. The people came back looking for her, and saw a large tent. The little girl told them not to come near. She would not allow any one to approach. So they went back. Three times they came. The fourth time they asked her, "Pity us; we are starving." Then she permitted them to come. They made camp close to her, and she gave them dried meat.<sup>2</sup>

### 39. THE YOUNG MAN WHO BECAME A WATER-MONSTER.

Two young men who were friends were travelling. They found a trail. "Let us go on this trail, my friend," one of them said. They followed and followed the trail a long time. At night they would sleep. At last the trail went into a hill. They entered the hill, still following the trail. It led through the earth out to the other side. They continued to go on, still following the trail. They had nothing to eat, and became thin and bony. Then they saw a tall person, as large as a tree. He found them and said, "Little children, climb on my hand." He took them back with him to the camp of his people. They all admired the little men. One day the giants saw that they were to be attacked. They went outside and prepared to

<sup>1</sup> Told by informant R. Compare the Arapaho fragment, No. 63, also No. 107.

<sup>2</sup> From informant Q.

fight. Then large birds (bäsööihí'h'a<sup>n</sup>) came and fought them. The birds had spears on their feet with which they kicked the giants in their jugular veins. The giants fell down and bled to death. The two young men were inside the tent. One of them said, "Let us look out and see what sort of a fight this is that is carried on without noise." They looked, and saw the large birds. "They are only birds. Let us take clubs and go out and kill them," they said. They went out, and killed many of the birds. They drove them away. Then the giants said, "We are very thankful that we found these little children, for they killed the large birds, and saved us." They kept the men with them for some time, and would not allow them to leave. But at last they allowed them to go if they wished; and one of the men said, "My friend, let us return." Then they started home. They came to the hole from which they had emerged, entered it, and went on. Then they saw an animal lying before them. They tried to jump over it, but it rose. They tried to go beneath it, but it lowered its body. It blocked their way completely. They went back to the mouth of the cave, and got wood. With this they built a fire against the side of the animal, and roasted it. Then they saw that it had red meat. One of them said, "I will eat some of it." "No, my friend, I love you too much," said the other, and held him. But the one who wanted to eat dragged him to the meat. "My friend, if you eat of it, perhaps you will die." "If I do not eat of it, I will die of hunger before I reach home," said the other. At last his friend let him eat it. Then they went on through the cave, and travelled homeward. Then they slept. During the night the other man woke up and looked at his friend. He saw that he had horns, and that from the middle down he was like the animal of which he had eaten, being striped with white. In the morning he saw that he was a man again. The next night he noticed that his friend smelled bad. In the morning he was a human being again. The next night they slept by a river. Then the one who changed at night started to go into the river. He said to his friend, "You will be lucky stealing horses, my friend, and you will kill persons. You will not be poor. When you go by the water, feed me. Feed me only with guts." Then he went into the river. His friend cried for him. The water-animal raised his head out of the water and told him, "Do not mourn for me. Go home. You will be rich." Then he went home and told the people what had happened. Whenever he went to war, he was fortunate, and he became a chief.<sup>1</sup>

<sup>1</sup> From informant N. Compare Arapaho, No. 76, also 78. The visit to the giants is not Arapaho.

## 40. THE WOMAN WHO WAS RECOVERED FROM A WATER-MONSTER.

A man accompanied by his wife, who had a baby, went to hunt buffalo. He killed buffalo, and all day was busy cutting them up. In the evening he finished. Then they went back only a short distance, and slept near the water. Their horses were a little distance off. Far in the night, the woman, who was not asleep, saw a *bax'aa<sup>n</sup>* come out of the water and encircle them. It put its head and tail together, completely enclosing them. The woman woke the man. He said, "We must jump over it." He jumped. Then the woman jumped, but she lit astride the *bax'aa<sup>n</sup>*, as if on a horse, and it started to go away with her. The man tried to pull her off, but she was fast; and the *bax'aa<sup>n</sup>* entered the water with her. The man cried for her. He returned to the camp. Then he came back to the place, carrying his baby, which had become very thin. Then his wife rose up out of the water. She was a woman from the hips up, and a snake below. She said to him, "I pity you. I will suckle the baby." Then she suckled it. Then the water rose behind her. The welling came nearer the bank. She said to the man, "That is the *bax'aa<sup>n</sup>*. Load your gun well. When the welling water comes close, shoot the place where it flows highest." The water rose and approached, until the man nearly touched it with his gun. Then he shot. The water stirred. He had killed the *bax'aa<sup>n</sup>*. The woman came to the bank, and went half out of the water. The lower part of her body was like a snake and smelled bad. She told her husband, "Make a sweat-house and sweat me four times. Then I shall be changed to a human woman again." The man made the sweat-house and sweated her. Thus he recovered his wife.<sup>1</sup>

## 41. THE MAN WHO KILLED HAWKS.

A certain person used to wear his robe inside out, and carried a hatchet on his back. When he saw a hawk high up above him in the air, he would point his hatchet at it and the hawk fell down dead.<sup>2</sup>

## 42. THE MAN WHO WAS KILLED BY A BULLET-HAWK.

A man climbed to a difficult place to take young bullet-hawks (*äädyi*). When he reached the nest, the young birds cried. One of the old birds flew swiftly down, struck the man with its sharp breast, and split his head.<sup>3</sup>

<sup>1</sup> From informant N. Compare, for the recovery of the woman from the monster, Arapaho, No. 5; for the people encircled by the monster, Arapaho, Nos. 6 and 74; for the restoration to life in the sweat-house, No. 23, and Arapaho, Nos. 5, 6, 119, 139-142.

<sup>2</sup> From informant M.

<sup>3</sup> From informant Q.

## 43. THE MAN WHO WAS KILLED BY A BALD EAGLE.

A man was catching eagles from a covered pit. A bald eagle lit, and he took hold of it. The eagle seized him with its claws and flew up. It carried the man up high and dropped him, and he was killed.<sup>1</sup>

## 44. THE WOMAN WHO TEMPTED AND BETRAYED HER BROTHER-IN-LAW.

There was a man who had two wives. One of them was young and beautiful. He had a younger brother, of whom he thought highly. He constantly gave him horses and other things. When the young woman was alone with the young man, she asked him to be her lover. He refused. He said, "My brother thinks too much of me." But at last he consented. Then she said, "Let us elope." He took his brother's best horses, and they ran away. They fled for several days. They came to a large camp which had just been abandoned. The fires were still burning. There were a number of shades made of cottonwood-branches. They went from one to another. Then they saw something hanging in one of the shades. It was an elk-skin case. They examined it. It contained a shield, a lance, a rawhide bag to hold war paraphernalia, and a buckskin bag for clothing. Then the young man said, "Whoever camped here forgot this. He will come back for it. We will wait here, and when he comes I will kill him. If I kill him, I will make a sun-dance and a crazy-dance. Whoever he is, I will try to make peace with him when he comes. I will smoke with him, and suddenly seize him and hold him. While I hold him, you must bring that lance there and stab him with it." After a time they saw a man coming on horseback. They had tied their horses in the brush so that they would not be seen, and they themselves were inside the shelter. When the man was near, the Gros Ventre came out and made signs for him to stop. Then the other stopped, and asked by signs, "What do you want?" The Gros Ventre said, "I had intended to find your camp, but I got here too late. I want to talk with you and smoke with you. I was sent by the people to make peace with you. After we have smoked, I will go with you to your camp." Then the stranger said, "Very well. Put down your weapons, and I will put down mine. We will meet in the middle, and smoke." Then the Gros Ventre held up his weapons and each piece of his clothing, and laid them down until he had taken off all his clothes. He kept only his pipe. The stranger did the same. Then they met. The stranger sat down, but the Gros Ventre put only one knee on the ground. He lit the pipe

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<sup>1</sup> From informant Q.

with a flint, held it out with two hands, and said, "Take it and smoke it, that I may kill you." The other took the pipe, smoked it, and handed it back to the Gros Ventre, holding it in the same way. The Gros Ventre handed it back to him, pointing at the same time in another direction. When the stranger looked in that direction, he sprang upon him. They fought, rolling back and forth. The Gros Ventre repeatedly called to the woman to bring the spear. But she would not bring it. She had fallen in love with the stranger, whom she thought more beautiful than her brother-in-law. He got on top of the Gros Ventre. Then he made signs to the woman to bring the spear. She came with it, and stabbed her brother-in-law. She stabbed him several times in the side and in the shoulder. She did not wound him severely. She only hit the bone. The two men continued to roll about until they came near the place where the young Gros Ventre had left his knife. Then he came on top. He released the other, jumped up, got his knife, and, before the other rose to his feet, was back at him and killed him. Then he took the woman back with him. He did not kill her. He took her to his older brother. He told him everything. The older brother said, "She ought not to have asked you to run off with her. She did wrong." He took her down to the river. He cut off one of her breasts. Then he cut off the other. One by one they cut off all her limbs until she was dead.<sup>1</sup>

#### 45. THE WOMAN WHO TRIED TO BETRAY HER BROTHER-IN-LAW.

A man who had a younger brother, and was married, lived away from the camp. His wife was in love with his brother, and, when her husband went out to hunt buffalo, she asked the young man to be her lover. He refused. He took his robe, his shield, and his spear, and went out to where the horses were. The woman followed him, and again urged him. Then he mounted a horse and rode off. She caught a well-broken horse, and, using her belt as a bridle, followed him. Then she came up with him. At night he used his saddle as a pillow, and pretended to sleep. She lay down beside him. Late at night he got up and fled. She had been watching him, and followed. Then they came to a deserted camp. On an elevation above the camp was a shelter. In this hung a mirror reflecting the sun. They saw it, and waited. Soon the owner of the mirror came, a Ute. The Gros Ventre signed to him to put down his weapons, and laid down his own. He signed to the Ute that he would give him a smoke. When he reached him the pipe, he jumped on him and they struggled. The Gros

<sup>1</sup> From informant R. For this and the following version, compare Arapaho, No. 114.

Ventre was stronger, and got on top of his adversary. Then he called to the woman, who came, but stabbed him in the side. Then the Gros Ventre pledged a sun-dance if he killed the Ute. He struck one of his arms and broke it, then the other and broke that too. Then he killed the Ute, and scalped him. Then he and the woman returned. She wanted to kiss him. "There will be time enough to kiss when we get back," he said. They hid in the mountains in order to avoid the Utes. Then they came back to the camp, and entered his elder brother's tent. The young man had painted his face black, and called all the people. Then he told how his sister-in-law had tried to seduce him and afterwards to betray him. Then the woman's husband called to her mother, "Bring out your daughter! This is the last day of her life." Then he and his younger brother went out of the camp. The woman followed them, and as she passed between them, both of them shot. She dropped. They did not bury her, but left her to the dogs.<sup>1</sup>

#### 46. THE BAD WIFE.

There was a camp-circle. A man went out with a war-party. While he was away, the Crows attacked the camp and captured his wife. When he came back and asked for her, the people told him, "The Crows have taken her." Then he took his three brothers and three brothers-in-law with him and started out. They came to the Crow camp. The man said to his six companions, "Wait here in hiding. I will go into the brush, and where the women go to get water I will watch for my wife." He waited all the morning. Many women came, but not his wife. At last she came. The man jumped out, caught her, and said, "I have come to take you back." She asked him, "How many are there of you? Where are they?" He said, "There are your three brothers and my three, and they are in that place." The woman said, "Wait for me there, and I will steal something and bring meat for you to take with you." The man went back to his six companions, and told them, "She will soon come here." The woman went back to the Crow camp, took a coal, chewed it, rubbed it over her face, and, where a number of men sat smoking, said, "This sun has given me seven persons. They are there in the brush." Some of the men said, "That woman is crazy;" but some believed her. She continued to say, "The sun has given me seven persons. They are there in the brush," and she painted her face, and rejoiced. At last the people believed her. They went and surrounded the place where the seven men were hiding, shot at them, and killed six. But the man himself they could not kill. He went

<sup>1</sup> From informant N. Compare the preceding version.

straight to the Crow camp-circle. He entered the largest tent, which stood in the middle. There was his wife. A crowd followed him in. He told his wife, "I want to smoke and to drink." The Crows asked her, "What does he say?" The woman said, "He says you are to dig two holes and set two trees into them, and connect them at the top by a pole. Then you are to hang him there by the neck. Stretch his arms and tie them, and leave him, moving camp. Thus he says." Some of the Crows did not believe her. But the woman continued to say the same until they all believed her. Then they dug the holes and stuck up the poles, and hung the man and left him. An old Crow woman pitied the man, and waited until the whole camp, including even the dogs, had gone. Then she unloaded her travois in the brush, went to the man, cut him down, and washed his face. She cooked dried sliced meat and gave him to eat, and then took him along with her hidden on her travois. When she came to the Crow camp, she put up her tent outside of the circle, brought water, and started a fire. Then she called her sons to smoke with the man. She called him her son. The men said, "If you pitied him, you should have told us." They gave him clothes, for he had been hung up naked. Then the man said, "I will go back. I will return soon with all my people in order to get my wife. Always camp together at the rear of the camp-circle, at the end which is in the direction from which you have just come. If the tribe divides, put rocks in a row along the trail which that part of the people have taken with whom my wife is." Then he asked his new brothers, "What kind of a horse does this woman ride?" They told him, "She always rides a black-painted short-tailed horse which is very fast." Then the man went back to his people, running ceaselessly. After he had returned, he cut tobacco into little pieces. Young men took these to the Piegans, the Blackfeet, the Bloods, and the North Piegans (Sarcees). Soon all the tribes gathered, and joined the Gros Ventre. They started against the Crows. Whenever they stopped, they raced their horses to discover who had the fastest. They came near the Crows. The man made them all stop behind the hill, and went alone to his Crow mother. Then she called her sons, and the man told them, "Take all your property inside your tent. Hobble your horses close by, and stay indoors." The Crows were just breaking camp. They asked the old woman and her sons, "Why do you remain encamped there?" They answered, "We are going off somewhere." When the Crows had begun to move, the war-party attacked them. While they were fighting and killing the Crows, the man's younger brother, mounted on the swiftest horse, was only looking for the woman. He was far ahead of the fight. Then he saw the black-painted horse with the short tail, and the woman on it. He rode after her and caught up with her. He took

her bridle and turned her, and went back with her to the camp of the old Crow woman. On the way the woman said, "Let me kiss you, my brother-in-law; I have been longing for you." He answered, "There will be time for that when we arrive where we are going." As soon as the woman was captured, the people stopped fighting the Crows. The old Crow woman began to sharpen her knife, and had them build a large fire. They took the woman off her horse, and made her stand up. "I know what to do to her," said the old woman. She went to her, seized her nose, cut it off and threw it in the fire. Then she tore in two her bell-covered dress, and threw it on the fire. Then she cut off her breasts, *ejus vaginæ labia*, and her ears, and threw them in the fire. Then they threw the woman herself into the fire. A great crowd stood about, and whenever she crawled out on one side they threw her in again. Finally she was burned. They all went home rejoicing.<sup>1</sup>

#### 47. THE MAN WHO ACQUIRED INVULNERABILITY.

There was a poor man. He wandered about. Then he found snakes in a hole. He cut his flesh and fed it to the snakes. He cut himself all over. He gave the snakes even his ears, and cut off his little finger and threw it to them. Then, before he should bleed to death, he jumped into the hole. All the snakes retreated from him as he lay there. Then one young snake said, "Why do you draw back? I pity this man. I will give him power and make him strong." Then its father and mother said, "It is well that you pity him. We will help you to do something for him. You shall go into him and stay in his body. Then he will be unkillable." Then the young snake entered the man's mouth and went into his body, and the two old snakes gave him each a rattle from their tails. The man got up and went off. But now he no longer had scars on him. He came to where the people were shooting bears in a hole. Again he cut flesh from his body and fed it to them. Then he lay down in the den in order to bleed to death there. A young bear said to the others, "You do not pity this man, but I will help him." Then his father and mother said, "We will give him the strength of our bodies, and he will be invulnerable." The young bear entered the man's mouth, and the two old ones gave him each one of their claws. They gave him the longest one on their feet. Then the man went away. A certain young man saw a *bax'aa*<sup>n</sup>. He told the man who had been to the snakes and the bears. Then the man went to the river, cried, cut off his flesh and threw it in. He also cut his little finger and threw it

<sup>1</sup> From informant N. Not Arapaho. Compare Grinnell, *Blackfoot Lodge Tales*, p. 39.



in the river. Then the bax'aa<sup>n</sup> rose up out of the water halfway. He hooked the water with one of his horns, and where the man had been lying on the bank, bleeding to death, he was now riding a white horse and carrying a shield and spear, and was beautifully dressed. Then the bax'aa<sup>n</sup> hooked the water with his other horn, and a painted horse stood on the bank. "You will not be poor," said the bax'aa<sup>n</sup>, and he hooked innumerable horses of different colors, and much property of different kinds, out of the water, until horses were standing all about the bank of the river. The bax'aa<sup>n</sup> said to him, "You will be the only man on this earth rich in horses (the richest in horses)." After this, the man fed his flesh to many kinds of animals. He gave himself to eagles, to jack-rabbits, to the buffalo, and to horned toads. Then the snakes told him to take six poor people with him. He did so and they started out, seven in the party. They reached a lake. They saw many people travelling toward the lake. Then they went into the water and lay down. The camp arrived, and every one watered his horses at the lake. An old woman came and drove her horse into the water. She saw a mouth in the water, and riding out, told the people, "I have seen persons in the water." Then these people killed the man's six companions; but the man himself they could not kill. Spears, stones, and arrows could not hit him or hurt him. He continued to sing his song. Then they cut him to pieces, and scattered the pieces about. When they moved camp, the man rose up alive. He went to where they were camped, and hid in the brush. A woman came to get wood. He seized her, and with a large knife cut her to pieces. All the people took him and tried to cut and stab him. They cut him to pieces and moved camp. He rose up alive, and again went to where they had camped. Again he killed a woman who was gathering wood. Thus the people would kill him and move camp; but he would return to life, follow them, and kill one of them. Then he killed many, because he felt bad that this tribe had killed his six companions. He continued to do this until his feet became too sore to walk. Then he stole horses and a shield and robes, and returned home, driving the horses before him. When he came back to his own people, he had a bundle of scalps hanging at his side. Thereafter he would go to war, kill a man or a woman, and bring back a herd of horses. He continued to do this until he became very rich. But he would not marry. Then he went off again and returned with horses. While he was away and the people were hunting buffalo, the Cheyenne attacked them, and captured and took away a small boy. When the man returned, he heard about this. The little boy had a sister who was pretty. She was old enough to be married. Then the man said, "I will go to bring back the little boy, and when I bring him, I will marry this girl." When her father heard this, he said, "It is well: if

he brings back the boy, he can have my daughter." Then the man started out, accompanied by a party. They killed two persons, and captured horses. The man sent all the rest of the party back with the horses. He himself went to the Cheyenne camp, looking for the boy. The Cheyenne were having a sun-dance. The man looked on. Then he heard a sound, and saw the boy tied to the centre pole of the lodge. His arms were drawn back around the tree, and he was hanging at the fork. He was painted black. The man looked for a suitable pole among those extending over the lodge. He climbed up, went along it to the tree in the middle, and cut the boy loose. As the boy was very stiff, he took the cloth that had been hung at the top of the lodge as an offering, wrapped him in it, and, carrying him as a woman carries her child, began to climb down again. Before he reached the ground, a Cheyenne saw him, and they all stopped dancing. The man said to the Cheyenne, "Do not kill me until to-morrow. Who is the chief? Where is the largest tent?" Then he went to the largest tent and staid there that night. Next day he told the Cheyenne, "Get seven buffalo-skulls and place them in a row. I will jump from one to another, and, if I miss or stumble, you can kill me." Then they put the seven skulls in a row, and he started. He jumped from one to another like a rabbit, and when he came to the last one he continued to leap along, carrying the boy with him. As he went, he turned into a rabbit. He wished for a hole, put the boy into it and covered it with a buffalo-chip. Then he ran on and wished for another hole, went into it and covered it with grass. The Cheyenne were running all about, looking for him in vain. At last the man came out of his hole. He looked for a buffalo-horn. When he found one, he washed it in the river, and brought a drink to his little brother-in-law. He told the boy, "Wait for me, and I will bring horses and meat." He went again to the Cheyenne camp and took two spotted horses, some meat, robes, and a shield. He went back to the boy, and said to him, "Now come out." He tied the boy on a horse, and they started off. At a stream in the mountains they rested. There he cooked for the boy. Then they went on, resting whenever the boy was in need of it. At last they returned to the camp. A tent had been set up for him, and about it stood many horses of different colors; and he married the girl. She wore a dress covered with elk-teeth, and rings and bracelets. The people took the man for their chief. His name was Hat'uxu (Star).

The people were camped. Young men found a herd of buffalo, and an old man cried out that they would hunt. Hat'uxu took many horses with him. He wanted to kill much. He told his wife, "Tie all the horses abreast, and follow me. Give away none of what I kill." Then he went ahead, hunted, killed buffalo, and began to cut them up. Meanwhile the

enemy came, and captured his wife and her horses. When Hat'uxu had at last finished cutting up his buffalo, he stuck his knife in his scabbard, and went back to where he had left his wife. She was gone, but he saw her tracks and those of the people who had captured her. He followed her at once. He had no weapons with him except his knife. He reached the mountains where he thought he would be able to intercept the enemy. He tied his horses, and climbed a tree. Soon he saw the enemy coming, riding in file. His wife was among them, carrying on her back their quiver of large arrows. It was nearly dark. Hat'uxu came down from his tree, and went to where the enemy had camped for the night. He threw aside the blanket which they had hung up as a door for their brush hut, and went inside. He saw his wife sitting next to one of the men, who had taken her for his wife. He killed the man. Then he used the arrows, which his wife had been carrying, against the rest. They all ran off into the brush. Then he cut off the dead man's head and took it with him. He told his wife to carry the captured arrows and to collect all the enemy's horses. By next morning he was back at the camp. Then the people celebrated over the head he had brought back with him. Thus he recaptured his wife.<sup>1</sup>

#### 48. THE MAN WHO RECAPTURED HIS WIFE.

While a man was away, the enemy captured his wife. He returned and found her gone. He did not know to what tribe she had been taken. Another woman had been captured at the same time, but returned. Then this man called her to him and asked her, "Where is my wife?" The returned woman said, "I know where she lives, for I went to visit her while I was a captive. She has two husbands who dress alike. They have fine pipes, and tobacco-bags fringed with bells, and pipe-stokers. There are many fierce dogs among those people. If you go there, first kill a buffalo, and carry the meat with you to throw to the dogs." Then the man got his brothers and his brothers-in-law, and they started out. They came to the place where the captured woman lived. He told his brothers and brothers-in-law to stay at the river. He himself went on. The lodges stood in rows. When he entered the village, the dogs began to attack him. As he went along, he threw each dog a piece of meat. They became quiet. He came to the lodge in which lived his wife, and knocked softly at the door. She put out her head. Then he said to her, "I am your husband. I have come to take you back. Is there any one inside with you?" She said, "There is one. He is sleeping." Then he told her, "Lie on him,

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<sup>1</sup> Told by informant N.

and I will cut his throat." Then she lay on him, and the man entered and cut his throat. He took the dead man's clothes and a dress of the woman's that was covered with bells, and rolled them up in his robe. The woman carried the bundle in one hand and the head of the dead person in the other, and they went out. The man threw meat to the dogs again. Then they ran. They came to his brothers and her brothers, and together they all fled until they returned. Thus the man recaptured his wife.<sup>1</sup>

#### 49. THE WOMAN WHO MARRIED THE SNAKE INDIAN.

There was a camp. A man who lived there had a sister that many young men wanted to buy. But she did not wish to marry. Her brother, also, did not wish to sell her. He left the camp with her and his wife, and went toward the mountains. There he camped. A Snake who was in the mountains saw his camp. He saw that there were only two tents. In the evening he saw a man and a woman go into one and a woman go into the other. At night he came down from the mountains, and entered the tent into which he had seen the woman go alone. In the morning, before the morning star arose, he went out. When it was day, the man's wife brought food to her sister-in-law's tent. But the girl would not eat. She would not speak. She thought that her brother had slept with her. When the man heard from his wife that his sister neither ate nor spoke, he said, "Ask her if she wants to go back to the camp of the people." The woman asked her, but the girl said, "No." Then she asked her brother's wife, "Did my brother go out last night?" The woman said, "No. He went to bed early, and slept at once." Then the girl said, "To-night tie a string from inside my tent to your wrist in your tent." Then it became night. The man and his wife were half asleep. The Snake came into the girl's tent and lay down with her as if he were with his wife in his own tent. Then the girl pulled the string. The woman in the other tent got up, made a fire, and said to her husband, "You have a brother-in-law: go give him a smoke." Then she went to the other tent and lit the fire there. Then the man came in too, and gave the Snake his filled pipe to smoke. Then they gave him food to eat. The man gave him arrows, a gun, horses, a panther-skin, saddle-blanket, and otter-skin. At first the Snake feared him and his wife. After they had remained camped there for some time, he feared them no longer. Then they went back to the camp. When they arrived, all the people tried to kill the Snake; but his brother-in-law would not allow them to approach him. The girl's parents gave the Snake horses and clothing.

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<sup>1</sup> Told by informant N.

He learned to talk Gros Ventre. After he had lived with the Gros Ventre a year, he told his wife, "I will take you with me to the Snakes." She said, "Very well. I will ask my relatives if they will allow me to go with you. I will ask their permission in order that they may give us clothes to take with us." Her relatives gave their consent, and presented the Snake and his wife with painted horses and other property. When everything had been arranged, they left, taking with them their tent and all their gifts. Before they reached the Snakes, they stopped in the woods, dismounted, changed their clothes for some that were old and dirty, and mounted poorly-saddled, miserable horses. Then they rode toward the Snake camp. The Snakes tried to kill the woman. "Look at that woman!" they said. "He has married her, and see how poor he is!" At night the man and his wife went to bed without any blanket. When they thought everybody was asleep, they went to the woods, put on their best clothing, and came back. The man wore a fine buckskin shirt and leggings fringed with weasel-skins, and the woman's dress was fine. They rode painted horses beautifully saddled. When they returned in the morning, a man saw them coming. "Here comes the man whose wife they tried to kill! Now he is a chief!" he cried. Then the woman brought her tent and began to put it up. It was very large. All her husband's female relatives helped her. Then they brought her and her husband food. The man told the Snakes that he would take his wife back to the Gros Ventre the next summer. Next summer the Snakes made fine clothing, and gave it to him and his wife. They also gave them horses and many other things. When they started to go back to the Gros Ventre they had more property than when they came. Then they did the same as when they came to the Snakes. They hid all their property and fine clothing in the brush, and put on the dirty clothes. When they reached the Gros Ventre camp, the people tried to kill the man. They said, "Why did you give her to that man? He is poor; his clothes are dirty; his horses are bad." At night the man and his wife went back into the brush and put on their beautiful clothes. When they returned to the camp in the morning, a man cried out, "Look at the man we tried to kill! He is dressed finely. He has become a chief." Then the Snake gave presents to all his wife's relatives. Then the Gros Ventre and the Snakes came together and made friendship, and no longer fought each other. The Snake lived with the Gros Ventre ever after.<sup>1</sup>

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<sup>1</sup> From informant N. Not Arapaho. Compare Grinnell, *Pawnee Hero Stories*, p. 25.

## 50. THE WOMAN WHO REVENGED HER BROTHERS.

Three men went to war. Two of them were killed. All the people cried and mourned for them. The father and mother of the dead men cut their hair short, and gashed themselves on the legs and on the body. But the sister of the two dead men did not cry and did not speak. The family hid all their knives and ropes, for they thought she would kill herself. Then her husband said to her, "Pity me. Do not kill yourself. I am accustomed to you. I do not want you to kill yourself." She said, "I will do what you wish. But saddle a horse for me. I am going to a high mountain to sleep there. I did not cry or speak because I did not know what to do." Then her husband brought her to the foot of the mountain. There she dismounted, left her moccasins, and went to the top. She slept there four nights, fasting. The fourth night the thunder gave her a short spear. He said to her, "Go home: tell your husband to make a sweat-house. Go into this alone. Afterwards go to the creek and drink." Then she went down. Her husband came to meet her. She said to him, "Stop at once where you are." Then he did not approach. She told him, "Go back immediately, and have the young men build a sweat-house. Let only young men make it, and let them leave the entrance open for me." The man went back and told the young men. They went and cut willows. Soon they had a sweat-house ready. Then the woman came, very thin from fasting, and using the spear to support herself. At times she fell from weakness. She entered the sweat-house, sweated, went out to the stream, and drank. Then she told her relatives, "I will kill an enemy." After some days she said, "We are going to hunt for the one who killed my brothers." Then her husband took four good horses, and he and his wife started alone. On the third day they saw tents by a river that came out of the mountains. They followed the river up towards the camp. It was near sunset. The woman bathed, and painted herself, and perfumed herself. Telling her husband to hold the horses ready in the brush, she went towards the camp. As she went she found pieces of her brothers' bones. Their bodies had been burned. At the camp the people had begun to dance on account of her slain brothers. In the bright moonlight the women were dancing back and forth in a row. The woman went among them and danced. She saw a man fill a pipe and extend it to the other men. She knew that this man had killed one of her brothers. She went to him, and touched him on the back. He turned around, and at once desired her. He turned over his pipe, knocked out the ashes, put the pipe into its sack, and followed her. She walked off and went into the brush. He followed her. She stopped, and he came up. She took hold of him and pushed

him to the ground. He let himself fall willingly and she lay upon him. Then she took her knife and cut his throat. She cut off his head, took off all his clothes, wrapped them and the head in his robe, and ran to her husband. When she reached him she said, "I bring you a head." He struck it, counting coup. Then they fled. They did not go back as they had come, but in another direction. All next day they hid in the brush. There they skinned the head, and kept the scalp. Then they returned home. When they arrived, the woman's mother ran out and kissed her. The woman said, "I bring you a head for you to enjoy yourselves with." Then all the people took charcoal and grease, and struck the skin of the head; and as each one struck it, he painted himself. So this woman avenged the death of her brothers. Then the enemy came in order to obtain revenge. They attacked the camp. The woman mounted a swift horse, took her short spear, and charged the enemy. She put them to flight, drove them before her, and overtook and killed many. She ran them down like buffalo. Four times the camp was attacked, and she drove off the enemy. Then two men who went to war were killed. The people thought she would go to revenge them. But she fought no more. After the four fights she ceased.<sup>1</sup>

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<sup>1</sup> Told by informant N.

## ABSTRACTS.

## 1. THE MAKING OF THE EARTH.

There is only water. A person sends animals to dive. A turtle brings him up mud, from which he makes the earth and the mountains.

## 2. ORIGIN MYTH.

Nix'a<sup>nt</sup> resolves to destroy the former race. He takes the sacred pipe, and causes a flood. He floats on the pipe, accompanied by the Crow. He unwraps the pipe, and takes out the Loon, the Small Loon, and the Turtle. They dive, and the Turtle brings up a little earth. Nix'a<sup>nt</sup> drops this into the water, and it expands sufficiently for him to sit on. Then he stretches out his arms and the land extends. There is no water, and he is thirsty. He cries. His tears make a river. He makes men and women and animals from earth. He gives men the bow and arrow, and to the Gros Ventre the sacred pipe. He predicts another world.

3. *TEBIAA<sup>N</sup>TA<sup>N</sup>*, THE TWO WOMEN, THE BALD EAGLE, AND NIX'A<sup>NT</sup>.

Two women who live alone are provided with game. They see that a rolling head brings the meat. They leave awls in their places, and flee. The head comes, and the bones speak to him like women. He pierces himself on one. He pursues the women. As they flee, they successively cause a fog, a swamp, a thorny thicket, and a cactus-thicket to extend behind them. The head crosses all obstacles, and the women take refuge with a man who hides them. As soon as the head has gone by them, they flee to the Bald Eagle, who takes them on his wings. The head pursues the Eagle, and nearly overtakes him. Nix'a<sup>nt</sup>'s two sons see the contest in the sky, and tell their father. He builds a sweat-house and calls to the Eagle to come down. The Eagle flies through the sweat-house. When the head pursues, the sweat-house is closed around him. Then steam is made in it, and the head is killed.

4. NIX'A<sup>NT</sup> OBTAINS SUMMER AND THE BUFFALO.

Nix'a<sup>nt</sup> comes to a camp where the snow is perpetual and there are no buffalo. He tells a boy to cry until he himself asks the reason, when he is to say that he wishes to see bare ground and to eat buffalo. The boy does this. Nix'a<sup>nt</sup> turns into a little dog, which is found by the grand-daughter of the old woman who keeps the buffalo. The girl at last persuades the old woman to allow her to have the dog. The dog sees the old woman get buffalo from an opening in her tent, and make the snow melt with the contents of a bag. When the girl takes him away from the tent, he turns into Nix'a<sup>nt</sup>. When the girl cries and her grandmother comes, he runs, seizes the bag, opens the hole, and drives out the buffalo. Clinging to the last of the buffalo, he escapes the old woman. He scatters the contents of the bag, and the snow disappears. He returns to the camp. Next morning it is summer and the buffalo are about.



5. NIX'A<sup>N</sup>T IS TAUGHT TO CALL BUFFALO.

Nix'a<sup>nt</sup> learns to call the buffalo by singing. They overrun him, and lie upon him. *Lepus cum eo ano copulat. Nix'a<sup>nt</sup> inquinans lepores ex ano parit. Cum toga eos capere conatur, hanc conspueat.*

6. NIX'A<sup>N</sup>T AND THE MOUSE.

Nix'a<sup>nt</sup> muri suum penem trans penem ad mulierem ducere persuadet. *Mus penem ad locum asperum ducit et Nix'a<sup>nt</sup> se lædit.*

7. NIX'A<sup>N</sup>T AND THE MICE'S SUN-DANCE.

Nix'a<sup>nt</sup>, finding mice holding a sun-dance in an elk-skull, tries to look in. His head becomes fast in the skull. Wandering along, he falls into the river and drifts to bathing girls. They pull him ashore. *Unam virginum violat. Matri ut filiam eripiat venienti persuadet sibi calvam perfrangere. Alcis calva liberatus, discedit.*

8. NIX'A<sup>N</sup>T EATS FAT.

Nix'a<sup>nt</sup> postquam pingue in flumine innatans invenit ab eo est donec tantum inquinat ut quasi excrementorum lacu circumdetur.

9. NIX'A<sup>N</sup>T EATS HIITCENI.

Nix'a<sup>nt</sup> radices est quæ eum crepare faciunt. *Quandocunque crepat sursum jactatur.*

10. NIX'A<sup>N</sup>T AND THE BIRD WITH THE LARGE ARROW.

Nix'a<sup>nt</sup> taunts a bird that it cannot shoot its very large arrow. At last the Bird shoots at him, and, when he takes refuge behind a rock, shoots the rock on him. The Night-hawk releases him. Nix'a<sup>nt</sup> spreads its bill.

11. NIX'A<sup>N</sup>T LOSES HIS EYES.

Nix'a<sup>nt</sup> learns from a bird how to send his eyes out of his head. After a time they do not return. By borrowing the Mouse's eyes, he recovers his own.

12. NIX'A<sup>N</sup>T KILLS HIS WIFE.

Nix'a<sup>nt</sup> mourns for his wife. A man strikes his wife and doubles her, giving one of the women to Nix'a<sup>nt</sup>. Nix'a<sup>nt</sup> strikes his new wife to make women for widowers. The fourth time he strikes her, he kills her.

13. NIX'A<sup>N</sup>T AND THE BEAR-WOMEN.

Nix'a<sup>nt</sup>, diving for the reflection of fruit in the water, nearly drowns. He comes to Bear-Women, and sends them for the fruit. He cooks their babies. When they have eaten the children, he flees. Pursued by the bears, he takes refuge in a hole. Emerging at the other end, he changes his appearance, and comes to the Bear-Women. Persuading them to enter the hole, he smokes them to death.

14. NIX'A<sup>N</sup>T AND THE DANCING DUCKS.

Nix'a<sup>n</sup>t causes ducks and other animals to dance about him with closed eyes. Then he kills them. While he cooks them, he sleeps. The wolves devour his feast. In punishment, he burns himself.

15. NIX'A<sup>N</sup>T'S ADVENTURES.(a) *With the Mice's Sun-dance.*

Nix'a<sup>n</sup>t finds mice dancing in a skull. His head becomes fast in the skull, and he falls into the river. He is drawn out by women, of whom he seizes and violates one. He flees, pursued by the women. He enters a hole, emerges on the other side, changes his appearance, returns, persuades the women to enter the hole, and smokes them to death.

(b) *With the Women who loused him.*

He comes to two women, and persuades them to louse him. While he sleeps, they put burrs in his hair. He cuts his hair, pretending that he has been told that his wife was dead.

(c) *With his Daughters.*

He pretends to die, and leaves instructions that his daughters are to marry a one-eyed man. He makes it appear that wolves have eaten him, covers one eye, and returns to his tent, marrying his daughters. The girls suspect him, and at last his wife discovers him. He flees.

(d) *With the Woman who crossed the River.*

Disguising himself as a woman, he travels with a woman whom he meets. *Pæne dum flumen transeunt patefactus, eam violat.*

(e) *With the Sleeping Woman.*

*Fæces in mulieris dormientis vestem ponit et dedecus patefacere minatur nis sibi amorem concedat.*

(f) *With the Buffalo he called and the Rabbit.*

He is taught to call buffalo by singing. The buffalo fall on him. *Lepus cum eo ano copulat. Lepuseulos Nix'a<sup>n</sup>t ex ano parit. Hos capere conatus togam conspureat. Ad castra currit clamans Inquinantes Pieganos se fœdum fecisse.*

## 16. ONE-EYED OWL AND HIS DAUGHTER.

A man pretends to die, and then returns disguised, and marries his daughter. He is discovered and beaten by his wife.

## 17. THE MAN WHO WENT TO WAR WITH HIS MOTHER-IN-LAW.

A man persuades his wife to send his mother-in-law to war with him. At night he throws stones at her shelter until she thinks there is a ghost about et petit ut cum eo dormiat. Tum se pubem frigere queritur vir, et mulieris mater permittit ut penem copulando calfaciat.

## 18. THE KIT-FOX AND THE GHOST.

A kit-fox coming to a corpse says that it stinks. When the dead person approaches, the kit-fox declares that he said that the smell was sweet. He flees, and as the ghost pursues him, runs into a hole. but has the end of his tail pulled off.

## 19. FOUND-IN-THE-GRASS.

A man warns his wife not to speak to any one who may come to the tent during his absence. After a time she disobeys his instructions, and a person enters. He will not eat the food she offers him until she places it on her body. Then he cuts her open, throwing away the twin boys with whom she is pregnant. Her husband finds her dead and goes off to mourn. His arrows are repeatedly scattered about his tent. He watches, and finds the two boys playing. He catches one of them. With his help, he succeeds in capturing the other. The boys tell him to put their mother into a sweat-house. They shoot up into the air, and their mother emerges from the sweat-house. Their father warns them not to use their arrows twice. After a while the younger boy is tempted, and shoots his arrow a second time. He is blown away by the wind. He is found in the grass by an old woman, who takes him for her grandson. A man announces that whoever brings a porcupine may marry his daughters. Found-in-the-Grass persuades the old woman to make a trap for him. He catches a porcupine, but the Crow steals it. Found-in-the-Grass finds a quill in his trap, shows it, and is thereupon given the younger daughter, while the Crow marries the older. The two sisters ridicule each other's husbands. In time of famine the Crow announces that he will bring buffalo, but fails. Found-in-the-Grass goes out and brings buffalo. When his wife carries the entrails home, he causes the blood to flow over her, and it turns to red clothing. His sister-in-law asks to have the blood made to flow over her; but it only dirties her.

## 20. CLOTTED-BLOOD.

An old man is treated badly and almost starved by his son-in-law. He finds and hides a clot of blood, which in the kettle turns to a child. The child is swung on four sides of the tent, and becomes a young man. When the son-in-law again threatens the old man, Clotted-Blood kills him. He burns his body, and kills all his wives but one. He travels, and comes to a tree that kills people by falling on them. He turns to a feather and is uninjured, while the tree falls and breaks. He comes to a bridge which sinks with people. When it goes down, he jumps to the other shore, and the bridge does not emerge. He comes to a wolf which sucks in people. He allows himself to be drawn, and then cuts the wolf's heart. He comes to a woman who has a dish which draws people into it and then consumes them. He turns into a feather, which blows over the dish. Then he causes the old woman to be drawn into the dish, and destroys it. He comes to a camp which is terrorized by a bull who gambles with people. Clotted-Blood wins, and, as they play, the Bull tries to kill him. Clotted-Blood turns to a feather, and is uninjured. Then he kills the Bull. He comes to a camp where a man kills people by making them fall from a swing into the water. Clotted-Blood escapes, and causes the man to fall into the water, but cannot make the water-monster in the river devour him. He allows himself to be swallowed by the monster, and kills it. Then he kills the

man. He comes to a man who kills people by kicking them with his sharp leg. He causes him to stick fast in a tree, and leaves him to starve. He comes to a man who accepts young men as his sons-in-law, and then gives them dangerous tasks to perform. Clotted-Blood is sent to get the morning star, and brings it. He is sent to a thicket where there are bears, and kills them. He is sent to get feathers from the thunder-birds, and abuses the Young Thunders. When the Old Thunders pursue him, he persuades them to pull his elastic arrow. They do so, and are dashed to death. Then he is sent to kill seven bulls for their sinews. They charge him, and break their horns. He allows the oldest to live, but kills the rest. He is sent to get flint from a falling cliff. He turns to a feather, and escapes. He is sent to get water. A water-monster draws him towards it. He cuts off its horns. Then his father-in-law attacks him, but cannot hit him. Clotted-Blood kills the old man, and burns him.

#### 21. MOON-CHILD.

The Sun and the Moon dispute about the beauty of women. The Sun marries the Frog. The Moon turns to a porcupine, and induces a woman to climb a tree after him. The tree stretches to the sky, and the Moon marries her. The mother-in-law of the two women gives them paunch to chew to see who can make the most noise. The Frog chews charcoal, but is discovered. The Moon abuses the Frog, and the Sun throws her on the Moon's face, where she still remains, and takes the Moon's wife. The woman has had a boy. She looks through the hole in the sky, and sees the earth. She makes a long rope of sinew and lets herself down. The string is too short, and she hangs suspended. The Sun sees her, and drops a stone, which kills her. Her boy remains near her until he is found by an old woman. She warns him not to go to a tent where there are pretty girls. He goes, and is well received. One of them turns to a snake and tries to enter his body, but is dashed to death against a rock under his seat. When the girls are asleep, he kills them. One escapes and turns to a snake, which threatens revenge. He comes to an old woman who wrestles with him. She nearly pushes him into the fire, but he kills her. His arrows warn him of the approach of the revengeful snake, but at last he does not wake up. The snake enters him. He lies still until he is only a skeleton. The snake is still in him. At last he asks the Moon to cause a cold rain. The snake crawls out. He gets up alive, and kills the snake. His mother comes to life at the same time.

#### 22. THE BOY WHO WAS RAISED BY THE SEVEN BULLS.

A girl who has had a lover abandons her child. It is found by Seven Bulls, who pity it and raise it. They kill buffalo for the boy. They instruct him to make a bow and arrows. When he is a young man, he comes to the herd of a powerful Bull. The Cows make love to the young man, and the Bull attacks him. His seven fathers attempt to protect him, but are disabled. The Bull charges the young man, but cannot hurt him, because he turns to a feather. Then he shoots the Bull, and cures his seven fathers. They send him to the people among whom his father and mother live. He comes to the camp, and recognizes his mother, who is playing ball. Her parents accept him as their grandson. Then he finds his father.

## 23. WHITE-STONE.

Seven brothers go out, and are killed one after the other. Their sister swallows a stone, and gives birth to a boy who is called White-Stone. She swings the child on four sides of the tent, and he grows up. She makes him a bow and arrows. He goes where his uncles have gone, and kills a buffalo. An old woman claims it as hers, and orders him to carry it to her tent. Thus she had done with his uncles, and, when they had reached her tent, she had killed them with an iron cane. White-Stone makes her carry the bull, and then kills her with the cane. Putting his uncles into a tent, he shoots upward, and they emerge alive. He travels, and comes to a camp where there is a powerful, jealous, invulnerable bull. White-Stone approaches his wife, and the bull attacks him. The bull breaks his horns, and White-Stone kills him and burns him.

## 24. THE WOMEN WHO MARRIED THE MOON AND A BUFFALO.

Two women lying outdoors at night wish for the moon and a star as husbands. One woman sees a porcupine, and follows it up a tree that stretches until she reaches the sky. There the Moon marries her. She is told not to dig certain roots, but does so, and sees the earth below. She becomes sad, and the Moon lets her down by a rope of sinew. The other woman is taken by a bull, who says that he is the star she wished for. A Gopher digs a long hole, and rescues the woman, leaving her robe. The Bull finds the empty robe, and pursues with the buffalo. The woman and her parents have fled, and climbed three cottonwood-trees. The Buffalo cut down two trees, but on the third break their horns.

## 25. THE WOMEN WHO MARRIED A STAR AND A BUFFALO.

Two women wish for stars for husbands. One of them is married by a star. The other is taken away by a buffalo-bull. Her husband cannot rescue her, but the Gopher brings her back. Together with her husband, she takes refuge in a tree. The buffalo cut down the tree, and kill the man, and take her back. The Badger recovers her again. The Bull pursues. As he is invulnerable, he easily recovers the woman. The Bald Eagle seizes her, and succeeds in flying away with her.

## 26. THE DESERTED CHILDREN.

A camp abandons little children. The children come to an old woman. At night she kills them all, except a girl and her little brother. The girl is sent to get wood and water, and saves her life by bringing the kinds desired by the old woman. Coming out of the tent with her little brother, she leaves an awl in her place, and flees. The two children cross a river on a water-monster, but the old woman is drowned by it. The children return to the camp, but are left tied to a tree. A dog liberates them, and gives them fire. The boy kills buffalo by looking at them. In the same way he and the girl cut up the meat, dress the skins, erect a tent, and make clothing. The people, who are starving, come to the children, who select wives and husbands for themselves, and then kill the rest of the people by looking at them.

## 27. THE GIRL WHO BECAME A BEAR.

Children are playing. One changes into a bear, and kills all except her little sister. She attacks and exterminates the camp, but allows her little sister to live with her. Her six brothers return, and find the camp deserted. They meet their little sister, and tell her to ascertain from the Bear how she can be killed. The little girl throws hot fat on the Bear, and flees with her brothers. The Bear pursues, but is killed by being shot in her little finger with an arrow of tendon. The brothers burn her body, but overlook one spark, which turns into the Bear again, and pursues them. Each of them makes an obstacle to delay the Bear. They make successively a swamp, a forest, a canyon, a river, a fire, and a cactus-thicket. When the Bear is near again, the little girl, by kicking a ball, causes her brothers and herself to rise to the sky and become stars.

## 28. SHELL-SPITTER.

Two girls come to marry Shell-Spitter. The Loon pretends that he is Shell-Spitter, and marries them. He is called to the dance-lodge. The girls follow, and see the real Shell-Spitter sitting in the lodge and the people dancing on the Loon. The Loon kills Shell-Spitter, and with his mother, Badger-Woman, escapes from the people.

## 29. YELLOW-PLUME AND BLUE-PLUME.

A boy follows his gaming-wheel to an old woman's tent. She tries to smother him in her tent, but fails. She sends him for water. He is supernaturally instructed what kind of water she desires, and the old woman allows him to live. He leaves, and abuses her. When she tries to pursue him, she steps on an awl which he has left. Together with his brother, he causes the water to rise, and drowns the old woman.

## 30. THE SWALLOWS AND THE SNAKE.

A snake or water-monster kills young swallows. The swallows bring birds of various species to help them, but the snake destroys them all. At last the thunder kills the snake.

## 31. THE ORIGIN OF THE TSÖÖYANEHI DEGREE OF THE DOG-DANCE.

A dog is abandoned by a camp. An old man finds it and pities it. The dog pities the old man, and gives him the highest degree of the dog-dance to introduce among the people.

## 32. THE ORIGIN OF THE CHIEF PIPE.

A young man dies, and is left with all his property in his tent. A cloud descends, and takes away the tent and the property. The young man is seen alive, and beside him is the sacred pipe, the gift of the thunder.

## 33. SEPARATION OF THE TRIBE.

As the people cross on the ice, a little girl persuades her grandmother to chop off a horn that projects from the ice. The ice breaks, drowning many people, and forever separating the rest.

## 34. THE CAVE OF THE BUFFALO.

A cave in a hill is the entrance to the home of the buffalo. Two men enter it, but do not reach the end, and return.

## 35. THE WOMAN AND THE BLACK DOG.

Juvenis nocte mulierem cum cane nigro copulantem videt. Mulieris virum certiozem facit, qui eam occidit.

## 36. THE MAN BORN FROM A HORSE.

Equa parit hominem qui quemdam virum patrem sibi esse significat.

## 37. THE WOMAN AND THE HORSE.

Two young men see a person running with a herd of wild horses. The people surround the herd, and capture the person. She tells them that she was carried off from the tribe by a stallion who married her, and that she has become a horse. The people release her.

## 38. THE LITTLE GIRL WHO WAS MARRIED BY A BEAR.

As a camp moves, a little girl is left behind. A bear marries her, and she becomes rich. The people are starving, and she gives them food.

## 39. THE YOUNG MAN WHO BECAME A WATER-MONSTER.

Two young men travel. They pass through a hollow mountain, and reach the country of the giants. The giants are attacked by birds, which overcome them until the young men drive off the birds. When the young men return, their way is blocked in the cave in the mountain by a water-monster's body. They burn through it. One of them, though warned by his companion, eats of the meat. He turns to a water-monster, and goes into the water. His friend becomes fortunate.

## 40. THE WOMAN WHO WAS RECOVERED FROM A WATER-MONSTER.

A man and a woman sleep outdoors. A water-monster surrounds them. They try to jump over it, but the woman sticks fast and is carried off. The man brings his child to the water, and his wife rises. When the water-monster comes to the surface, he shoots it. His wife has become half snake, but he restores her to human form in the sweat-house.

## 41. THE MAN WHO KILLED HAWKS.

A man kills hawks by pointing his hatchet at them.

## 42. THE MAN WHO WAS KILLED BY A BULLET-HAWK.

A man goes to take young hawks, but is killed by the old hawk.

## 43. THE MAN WHO WAS KILLED BY A BALD EAGLE.

A man tries to catch a bald eagle, but is carried up by it, dropped, and killed.

## 44. THE WOMAN WHO TEMPTED AND BETRAYED HER BROTHER-IN-LAW.

A man's wife persuades his younger brother to elope with her. They reach a deserted camp. A man returns to the camp to get his weapons which he has forgotten. The young man gives him a smoke, and then leaps upon him. The woman, instead of helping her lover, tries to betray him to the stranger; but he succeeds in overcoming and killing his opponent. He returns to his older brother, and the woman is killed.

## 45. THE WOMAN WHO TRIED TO BETRAY HER BROTHER-IN-LAW.

A woman tries to persuade her husband's younger brother to be her lover. He flees, and she follows him. They come to a deserted camp, to which a Ute returns. The Gros Ventre gives him a smoke, and then attacks him. The woman tries to betray him to the Ute. He succeeds in killing the Ute. They return to the camp, and the woman is killed.

## 46. THE BAD WIFE.

A woman is taken by the Crows. Her husband goes to the Crow camp with six companions. He finds his wife, and she persuades him to wait. Then she betrays him to the Crows. His companions are killed. His wife tells the Crows that he wishes to be hung. They hang him and abandon him. An old woman rescues him and sends him home. He returns with his tribe. They attack the Crows, who flee. The woman is captured and killed.

## 47. THE MAN WHO ACQUIRED INVULNERABILITY.

A man sacrifices pieces of his flesh from his whole body to snakes, bears, a water-monster, eagles, rabbits, buffalo, and horned toads. He becomes invulnerable and wealthy. He goes to war, and his companions are killed. He cannot be killed. He is cut to pieces a number of times, but always comes to life and kills one of the enemy. At last he returns home. A boy is captured from the camp. The man offers to rescue him if he can have the boy's sister as wife. He finds the boy tied to the centre pole of the Cheyenne sun-dance lodge. He carries him off, but is caught. He persuades the Cheyenne to let him try to leap along seven buffalo-skulls without stumbling. He leaps from one to the other, and continues running. He hides the boy and himself. Then he brings him back to his people, and marries the girl. He goes to kill buffalo, and his wife is captured and carried to the mountains. He follows, armed with nothing but a knife, finds the enemy's camp, kills one, drives away the rest, and returns with his wife.

## 48. THE MAN WHO RECAPTURED HIS WIFE. \*

A man's wife is captured. He enters the village of her captors at night, goes to her lodge, and, after he has cut her new husband's throat, flees with her.



## 49. THE WOMAN WHO MARRIED THE SNAKE INDIAN.

A man lives alone with his wife and his sister. The girl has a tent to herself. A Snake Indian visits her at night. The man accepts him as his brother-in-law. The Snake lives with the Gros Ventre. Then he takes his wife to visit the Snakes. He appears very poor, and his wife is abused by the Snakes. Next day he shows himself in all his finery and wealth. Then he returns to the Gros Ventre, and is abused by them for his apparent poverty. The next day he reveals his increased wealth. The Gros Ventre and the Snakes make peace.

## 50. THE WOMAN WHO REVENGED HER BROTHERS.

Two brothers are killed. Their sister mourns. She goes to a mountain and fasts. The thunder gives her power. She sets out with her husband for the camp of the enemy. She entices one of the killers of her brothers away from the camp, and cuts his throat. Then she flees with her husband. The enemy attack the camp four times. Each time she drives them off. Then she will fight no more.



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## INTRODUCTION.

The following information on the Gros Ventre was collected in the winter and early spring of 1901, at the Fort Belknap Reservation in northern Montana, as part of the Mrs. Morris K. Jesup Expedition. Very few of the statements made, unless such is obviously the case, are based on observation. In general, where nothing is said to the contrary, they are founded on statements made by the Indians. The introductory explanations that have been made in regard to the Arapaho<sup>1</sup> apply also to the following material. The alphabet used for rendering Gros Ventre words is the same as that employed for Arapaho. Additional sounds are ö and ü, which are open, and k', a palatal k.

## TRIBAL ORGANIZATION.

The Gros Ventre call themselves "Haäninin." The meaning of this term is sometimes given as "lime-men" or "chalk-men," from haä'a<sup>n</sup>tyi ("lime" or "soft white stone"). This etymology is, however, doubtful. In literature they have often been known as the "Atsina." They declare this to be the Piegan name for themselves, atsöna<sup>n</sup>. Historically the Gros Ventre are known to have formed an independent tribe closely associated with the Blackfeet during the nineteenth century. Their dialect is similar to the Arapaho, and certainly intelligible to the Arapaho for at least the greater part. The two dialects are, however, sufficiently differentiated to make it certain that the tribes have been more or less distinct for a longer period than two centuries. The Arapaho regard the Gros Ventre as the northernmost one of a group of five closely affiliated or related tribes of which they themselves form the largest. Three of these tribes have long been extinct as separate bodies, and only the dialects of one or two survive among a few individuals with the Arapaho. The Gros Ventre, perhaps

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<sup>1</sup> A. L. Kroeber, *The Arapaho* (Bulletin of the American Museum of Natural History, Vol. XVIII, Parts I, II, and IV. New York, 1902, 1904, and 1907). A series of Gros Ventre myths and tales has been published in *Anthropological Papers of the American Museum of Natural History*, Vol. I, Part III. New York, 1907.

because they have among them no such remnants of perishing tribes, appear to know nothing of this fivefold group, but they recognize their close relationship to the Arapaho. There is no very great amount of intercourse between them and the Arapaho at present, nor does there appear to have been any unusual amount of communication during the greater part of the nineteenth century; but on both sides there is a mutual recognition as of separated relatives. The Arapaho are now and apparently have been for a long time considerably the larger tribe, the Gros Ventre having always in historical times been regarded as a small body. Their present number is about 550.

According to Hayden, the Gros Ventre, about 1800, were south of the Saskatchewan; about 1820 they united with the Arapaho for a few years, and then, following a quarrel, journeyed north, had a disastrous encounter with the Crow, and became neighbors and allies of the Blackfeet.<sup>1</sup> In spite of the usually close association of the Gros Ventre with the three Blackfoot tribes since that time, they became hostile to them for a time, about forty years ago, and united against them with their own long-standing enemies the Crow. In the course of this hostility the Gros Ventre sustained their heaviest reverse in war within their memory; the greater part of an unusually large war-party, including many Crow, being killed after an attack on a Piegan camp. This happened in 1867, according to Grinnell. The usual enemies of the Gros Ventre, besides the Crow, were other Siouan tribes, such as the Dakota and especially the Assiniboine. They also fought more or less with the Shoshone, and no doubt in alliance with the Blackfeet against the Salish Flathead. They were on the whole friendly with the tribes of their own stock of speech, the Arapaho, Cheyenne, Blackfeet, and Cree. The habitat of the Gros Ventre in recent times has been the Milk River territory, in which is situated their present reservation, which they occupy jointly with the Assiniboine.

The Gros Ventre have also been called Fall, Rapid, and Paunch Indians. The term "Gros Ventre" has also been applied to the Minitari, a Siouan village tribe on the Missouri; and the two tribes have been distinguished as "Gros Ventre of the Prairie" and "Gros Ventre of the Missouri."

Gros Ventre tradition brings the tribe from the north; but their story of the division of the tribe while crossing the ice on a great river is found also among the Blackfeet and the Cheyenne, and is worthless as historical evidence. While their earliest habitat known is north of their present territory, acquaintance of them goes back little more than a century, and there is

<sup>1</sup> See the excellent article by H. L. Scott on The Early History and the Names of the Arapaho, in the *American Anthropologist*, N.S., IX, 545. 1907. From this it appears that, at least from the middle of the eighteenth century on, except for about five years' association with the Arapaho (from 1818 to 1823), the habitat of the Gros Ventre was in the Blackfoot country, between the Saskatchewan and the Missouri.

nothing to show that they had long been in the Saskatchewan region. All that is certain of their previous past is their closer relationship to the Arapaho than to any other tribe; and the origin of the Arapaho is equally obscure, except that it is certain that, if they came from the north and east, it was a long time ago. Of the Gros Ventre it can only be said that, while related to the Arapaho and regarded by them as almost politically a part of themselves, they were far separated from them when first known, with them for a short time later, and again separated, and in contact and alliance with another much more distantly related Algonkin branch. Their habitat in a hundred years has been successively near the Saskatchewan, the Platte, and the Missouri. There is nothing to show that such variability of affiliation and location within the culture region of the Plains has not been characteristic of their previous history.

The Gros Ventre call the tribes near them by the following names: Arapaho, *hinan'an* (in Arapaho, *hinanaei-na<sup>n</sup>*); Cheyenne, *itisön*, "scars" (*itisö<sup>n</sup>*, "a scar;" Arapaho name of the Cheyenne, *hitaciina<sup>n</sup>*); Cree, *na<sup>n</sup>t<sup>s</sup>a<sup>n</sup>*, "rabbits;" Ojibwa, *djinhuna<sup>n</sup>t<sup>s</sup>a<sup>n</sup>*, "Lower Cree;" the three Blackfoot tribes, *waotä<sup>n</sup>nixtääts*, "black-feet" (a Blackfoot, *waotä<sup>n</sup>nixtä<sup>n</sup>in*, "black-foot-man;" a Piegan, *t<sup>s</sup>ä<sup>n</sup>t'*; the Bloods, *ka<sup>n</sup>winähää<sup>n</sup>*); Assiniboine, *na<sup>n</sup>djineihin*; Sioux, *na<sup>n</sup>wina<sup>n</sup>djinei*, "Below-Assiniboine" (in Arapaho, *na<sup>n</sup>tinei*, "a Sioux"); Crow, *hounen*, "crow-men;" Minitari, *wuxnokayän*, "—lodges;" Shoshone, *sösöuyänin*, "snake-men;" Bannock, *waotä<sup>n</sup>nixiinin*, "black-men" (in Arapaho the Ute are called *waotänähici*, "black"); Flathead Salish, *kaakaäänin*, "flathead-man;" Nezpercé, *taniibäts*, "pierced-nose" (Arapaho *taniibääci* is the Caddo). Two tribes to the southwest or perhaps west, which have not been identified, are the *wasöi<sup>n</sup>hiyehiits*, "grass-dwellers," who live in houses of grass or brush; and the *na<sup>n</sup>wuxa-anüibiina<sup>n</sup>ts*, "fish-eaters."

The Gros Ventre were divided into groups similar to those of the Blackfeet and Sioux. The names of these bands were nicknames, and in no way totemic. As there was prohibition of marriage within the band, the name "clan" is, however, applicable to them. Descent was paternal and a man belonged to his father's band; but the prohibition of marriage extended also to his mother's clan, all the members of both the father's and mother's clan being considered relatives. Each band seems to have had a recognized head or chief. During the winter the tribe broke into smaller groups, consisting of one or perhaps more clans, which followed the buffalo, and camped chiefly in the timber. There corrals were made for the horses at night to prevent their being stolen by war-parties. When summer came, the clans joined and camped together in the large camp-circle. In this, the opening of which was toward the east, the different bands had definite

places. Beginning at the eastern opening of the circle, and going southward, westward, northward, and eastward again, the order in which the clans camped was as follows:—

- |  |  |
|--|--|
| 1. Frozen, or plumes.                            | 5. Opposite (or middle) Assiniboine.                   |
| 2. Those-who-water-their-horses-once-a-day.      | 6. Ugly-ones, or tent-poles worn smooth (from travel). |
| 3. Tendons.                                      | 7. Bloods.   |
| 4. Those-who-do-not-give-away, or buffalo-humps. | 8. Fighting-alone.                                     |

Other names of clans, whose location in the camp-circle was not ascertained, and some of which, perhaps, are second names of clans enumerated above, are:—

Dusty-ones.	Berry-eaters.
Coffee.	Torn-trousers.
Weasel-skin head-dress.	Gray-ones, or ash-colored.
Ka <sup>h</sup> hut <sup>y</sup> i (the name of a chief).	Breech-cloths.
Poor-ones.	Night-hawks.

Anecdotes referring to incidents that are usually ridiculous accompany these names. The Smooth-worn-tent-pole people were so called, because the ends of their tent-poles, used as travois, were worn smooth from much travelling. The Tendon clan was so called, because one of this band had said that the tendons in the neck of a buffalo were good eating. The Frozen-people were so called, because, when they had hungry visitors in winter, they gave them frozen meat. Those-who-water-their-horses-once-a-day are said to have followed this practice so that their horses would gain flesh more quickly. The Opposite-Assiniboine, like the Assiniboine, were said to have had few horses, and the Fighting-alone were very warlike people. Those-who-do-not-give-away-without-return were considered stingy, and the Ugly-people were said not to have painted their faces.

#### FOOD AND HUNTING.

Like most of the other tribes of the Plains, the Gros Ventre subsisted almost entirely on the buffalo, and their culture depended to the usual degree upon this animal. The following scattering notes were obtained regarding the hunting of buffalo and other animals.

Buffalo enclosures used to be made of trees and forked limbs set in the ground in a half or three-quarter circle below a vertical bank. Extending over the country above the bank, a long chute of two rows of stone monuments was erected, behind which sat men. Other hunters drove the buffalo into the chute. Those behind the piles of stone rose up as the buffalo

passed, and so drove them forward over the bank into the enclosure. After horses were secured, the buffalo were generally run down. It is said that a buffalo shot with an arrow fell to the other side, never breaking the arrow by falling upon it.

The meat of an entire buffalo would be carried on a horse. It was cut in small pieces, which were tied to the ends of strips of the skin and then slung over the horse's back so as to balance. If necessary, the hunter would mount above. It is said that sometimes as many as four deer were carried on one horse.

When a buffalo was killed, half the skin was sometimes stitched or tied into a sack, the meat put into it, and the bundle dragged home by a rope around the shoulders of a person. In other cases the meat would be tied into bundles and carried home on the shoulders. The buffalo were usually cut up by men. Women were said to have taken part in this work when luck was unusually good and many buffalo had been killed. After a man had brought home meat, the women cut it into thin slices, which were hung on racks to dry. The dried meat was either packed in *parfleches*, or pounded fine and made into pemmican by mixture with berries. Meat, whether fresh or dried, was usually eaten after having been boiled in water; but when one was hungry or in haste a piece would be put on a stick and turned over the fire.

Traps for foxes and other animals, even bears, were constructed by making an enclosure, over the opening of which a heavy log, sliding between four sticks to keep it in place, was supported on a single slender upright stick resting on another stick attached to the bait. Other logs might be leaned against the first one to give it additional weight.

Birds such as sage-hens, ducks, and geese, were formerly not hunted extensively. The eggs, however, formed favorite food. When a camp was pitched near a lake, the young men would strip and go out into the water looking for duck-eggs. Fish were not caught except by children, for amusement.

When a camp was broken, small brush tents with windows of grass were built. Fat and meat were strewed about the place and a man entered the ambush before daylight. He could look and shoot through the grass, but he could not be seen inside. Birds as large as eagles were secured in this way.

Crows and magpies were caught with sinew snares attached to a willow hoop. Meat was laid in the middle of the hoop. Walking about inside of this, the birds caught their feet in the snares and were unable to fly away.

Gophers were caught by means of a horsehair loop fastened to the end of a rope and laid around a gopher-hole. A person lay down, and when the gopher raised its head he jerked the rope.

## INDUSTRIES AND IMPLEMENTS.

When a skin was brought in, it was hung on a sort of tripod, and with a chisel-like flesher of buffalo-leg bone the meat was removed. Then the hide was stretched on the ground to dry. When dried, the hair and thin coat of skin on the same side were cut off with the familiar implement of bent elk-horn, always provided, in recent times, with a metal blade. To make rawhide, nothing more was done. To make dressed skin, liver, grease, and brains, boiled and mixed in the proper proportion, were rubbed or soaked into the skin and then removed with an ordinary scraper, now usually of sheet-iron or tin. Finally the skin was worked over with a rough stone or a bone. In preparing buffalo-skins for a tent, four steps were recognized: first, drying the skins; next, removing the hair; third, soaking them; and, last, scraping and working them over. Skins were softened by being drawn over a rope of buffalo-sinew.

When a woman had prepared enough buffalo-skins for a tent, she made a feast and invited other women who were skilful at making tents. The most expert of these fitted and tacked the skins together loosely, and the others sewed them fast. When a robe was to be embroidered, the woman who wanted to make it prepared food and invited other women to help her in her work. When the robe was finished, the man who was to receive it was called in, and it was given to him.

Caps of buffalo-skin were worn in winter. They were provided with flaps that were pulled down over the ears and held by a string fastened under the chin. Mittens of buffalo-skin were also used, tied together by a string which passed behind the neck. When the hunter was ready to shoot, he slipped his hands out of the mittens.

Simple flat unbraided ropes of rawhide were cut out of the skin in a long spiral. After having been cut, they were stretched between two sticks. In order to soften them, they were covered with manure, or tied to a horse that dragged them over the ground until they became pliable.

Pottery is declared to have been made formerly of clay mixed with crushed rock. Rawhide bags, drawn together at the top with a string, were also used for cooking by means of hot rocks. The often described Plains method of cooking in holes in the ground lined with rawhide was also followed.

When fire was struck with flint and steel, dry mushrooms were sometimes used as tinder.

Bows were most frequently made of cherry-wood, but sometimes of ash. Ash was harder and more elastic, but more brittle. Sinew backing was

sometimes put on the bow with glue made from boiled skin from the head of a buffalo. Sometimes the bow was without sinew backing and sometimes ornamented by being covered on the back with snake-skin. Bows are said to have been held either horizontally or vertically, according to individual habit. Arrows for war and hunting are said to have been alike.

Shields were made of the thickest part of buffalo-bull skin, which was laid into a hole in the ground and made hard by being scorched with hot rocks placed upon it. It was then provided with a cover of white buckskin fringed with feathers. A man who carried a shield in war sometimes had no other weapon.

It is declared that no tobacco was raised, and that none growing wild was gathered, but that it was obtained from other tribes and from the whites. This is contrary to the practice of the equally non-agricultural Blackfoot, who planted tobacco; but it would seem to accord with the lack of any information obtained from the Arapaho as to tobacco-raising.

#### DECORATIVE ART.

The present day decorative art of the Gros Ventre is not nearly as strongly developed as that of the Arapaho. There is much less bead-work made, and this hardly ever equals the better work of the Arapaho either in technical or artistic excellence. Quill-embroidery is also found less frequently than among the Arapaho. How far this greater poverty and inferiority of Gros Ventre decorative art are matters of some standing in time is not certain; but it seems probable that there was a difference between the two tribes in this respect, even when they first came into contact with the whites.

It is in accord with this difference that inquiry as to the symbolic or conventional significance of the decorative designs used by the Gros Ventre has been practically without result. While the failure of the Gros Ventre to render such interpretations is due perhaps in large measure to change of mode of life under the influence of civilization, yet it seems that in this respect too there must have been a temperamental difference between the Arapaho and Gros Ventre, even in earlier times; for the Arapaho preserve at least distinguished wrecks of their symbolism, ceremonies, and religious life, while among the Gros Ventre, who are in much less intimate contact with the Americans, these things have vanished, leaving often scarcely a trace, and rarely more than a memory.

Partly on account of comparative scarcity of material, and also by reason of greater artistic poverty, the decoration of the Gros Ventre does not present as many typical characteristics as that of the Arapaho, the Blackfeet, the

Ute, and other tribes. It bears certain partial resemblances to Arapaho, Blackfoot, and Sioux decoration, and probably has been subject to their influences; but a clear determination of its special qualities is rather difficult. A consideration of some of the more prominent features of the bead and quill embroidery of the northern and western Plains tribes — especially the Cheyenne, Arapaho, Blackfeet, Sioux, Assiniboine, Ute, and Shoshone — will, however, bring out by comparison some of the leanings of the art of the Gros Ventre.

Fig. 1 (*a-n*) presents some of the more conspicuous decorative design elements among the Plains Indians.

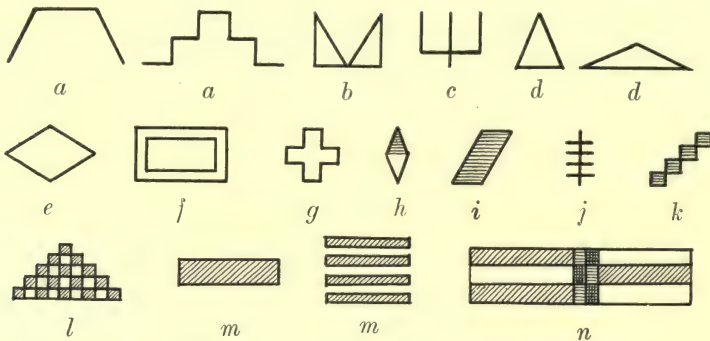


Fig. 1. Design Elements, Bead and Quill Embroidery.

Design *a* shows two schematized forms of a type of pattern that varies greatly in detail, but is always characterized by a horizontal line or bar connecting two spreading arms. The whole figure is usually worked in lines or small areas; it scarcely ever shows any heavy masses. Like the other designs considered, it is frequently only an element in patterns. It is often paired, two figures being arranged back to back, connected by a line, a diamond, acute triangles, or other design elements. This design is conspicuous in Ute bead-work. It may be called the "spreading design."

Design *b* is familiar from the Arapaho specimens that have been illustrated.<sup>1</sup> It may be called the "forked design." Design *c*, the "pronged design," needs no comment. The type of design *d* is the isosceles triangle. Design *e* shows the rhombus; and *f*, a square or rectangle, usually with border and centre of different colors. Element *g* is a square cross; element *h*, a well-known design called "feather" by the Sioux. Elements *i*, *j*, the slanting bar and crossed line, need no comment. Design *k*, the

<sup>1</sup> See Bulletin of the American Museum of Natural History, Vol. XVIII, Part III, p. 237.



checker-diagonal, may be a single diagonal row of squares, as here shown, or several rows arranged in checker-pattern. In design *l* the fundamental idea seems to be not so much the effect of checkered color as of steps, analogous to that of design *k*, since the Blackfeet, the great exponents of this type, sometimes make this design in a solid mass, but rarely depart from the exterior step contour which distinguishes this form from the virtually straight-lined element *d*. Design *m* is a wide short stripe or long rectangle, either standing alone, or, if in contact with other stripes, decoratively separated from them by containing an internal design. Very similar in one respect is the solid stripe of one color, the unit-element of design *n*, but entirely different in being developed into a drawn-out checker-pattern by combination with analogous stripes of other colors, as in the soft bag bead-patterns of the Arapaho.

Other important design elements — such as, for instance, the simple right-angled triangle, the leaf-design of the Sioux — are not considered here, because they seem at present of less consequence for comparative determinations.

The spreading pattern (*a*) is most developed by the Ute. It is also common among the Arapaho and Shoshone. The Gros Ventre and Sioux use it less; the Blackfeet apparently not at all.

The forked pattern (*b*) is possibly most used by the Arapaho, but occurs among the Ute, Shoshone, and Sioux, and apparently less frequently among the Gros Ventre. The Blackfeet use this design as little as the last.

The pronged design (*c*) is a third that the Blackfeet lack. It finds its greatest development among the Sioux and Assiniboine. It is rare or lacking among the Gros Ventre.

The triangle designs, both acute and obtuse (*d*), are found among all the tribes under consideration, but seem to be most characteristic of the Sioux and Arapaho.

The diamond (*e*) is apparently most frequent among the Arapaho, the Ute, and the Sioux. The two latter use it chiefly as a centre for more elaborate designs; the Arapaho, also as a separate design.

The square or box design (*f*) is most characteristic of the Sioux and Assiniboine, from whom the Gros Ventre and Crow have perhaps chiefly derived it. With the Arapaho the nearest approach usually is the small solid square the *hiiteni* symbol.

The square cross (*g*) has a wide distribution. It is very frequent among the Sioux. The Arapaho also use it, but less often alone, and a maltese cross, or some variation, is the form more characteristic of them.

The feather design (*h*) is most typically Sioux and Assiniboine. It is not rare among the Gros Ventre. It occurs but little among the Ute, Sho-

shone, and Blackfeet; and there is not a single example known from the Arapaho. It is frequent among the Crow, and occurs among the Comanche and probably other southern Plains tribes.

The slanting bar (*i*) is characteristic of the Ute and Shoshone, though it never appears with great frequency. It occurs also among the Arapaho as a small design in borders.

The crossed line (*j*) is uncommon as a distinct design unit. The Gros Ventre use it more or less.

The diagonal checker-row (*k*) is pre-eminently Shoshone and Blackfoot.

The triangular step or checker pattern (*l*), often doubled to form a rhombus, is the most distinctive design in Blackfoot ornamentation. Its use by the Gros Ventre is to be attributed to Blackfoot influence. It crops out occasionally elsewhere, as among the Arapaho, but is probably mostly a modification of the simple triangle (*d*), as it shows no tendency toward an interior checker-work pattern accompanying the steps on its outline.

The stripe (*m*), as the main design of a decorative area, is also distinctive of the Blackfeet. Several stripes are usually found parallel but separate, and are internally elaborated, as by transverse bars. A form occurs among the Gros Ventre as a border design. The general outline of this pattern is similar to that of the next design, the drawn-out checker, as its constituent stripes are three abreast, in contact, and succeed each other end to end; but there is a total dissimilarity of decorative effect from the checker-pattern, brought about by the division of the stripe elements into right-angled triangles of different colors; so that to the eye the contained triangles, rather than the including rectangles, stand out.

The lengthened checker-pattern (*n*) is regularly used for the top and sides of Arapaho soft bags. The Gros Ventre and other tribes employ it for the same purpose. The occurrence of this pattern is therefore determined functionally as much as tribally.

The following, accordingly, are the chief characteristics of the several tribes as regards the use of these decorative elements in bead-embroidery.

The Arapaho frequently use the forked design, the triangle, and diamond, also, in certain cases, the lengthened checker-pattern. The spreading and pronged designs, the cross, and the slanting bar, occur. The Sioux feather design, the Gros Ventre crossed-line design, and the three most characteristic Blackfoot designs, — the diagonal checker-row, the checker or step triangle, and the short or separate stripe, — are as good as wanting.

The southern tribes — such as the Kiowa, Comanche, Wichita, and to a certain extent the eastern Apache — have little solid bead-work: they employ simple and small designs as isolated figures to give variety to the

narrow white stripes and edgings that characterize their embroidery. Among these subsidiary designs are the feather, the square, the cross, the triangle, and the slanting bar.

The Blackfeet use especially the three designs mentioned,— the diagonal checker-row, the checker or step triangle, and the stripe. A few others, such as the cross and the feather, occasionally occur: still others, such as the spreading and forked designs, are lacking.

The Ute and Shoshone designs are much alike. The Ute have especially developed and varied the spreading design; but simple forms of this are not rare among the Shoshone. Both tribes frequently use the forked design. The pronged design, the triangle, the slanting bar, and occasionally the diamond, are found among both. The Shoshone sometimes employ the diagonal checker-row. Otherwise both tribes lack the typical Blackfoot designs, as well as the characteristically Sioux square, cross, and feather.

The Sioux and Assiniboine perhaps employ the square, cross, and feather no more frequently than the pronged, forked, and triangle designs, but they share the latter with other tribes, such as the Arapaho; whereas the square and feather, and perhaps the wide rectangular cross, are much less frequent among the other tribes. The Sioux, for the most part, lack the characteristic designs of the western tribes,— the diagonal checker and the stripe of the Blackfeet, the crossed line of the Gros Ventre, the spreading design of the Ute.

The Crow resemble both the Sioux and the Blackfeet. Typical designs are the feather, the square, the slanting bar, and the separate stripe.

The Gros Ventre use the forked design, the triangle, the box-square, the feather, the stripe, and the Arapaho pattern-stripe. The spreading design and the cross are not very common. Their form of the stripe has been mentioned as being usually a complex of colored right triangles. The diamond, the slanting bar, and the prongs are rare among them. The crossed line, which is practically absent among other tribes, must not be regarded as the characteristic Gros Ventre figure. It occurs only occasionally, almost always alternating with a step-triangle of the Blackfoot type.

As regards the color of the background of bead-work on which these designs are made, there are certain well-marked tribal habits. White is the most common color, and is at least frequent among every tribe. The Arapaho, however, are alone, among those here considered, in using it almost exclusively. The Cheyenne use much white, but show also a distinct leaning toward yellow. The Ute use various backgrounds, but white is the most frequent. Among the Shoshone a light grayish blue is much used besides white. The Sioux use various colors, but chiefly white, light blue, and yellow. The Crow use colored backgrounds considerably. The Blackfeet

use much less white than any of the other tribes: their characteristic backgrounds are light red, yellow, and blue. The Kiowa, Comanche, Wichita, and Apache use white very predominately; but they show very few solid backgrounds of embroidery, their bead-work rarely consisting of more than stripes and borders. The Gros Ventre type is as indeterminate as their designs. It is only possible to say that besides various colors, such as red and light blue, white is considerably used.

It appears from this examination that the tribes under consideration form at least four groups as regards their bead-embroidery. The Blackfeet stand alone. The Sioux and Assiniboine form a second unit. The Arapaho, Ute, and Shoshone are a third; the more southerly tribes using outline embroidery, the fourth. Within their group the Arapaho show closer resemblance to the Ute than to the Shoshone. The Arapaho also have a good deal in common with the Sioux. The position of the Cheyenne is not certain: they certainly have partial resemblances to both Arapaho and Sioux, as their historical and ethnographical situation would lead one to infer. The Crow appear to be intermediate between the Blackfeet and the Sioux. The Gros Ventre show distinct approximations to all three of the northern groups, in the third, of course, especially to the Arapaho. Neither their Blackfoot nor their Sioux characteristics seem fundamental. Their present art shows little character of its own.

It is not probable that the groups here distinguished will stand without modification. With fuller knowledge regarding the Bannock, Crow, Cheyenne, Kiowa, Comanche, and the village and eastern and southern tribes, as well as those of the Columbia drainage, new and wider groups are almost certain to be determined. In this event the Arapaho, for instance, may appear more properly to belong with the Sioux than with the Shoshone; but their relations to the latter, and the similarities among the several tribes as they are here indicated, whether they prove finally to be fundamental or only subsidiary, are already quite clear.

The types of designs discussed occur more or less on all classes of objects decorated with embroidery, but are especially characteristic of larger areas of decoration, as on pouches, leggings, and tobacco-bags. Where there are special forms or limited areas, there is usually a more restricted type of ornamentation. Thus the quill-wound, close-set fringe of tobacco-bags lends itself best to heavy rectilinear designs, and squares and crosses are the result. Moccasins also furnish a special decorative field, in which the decoration is in great measure directly dependent on the form of the object; so that the distribution of the designs already discussed applies to moccasins only in part, and their ornamentation needs some separate consideration.

Some of the chief types of moccasin ornamentation are shown in Fig. 2

(*a-o*). The first four forms have been discussed in connection with the description of Arapaho moccasins.<sup>1</sup> They may all be considered as consisting of one of two simple elements (the longitudinal dividing stripe and the border), or of combinations and developments of these two elements. Subsidiary designs usual within these stripes and borders need not be considered here, as they do not affect the ornamentation of the moccasin as a whole.

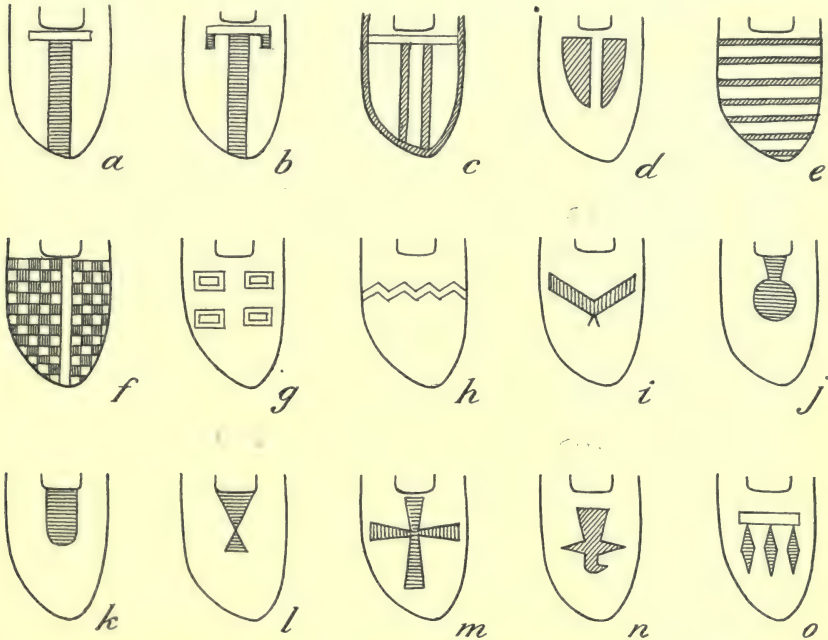


Fig. 2. Types of Designs on Moccasins.

The forms shown in *e* and *j*—the red-line and checker designs, the former usually executed in red quill-work, the latter in beads—may be regarded as forming a second class, in which the entire front of the moccasin is covered with one geometric pattern. All the remaining types can be grouped into a third class, consisting of forms having a figure in the middle of the decorable space on the front of the moccasin, this figure neither filling the entire space nor bearing any exact relation to its outline. Simple forms of some of the more frequent designs of this middle-figure class are here given, such as the four-squares (*g*), the transverse-zigzag (*h*), the crossing angle (*i*), the circle or head (*j*), the oval or U (*k*), the tent (*l*), the cross (*m*), the bird (*n*). A

<sup>1</sup> See Bulletin of the American Museum of Natural History, Vol. XVIII, Part I, pp. 36-46.

fifteenth type may be regarded as comprising the moccasins in which a single figure of very variable shape, but always comparatively small, occupies the centre of the otherwise unbroken front area. The U-figure is sometimes symmetrically angular. The cross can also be regarded as a development of the stripe; but, as its shape is almost invariably maltese and not rectangular, it is perhaps usually an independently developed figure.<sup>1</sup>

The Gros Ventre moccasins shown belong to types *d* (Fig. 3), *i* (Plate VIII, Fig. 3), and *j* (Plate VIII, Fig. 2). The moccasin in Plate VIII, Fig. 1, does not belong clearly to any of the typical forms.

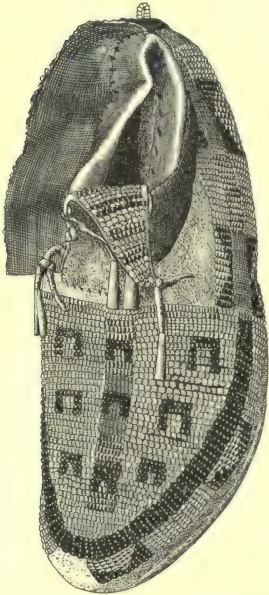


Fig. 3 (50-1824 a). Moccasin. Length, 19 cm.

The stripe-border figures constitute a majority of Arapaho moccasin designs. They occur on Cheyenne moccasins in at least a considerable number of cases. All forms of these designs are found on Sioux and Assiniboine moccasins, but all together on only one among every three or four pieces. Among the Kiowa and Comanche, many moccasins depend for ornamentation on fringes and painting as much as on bead-work: the latter in such cases consists of narrow white edging, which usually follows the stripe and border designs. Among the Ute the proportion of stripe and border designs reaches a very high proportion, even the majority of solidly beaded moccasins being of this type. Of nearly twenty Ute moccasins in the Museum, all but two are of the stripe-border pattern.<sup>2</sup> The related and neighboring Shoshone, however, use this pattern rarely; and the same is true of the Gros Ventre. The

Crow use the stripe considerably, but usually with some modification or addition (such as the feather-design element), and only rarely in combination with the border. The Blackfeet lack stripe-border designs almost entirely.

<sup>1</sup> Sioux and Arapaho moccasins with the three types of designs have been illustrated in Bulletin of the American Museum of Natural History, Vol. XVIII. Examples of the stripe-border class of moccasins are shown in Plate I, 1-8; Fig. 5, b-f; Plate II, 3; Plate III, 1, 3, 4; Plate IV, 1; Fig. 6; Plates XXXVIII, 2, 4, 6, and XXXIX, 6; and Figs. 96 and 98. Moccasins of the second class are shown in Fig. 5, a; Plates III, 2, and XXXVIII, 1 (red-line pattern); Fig. 5, e; and Plate LIV, 2 (checker-pattern). Moccasins with the third type of ornamentation are shown as follows: Four-squares, Plates XXXVIII, 1, and LII, 2; transverse-zigzag, Plates III, 5, and XXXVIII, 5; angle-across, Plates II, 2, XXXIX, 2, and Fig. 97; round-head, Plates LII, 1, and LIV, 1; cross, Plates I, 8, and XXXIX, 5; bird, Plate XXXIX, 4; a small figure in the centre, Plates II, 4, 5, LII, 3, and LIV, 3.

<sup>2</sup> These two show the round-head and the angle-across designs, which reach great frequency among the Shoshone and Gros Ventre.

Designs of the second class, the red-line and checker-patterns, are most frequent among the Sioux and Arapaho. There are a few Shoshone and Gros Ventre examples. The Blackfeet largely lack designs of this class.

Of the several designs of the third class, the squares and the transverse-zigzag (*g*, *h*) are not very common. They are frequent among the Sioux and Assiniboine, especially the former pattern, as is to be expected from the prevalence of the square-box design in the bead-work of these two tribes.

The angle-across design (*i*) and the round-head or circle design (*j*) are the most persistent of the designs of the third class, and the former especially has a wide distribution. The angle is found least among the Arapaho, Sioux, and Ute. Among these tribes it is usually also light or open in pattern, so as not to dominate the decoration. The Cheyenne have this pattern, and it is one of the few designs used by the Blackfeet that are untypical of them. Among both Shoshone and Gros Ventre it is common, and the Crow use it. It is interesting that two Ojibwa moccasins in the Museum also show this pattern. The round-head design occurs most frequently among tribes where the angle design is abundant, especially the Shoshone and Gros Ventre, less among the Sioux and Blackfeet. No Arapaho moccasin with this design has yet been seen. The symbolism of this figure varies. It is interpreted as a head, a spoon, feathers, or the sun.

The semi-oval or U-shaped figure (*k*) belongs more distinctly to the north and east than to the Plains. In certain regions it is the typical moccasin pattern. This figure is probably closely related to the simple stripe. It may be regarded as a wide stripe not reaching to the end of the moccasin, and rounded in front; or perhaps as an inner concentric area, slightly altered so as to be symmetrical, determined by the outline of the moccasin. In its occurrence among the Plains tribes under consideration, it does not, however, show any transitions to stripe and border patterns; and it accordingly belongs, so far as the Plains are concerned, in the class of designs bearing no specific relation to the shape of the moccasin. A few occurrences, chiefly among the Blackfeet, of angular forms having the appearance of being modifications of this U-shaped figure, can be included with it.

This design is the characteristic one of the Blackfeet, as noted by Dr. Clark Wissler.<sup>1</sup> It is also nearly confined to the Blackfeet within the Plains region. The Museum has a few scattering Sioux and Shoshone examples, and one from the Ojibwa; and the Field Columbian Museum exhibits a number of specimens from the Crow, though usually with the addition of the feather or pronged design element at the end of the U-figure. The U-form has not been met with among the Arapaho or the Gros Ventre, nor among

<sup>1</sup> Clark Wissler, *Bulletin of the American Museum of Natural History*, Vol. XVIII, Part III, p. 276.

the tribe in many ways nearest to the Arapaho in decorative art,—the Ute. That the Gros Ventre in their century of contact with the Blackfeet have not taken up the design is of interest, and is due, possibly, to its being at bottom of so different a decorative type that it is scarcely compatible with the established style of Gros Ventre decoration.

The tent figure (*l*) is infrequent. It has been found among the Sioux and Gros Ventre.

The cross (*m*) is most common on children's moccasins. It has so far been found on Sioux, Cheyenne, and Arapaho moccasins. It may prove to be most typically Sioux-Cheyenne.

The bird-figured moccasin (*n*) is infrequent. There are three examples in the Museum, all Sioux or Assiniboine. This design is one of the few — really the only one of those considered, besides the red-line pattern — that is usually executed in quills. It seems to go back to an old type independent of the stylistic influences of bead-work. A quill-embroidered bird moccasin is mentioned in an Arapaho myth.<sup>1</sup>

Type *o*, in which any small figure occupies the centre of the main decorative field on the moccasin, occurs chiefly among the Sioux, Cheyenne, and Arapaho. The figure may be the pronged design, the feather design, a triangle, a form of the forked design, or any other figure. A few Blackfoot moccasins can be included in this type, but as yet none from the Ute or Shoshone.

The chief tribal characteristics of moccasin ornamentation can be summarized as follows:—

The Ute use stripe-border designs almost exclusively. The few exceptions found are of the round-head and angle-across types, and are due perhaps to Shoshone influence.

The Arapaho use stripe-border designs in the majority of cases. They show no special predilection for any of the other designs. They lack the round-head, and their angle-across figures are not well marked.

The Kiowa and Comanche, and other southern tribes, confine themselves practically to stripe-border designs; but the bead-work of their moccasins is used mainly for outlining or edging, and solid beading is little practised, so that a turn is given to their style which sets them apart from the other tribes considered.

Cheyenne moccasins are more or less similar to those of the Arapaho, but probably show some leaning toward Sioux types.

The Sioux and Assiniboine moccasins show every type of figure discussed. All forms of the stripe-border class occur, but with less frequency than among the Ute and Arapaho. The round-head and angle-across

<sup>1</sup> See Traditions of the Arapaho (Field Columbian Publication No. 81, p. 291).



occur, but less than among other tribes, and the latter shows the light forms that characterize it among the Arapaho. On the whole, the Sioux type is apparently the most mixed and inclusive of those discussed.

Among the Shoshone the designs are more frequently the round-head and angle-across than any other. They use a number of other forms, such as the red-line, checker, and transverse-zigzag. Stripe-border patterns are little developed among them.

The Crow use designs of all classes, including the stripe, the round-head, the angle-across, the red-line, and the characteristic Blackfoot U-figure, and, as in other bead-work, resemble both Blackfeet and Sioux.

The Blackfeet show by far the most specialized type, not only in the dominance of the U-shaped design, but in the absence of stripe-border patterns, which all the other tribes agree in using at least to a certain extent.<sup>1</sup> The chief designs that have obtained a hold among them, other than the U-figure, are the round-head and angle-across.

The Gros Ventre use a comparatively small proportion of stripe-border patterns, perhaps about in the degree of the Sioux and Shoshone. They use the Sioux-Arapaho red-line figure. Of designs of the third class, the round-head and angle-across are the most frequent.

It is evident that the distribution of these moccasin designs is primarily dependent upon geography, not upon tribal relations. The southern tribes — the Kiowa, Comanche, Ute, and Arapaho — use mainly stripe and border patterns. The northern tribes — the Shoshone, Gros Ventre, Sioux and Assiniboine, and Blackfeet — use chiefly middle-figure designs. Of these figures the most strongly developed are the round-head and angle-across. Approximation of the Shoshone and Gros Ventre proportional frequencies of these designs is to be attributed to the fact that these two tribes are situated in the same northern region of the Plains, rather than to any special cultural relations between them. The Sioux and Arapaho show certain resemblances which may be due to direct relations or to transmission by the Cheyenne. The Blackfeet alone are tribally specialized, at least if regarded as part of the Plains group of tribes. They have been somewhat influenced by the northern Plains type of design, but have not affected it. Even the inter-influence of the Blackfeet and Gros Ventre upon each other has been insignificant. The Ojibwa are not altogether out of the influence of the Plains.

Nothing was learned about the typical tribal ornamentation of Gros

<sup>1</sup> A series of Blackfoot, Blood, and Piegan moccasins in the Museum of the Anthropological Department of the University of California, shows many more moccasins with stripe-border and middle-figure ornamentation than of the U-type, which is contrary to the ornamentation of those in the American Museum of Natural History, of which fully half, omitting the modern leaf-figured specimens, show the U-design; and contrary also to the statements of Dr. Wissler and of Clark (*Indian Sign Language*, p. 69).

Ventre robes. A child's quilled robe (Museum specimen 50-1751) agrees in general with the Arapaho style of ornamentation,<sup>1</sup> and is probably more or less representative of the Gros Ventre type. The style is similar to that of the quill-work on the Arapaho bag shown in the "Bulletin of the American Museum of Natural History" (Vol. XVIII, Plate xvi). Seventeen red quilled lines pass across this robe. Four spaces, two on the lines and two at the ends, are green instead of red on each line. Originally, small green-dyed plumes seem to have been attached here also; these have now almost disappeared. At the four green spaces on the lowest line, pendants are attached. These each consist of a small loop wound with green quills, and of two thongs wound with red quills. At the ends of the thongs are small cylinders of tin from out of which issues a tuft of dyed horsehair. The seventeen embroidered lines do not stretch entirely across the robe to its edge, but occupy a rectangular area including the greater part of its somewhat irregular surface. Certain Arapaho robes are described as having been embroidered with seventeen such parallel lines, to which a group of three was added at the lower edge, where pendants were attached. An Arapaho child's robe in the Museum collections is almost identical with this in style. The ornamental spaces on the red quilled lines differ somewhat, and there are eighteen instead of seventeen lines; but the general construction and appearance are strikingly similar, even to the pendant attachments. Dr. Clark Wissler's illustration<sup>2</sup> of a small Sioux robe serves to give a very close idea of the present piece. Like the Arapaho robe, this Sioux one has eighteen lines. Dr. Wissler makes the point that among the Sioux such red-line embroidered robes were distinctive of women and girls; but among the Arapaho the typical robe of men is said to have been embroidered with yellow or white lines. The Field Columbian Museum has on exhibition Cree, Crow, and Sioux children's robes ornamented with from seventeen to twenty lines and with hoof pendants at the bottom.

The Gros Ventre have now entirely abandoned the use of embroidered tent-ornaments such as are still quite common among the Arapaho. A single dilapidated partial specimen was obtained, shown in Fig. 4. This is very similar to the Arapaho tent-ornaments.<sup>3</sup> The full set consisted of a larger, round quill-embroidered piece of skin sewed to the back of the top of a tent and called *kaä<sup>n</sup>biit<sup>an</sup>* ("round embroidery"), four similar but smaller ornaments put on the sides of the tent lower down, and pendants attached to the upper flaps or ears of the tent. The circular embroidered ornaments had buffalo-tails or strips of buffalo-fur, and quill-wound pendant thongs with hoofs and loops at their ends, hanging from the middle.

<sup>1</sup> Compare Bulletin of the American Museum of Natural History, Vol. XVIII, Part I, pp. 29, 33, 65.

<sup>2</sup> *Ibid.*, Vol. XVIII, Part III, Fig. 81.

<sup>3</sup> *Ibid.*, Vol. XVIII, Part I, pp. 61-63.

Of the pieces illustrated, the larger contains four black concentric circles interrupted by four black-bordered sectors. Quills, not plant fibres, have been used for this black embroidery. The lighter portions of the embroidery adjacent to the black circles seem to have been originally yellow, as the underlying protected quills are of this color, while those on the surface are

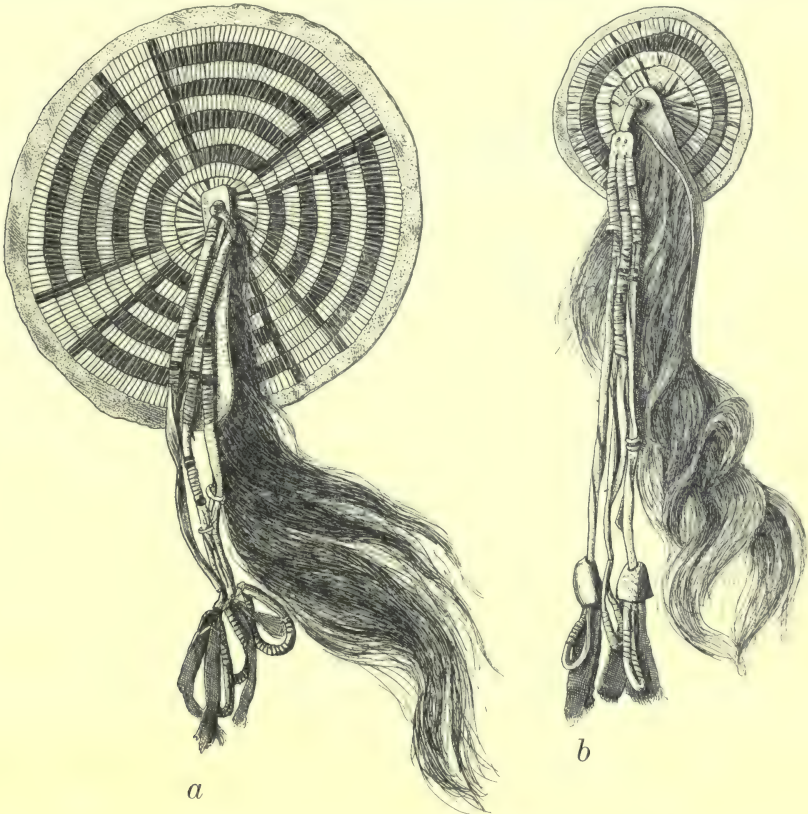


Fig. 4 (50-1829 a, b). Tent-ornaments. Diameters, 17 cm., 8 cm.

weathered white. The quills within the sectors, however, appear to have been always white. The pendants, three in number, are very much destroyed: it is evident, however, that they were wound with orange-yellow, red, white, and black quills in exactly the pattern used by the Arapaho.<sup>1</sup> The loops at the ends of the pendants contained red, yellow, and black quills,

<sup>1</sup> For description and illustration of pattern, see Bulletin of the American Museum of Natural History, Vol. XVIII, Part I, pp. 35, 65, Figs. 12, 13.

and probably white also. The pendants on the smaller ornament are identical, and still show the hoofs at their ends. It thus appears that, whereas the main ornament has only the three colors, namely, white, yellow, and black, — found also in an Arapaho ornament<sup>1</sup> with which it is virtually identical, — yet the peculiar line-pattern combination of red, yellow, white, and black, characteristic of the Arapaho “tribal” style of quill embroidery, also occurs in this Gros Ventre set of ornaments.

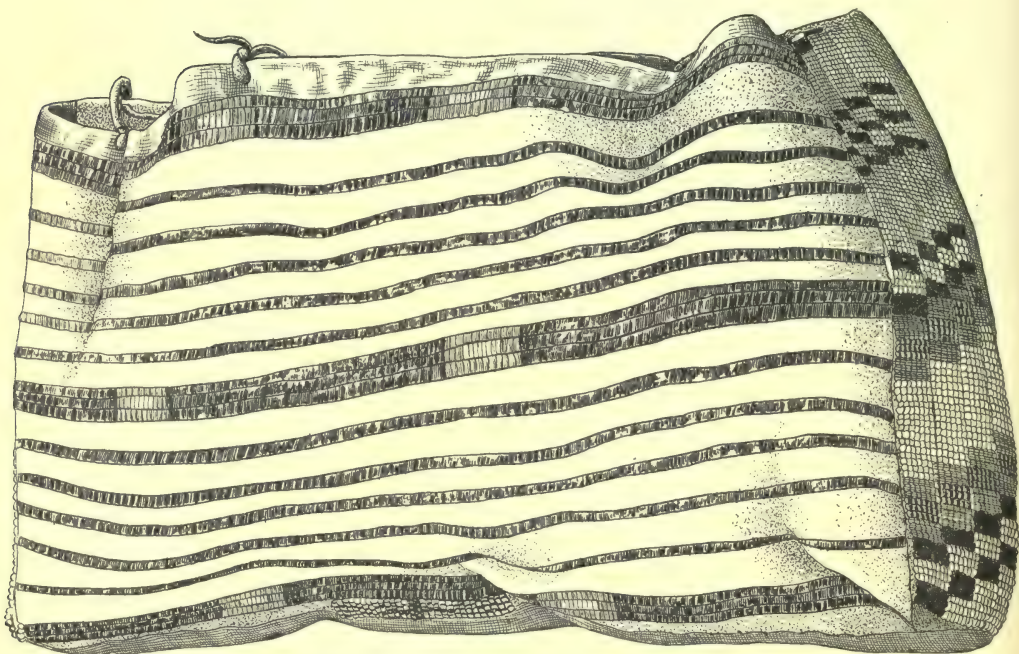


Fig. 5 (50-1738). Soft-skin Bag. Length, 21 cm.

Bags of soft skin, used chiefly for keeping and transporting clothing and small household articles, are made by the Gros Ventre very much as by the Arapaho and other Plains tribes. The ornamentation is also of the same character, consisting of red quill-embroidered lines across the front of the bag, and a pattern of bead-work (generally of alternately colored bars with cross spaces, augmented by tin and horsehair or other pendants) along the top and two side edges of the bag. This style has been illustrated for the Arapaho.<sup>2</sup> About half the Gros Ventre bags show the same ornamentation,

<sup>1</sup> Compare Bulletin of the American Museum of Natural History, Vol. XVIII, Part I, p. 60, Fig. 9, a.

<sup>2</sup> *Ibid.*, Vol. XVIII, Plate XVI.

varied only in inessential details. The remainder introduce a characteristic variation, though the fundamental type of decoration is the same. Such a bag is shown in Fig. 5. The red quilled lines are present, but are in part grouped in threes, so as to form stripes of three times the width of the lines. In consequence of this, the small differently colored spaces on the lines become rectangles, which usually assume the box form shown in the figure,

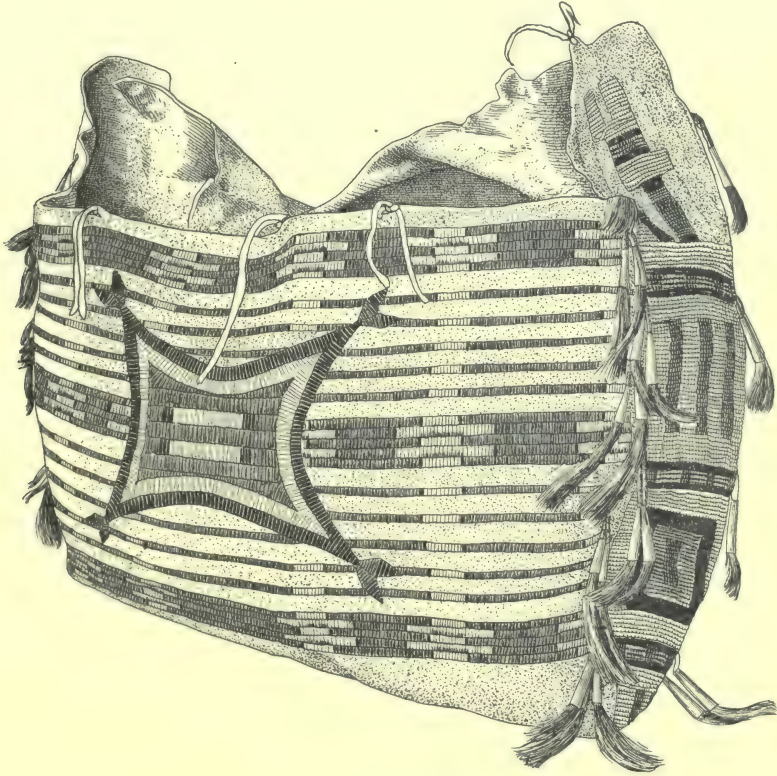


Fig. 6 (50-4299). Soft-skin Bag. Length, 35 cm.

and more characteristic of Sioux than of Arapaho ornamentation. The number of single lines between the compound stripes varies; in some specimens it is only two or three. Sometimes the box design of the stripes is represented on the lines by an end-bordered bar, as is customary on the bags with lines only, and as appears in the bag in Fig. 6. Even the small down-feathers of the line-embroidered bags may be present on the wider stripes of this variant Gros Ventre type. The bead-work along the two ends of the bag shown in Fig. 5 is very different from that on Arapaho

bags, recalling the typical checker and diagonal step design of Blackfoot beading. This type is, however, unusual among the Gros Ventre.

The fine bag shown in Fig. 6, collected by Dr. Clark Wissler, presents unusual quill-embroidery on its front, suggestive perhaps of Sioux influence or origin; but the bead-work on its cover and sides, and the attached tin and horsehair ornaments, are typically Arapaho, except for the fact that this tribe would be very unlikely to make any pattern without at least some proportion of white. The transverse lines of quill-work on this bag might be regarded as nothing but a further five-line development of the three-line grouping illustrated by the last figure, with an alternating bar-pattern for its chief ornamentation instead of the box figure, which in element is identical. The central figure, however, is the typical Sioux spider-web pattern described by Dr. Clark Wissler,<sup>1</sup> and so far without any parallel among either Arapaho or Gros Ventre, or any approach nearer than that shown in an instance of blanket painting.<sup>2</sup> The two parallel bars in the centre of this concave quadrilateral figure, and the diamond-shaped feather symbols at its corners, are also typically Siouan: only the last-named element is occasionally used by the Gros Ventre.

Buffalo paunches, the mouth being drawn up by a string, like a sack, were used for carrying and holding water, a paunchful being hung up in the tent. If buffalo had been killed, and it was desired to transport the meat across the Missouri, the paunches were filled with meat, blown up, tied together at the mouth, and floated. The well-known circular skin boats of the Missouri tribes were also used by the Gros Ventre for transporting clothing and property across streams.

Fig. 7 shows an ornamented food-bag of bladder. At the top is a strip of skin covered with red quill-embroidery, with square star designs in blue and white. From this strip of skin hangs a red quill-wound fringe. The thong handle of the bag is partly quilled, and has quilled thong pendants hanging from it. At the bottom of the bag a round piece of skin, covered with green-and-white quartered bead-work, is sewed on.

The navel-amulets of the Gros Ventre, which resemble those of the Arapaho in their use, are in form of a somewhat different type, as they approach more nearly to an animal's shape. They usually represent çaniwa<sup>n</sup>, the "horned toad" (southern Arapaho, sāniwa<sup>n</sup>, a "lizard"), or sometimes a person. Their general shape is, as everywhere on the Plains, a rhomboid on end. To this the Gros Ventre add at the upper end a small rhomboid, forming the head of the animal represented. This augmented shape has not been found among the Arapaho, with whom the typical form

<sup>1</sup> See Bulletin of the American Museum of Natural History, Vol. XVIII, Part III, p. 248.

<sup>2</sup> Ibid., Vol. XIII, p. 85, Fig. 138.

is a narrow simple rhomboid.<sup>1</sup> The Blackfeet and Sioux make figures resembling those of the Gros Ventre, but carry the realism farther. The Sioux most frequently represent an entire animal with head, legs, and tail, much like Fig. 1 in Plate VIII of Vol. XVIII of the "Bulletin of the American Museum of Natural History," but broader, in the shape of a turtle.<sup>2</sup> The Arapaho, Gros Ventre, and Blackfeet use ornamented strings hanging from the corners of the rhomboid to represent limbs and tail. The Blackfeet make realistic snake amulets for their boys, and more conventional turtle or lizard-like figures, resembling those of the Gros Ventre, for their girls. Among the Assiniboine, and west of the Rockies among the Bannock and Ute, a reduced form of navel-amulets occurs, though perhaps it is not the only one used. It is usually small and flat, with the acute angles of the rhomboid cut off transversely, rendering the whole piece hexagonal rather than quadrilateral. Sometimes the entire edges are fringed. The relative distribution of this small form and of the other forms is not yet clear. A Shoshone amulet in the Museum is a pointed rhomboid resembling the Arapaho type, even to being quartered in its bead-ornamentation. A Kiowa specimen in the Anthropological Museum of the University of California is a plain rhombus, of Arapaho type, except in being smaller and more nearly square. The following distribution of types is at least partly correct: realistic, Sioux, Blackfoot, occasionally Arapaho; semi-realistic, Blackfoot, Gros Ventre; conventional rhomboid, Arapaho, Kiowa, Shoshone; reduced hexagonal, Assiniboine, Ute, Bannock, and perhaps Shoshone.

On Plate IX are shown three Gros Ventre navel-amulets. Fig. 3 was said to represent a horned toad, and Fig. 2, a person. It will be seen that the mouth in the former is near the end of the head; in the latter, in the lower part of the face. Both these specimens have quilled or beaded appendages at the two side corners and at the lower end. Fig. 1 has a distinct



Fig. 7 (50-1801). Ornamented Food-bag of Bladder. Length, 29 cm.

<sup>1</sup> See Bulletin of the American Museum of Natural History, Vol. XVIII, Part I, Plate VIII.

<sup>2</sup> *Ibid.*, Vol. XVIII, Part III, p. 242, Fig. 76.

tail as well as head, a cross instead of an attempt at representative ornamentation in the bead-work on the head, and unornamented yellowed thongs as sole attachments. Another specimen (Museum No. 50-4278), not figured, is much smaller than any of the others. It resembles Fig. 3 of Plate IX in that the bead-work on its upper surface is quartered, and that there is a distinct attempt to represent eyes in the head. The attachments are short unpainted thongs with tin cones at their ends.

Of these four pieces, Fig. 1 of Plate IX and Museum No. 50-4278 are unbeaded on the lower side; Fig. 3 of Plate IX has a few curvilinear leaf-ornaments on the lower side; and Fig. 2 of Plate IX is entirely beaded on both sides, showing on the reverse a simple quartering in blue and yellow without attempted representation of animal form. It thus appears that all the pieces are ornamented with bead-work in quartering, a design found also among the Arapaho, although transverse or diagonal parallel lines, or a crossed longitudinal line, are more common among them. The specimen figured

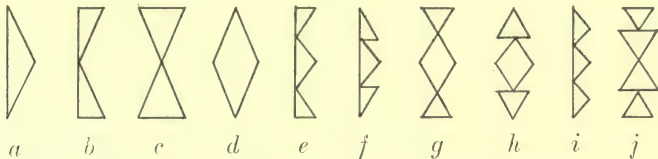


Fig. 8. Triangular Designs on Parfleches and Bags.

in Fig. 1 of Plate IX is quartered asymmetrically. The greater flatness of Fig. 3, same plate, is due to the contents of the amulet-pouch having been removed, no doubt for preservation.

The principal form of Gros Ventre decorative art other than embroidery is painting, mainly on skin and rawhide. As to the symbolism of this painting, as little was learned as of the symbolism of embroidered designs. The style of decoration itself, however, offers some points of interest when compared with the forms of decoration typical of other Plains tribes.

Outside of robe-painting, tent-painting, and semi-realistic painting of a more directly symbolic or religious nature, the principal form of this branch of Plains decorative art is the painting of parfleches and rawhide bags. In these the decorative field is invariably rectangular, usually nearly square. Within this rectangular field, which may be merely outlined or may be heavily bordered, three principal types of design elements and combinations of elements can be distinguished. These can be called respectively the "triangular," the "square-and-triangular," and the "square."

The triangular type of design is by far the most common, taking the Plains as a whole, and among some tribes is used almost exclusively. The



fundamental element of this form may be taken to be the right-angled triangle with one side considerably longer than the other. Two such triangles placed together give either a long and flat or a narrow and high isosceles triangle. Two such isosceles triangles placed base to base give a rhombus or diamond. From these elements, — the right-angled triangle, the isosceles triangle, and the diamond, — the designs of this first form are built up. Some of the most frequent combinations are shown in Fig. 8 (*a-j*). It is common to find combinations of an isosceles triangle flanked by two right-angled triangles (*e, f*), this pattern being disposed along the inside of the longer edges of the rectangular decorative field; while in the middle there will be either one or two, or sometimes three, figures, each of which is the double of those at the edges, consisting, accordingly, of a diamond flanked by two isosceles triangles (*g, h*). If there are half-patterns on the side, they usually agree with the full patterns in the middle. Sometimes diamonds are lacking, and two isosceles triangles form either a long rhomboid (*d*), or an

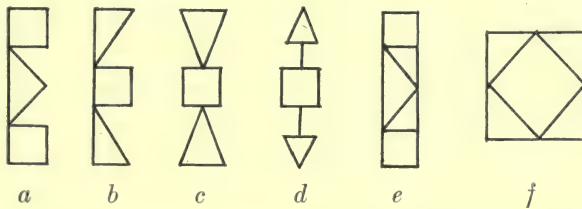


Fig. 9. Square-and-triangular Designs on Parfleches and Bags.

hourglass-shaped figure (*c*), according as their bases or apices are in contact. In the same way, two rectangular triangles are combined along the edges of the decorative field (*a, b*). Diamonds and isosceles triangles are sometimes bisected, and occasionally the two halves are colored differently, thus emphasizing the inherent relation of these figures to right-angled triangles.

There are many subsidiary features of ornamentation accompanying those here outlined, such as borders of different colors, small triangles at the base or at the apex of isosceles triangles, reduced figures within designs, and so on. In essence, however, this first or triangular type of parfleche paintings can be considered as being built up out of right-angled triangles and combinations of right-angled triangles.

The second, or square-and-triangular, type is less common. It uses triangles much as does the first type, except that in part it replaces them by rectangles, usually squares. These squares may be placed along the edges of the decorative field, especially in the corners or in the middle. When in the middle of the field, they are of considerable size, and contain other

figures, especially diamonds. Various characteristic forms of this type are shown in Fig. 9 (*a-f*). It will be seen that full forms, such as a square with two adjacent isosceles triangles directed toward it (*c*), are paralleled by half-forms, such as a rectangle flanked by two right-angled triangles with their apices in contact with it (*b*). A variation of this latter form may be regarded as an inversion, the two right-angled triangles being placed together in the middle to form an isosceles triangle, and this being flanked by two squares (*a*). Not infrequently this form is further developed by being combined into a continuous stripe (*e*); the ends of this stripe being squares, and the middle portion three or more triangles distinguished by color. When full figures consist of a square flanked by two triangles, with their bases instead of their apices directed toward it, these triangles are separated from the square, but the decorative unity of the pattern is retained by means of connecting lines (*d*). No perfect illustrations of this square-and-triangular type have been published in the "Bulletin of the American Museum of

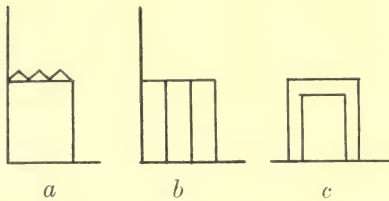


Fig. 10. Square Designs on Parfleches and Bags.

Natural History," either from among Arapaho or Sioux specimens, but an approximation is shown there in Plate XVIII, Fig. 2, of Vol. XVIII. Plate XIX, Fig. 3, of the same volume, while containing scarcely any square elements, also bears some general resemblance to designs of this type. Nearly all the illustrations

of rawhide painting in that volume belong to the first type, the few exceptions belonging to the third.

The third, or square, type of parfleche ornamentation either lacks triangular design elements altogether, or employs them as subsidiary to, or at least distinct from, the square design elements. Most frequently this type of design shows squares in the corners. It is frequently elaborated by rows of small triangles within, or adjacent to, the squares. Elementary forms are indicated in Fig. 10 (*a-c*). This is not a common type of design among any tribe, but appears to be found to some extent among all, or nearly all, Plains tribes. Two instances of its most developed form are shown in the "Bulletin of the American Museum of Natural History," in Vol. XVIII, Plate XVIII, Fig. 5, and Plate XIX, Fig. 5; while less distinctive forms are given in Fig. 34 of the same volume. Among the Arapaho there is some tendency to interpret this type of design as the bear-foot, especially when combined with rows of pointed triangles. A similar interpretation has been obtained among the Bannock. There are, of course, easy and natural

transitions from this square type of design to the preceding, or square-and-triangular type. But there seems to be an essential difference between the two types in general character and decorative purpose; and this is made the more probable by the fact that the entirely square type is less frequent among the tribes that have developed patterns of the second, or square-and-triangular, type, than among the tribes that lack this second type. The difference between the two types is not so much in their individual design elements as in the disposition of these in the decorative field.

The tribal distribution of these three types is as follows. The first, or triangular, type is found among all tribes from which material is available. It is used, nearly to the exclusion of other types, by the Arapaho, the Sioux, and probably the Cheyenne and the Kootenay; and it predominates among all other tribes except the Shoshone. The second, or square-and-triangular, type reaches its greatest known development among the Shoshone. It is more or less employed by the Ute, and to some extent by the Blackfeet and Sahaptin. It will be seen that the Gros Ventre also employ this form. The third, or entirely square, type appears to occur somewhat sporadically among almost all tribes.

The rawhide painting of the Arapaho, besides employing design elements of the triangular type almost exclusively, is characterized by a certain lightness and openness of patterns, due to the comparatively large amount of background left white and unpainted. The patterns of right-angled and isosceles triangles and diamonds are usually narrow and long. The patterns in the middle of the field are sometimes separated from one another and from those along the edges by stripes; and in other cases full designs in the middle are split into two half-designs by such stripes. The general pattern arrangement is thus approximately one of stripes or longitudinal figures, usually from three to five in number, and consisting in element of right-angled triangles. The half-designs at the edge of the decorative field are usually directly or inversely symmetrical with those in the middle. Characteristic subsidiary features are rows of black dots, especially within white stripes, rows of small triangles at the bases of acute triangles, small black inverted single triangles at the apices of obtuse isosceles triangles, and small figures enclosed in larger design elements. These enclosed figures are usually triangles and pentagons respectively in acute and obtuse isosceles triangles. The outlines of Arapaho parfleche paintings are generally made in narrow lines of a faint black or brown. There is often some difference in pattern between stitched rawhide bags and folded parfleches; the former showing a greater tendency toward a heavy border or frame, consisting usually of a double stripe filled in with alternating triangles of two colors. The backs of bags, and occasionally of parfleches, may be striped across.

Sioux ornamentation of rawhide is more difficult to characterize than Arapaho, although the Museum contains a good representation of specimens, a number of which have been figured.<sup>1</sup> The design elements of the Sioux are as preponderatingly of the first, or triangular, type as among the Arapaho. Their disposition and their relation to the decorative field are, however, less open, and it is not uncommon to find Sioux bags which are covered so completely with painting that no white background remains within the decorative field, or only so little that it becomes equivalent in function to one of the colors used. Many Sioux parfleches are heavily bordered, the wide outside design frame being as common on them as it is rare in Arapaho parfleches. Not infrequently the decorative field is divided longitudinally by a heavy stripe similar to those which frame the field. A subsidiary feature that is characteristic is the occurrence of large diamonds containing one or two longitudinal bars. Most of the typical subsidiary features of the Arapaho are either wanting or are much less common. The Arapaho parfleche design shown in the "Bulletin of the American Museum of Natural History" (Vol. XVIII, Plate xx, Fig. 5) is typically Sioux. The one in Fig. 3 of the same plate has Sioux reminiscences. On the whole, the differences between the styles of the two tribes are not very great.

There is too little Cheyenne parfleche material available to allow a characterization; but it appears in general that the painting is similar to that of the Arapaho and Sioux, as is to be expected.

With the Shoshone<sup>2</sup> a new style of rawhide painting is encountered, characterized by a predominance of designs of the second, or square-and-triangular type. There are many triangular designs and design combinations, but the square-and-triangular type is so strongly impressed on Shoshone art that there are very few parfleches that do not show at least some rectangular forms. Very common is a broad stripe consisting of triangles in its middle portion and ending off in squares (Fig. 9, *e*). These squares fill the corners of the decorative field. Such border-stripes may be found occurring transversely as well as longitudinally, in which case, by forming a heavy frame, they leave a rectangular area considerably smaller than the decorative field. This area, in turn, contains designs — usually a diamond or two half-diamonds, that is to say, isosceles triangles — set point to point into an hourglass figure. In other cases the central rectangular area is more prominently developed than the border-stripes. It is in such cases that types result resembling the sporadic Arapaho forms mentioned.<sup>3</sup> Al-

<sup>1</sup> See Bulletin of the American Museum of Natural History, Vol. XVIII, Part III, Figs. 75, 82, 87-94.

<sup>2</sup> The Shoshone parfleches in the Museum are from Wind River and Fort Hall Reservations.

<sup>3</sup> See Bulletin of the American Museum of Natural History, Vol. XVIII, Part I, Plate xviii, Fig. 2.

gether it may be said that there is scarcely a Shoshone parfleche which does not contain either the central rectangle, squares in the corners of the decorative field in combination with triangles, or the heavy square-containing border-stripe. The open border-figures of the Arapaho, consisting of an obtuse isosceles triangle with or without flanking right-angled triangles, are scarcely ever found. The Shoshone show a fondness, as compared with the Arapaho, for heavy black or dark-blue outlines for their figures. They lack the Arapaho rows of black dots and small black apex triangles, but show the row of small acute triangles in several instances.

Ute<sup>1</sup> parfleche painting shows some approximation to that of the Shoshone in using the square-and-triangular patterns, but also has distinct resemblances to Arapaho. It is more open than Shoshone painting, and shows some tendency towards the Arapaho longitudinal arrangement. The square-and-triangular type of design is also much less common than among the Shoshone. Ute painting differs even more than does Arapaho from both Sioux and Shoshone in lacking the heavy frame to the decorative field found among these two tribes. In fact there are a number of Ute parfleches in the Museum that show a total absence of any framing: even the half-designs along the border, which among the Arapaho duplicate the full designs in the middle, are omitted. This is practically never done by the Arapaho. It may be estimated that a third of all Ute parfleches lack a border of any kind entirely, and that in another third only the two longitudinal sides of the decorative field are partially edged by isolated figures. A special form of Ute design, which needs no comment other than that it is quite evidently a form of the square-and-triangular type, is shown in Fig. 3 of Plate x. Although an isolated occurrence, it is not uncharacteristic, as is shown by certain approximations in parfleches and by similar forms in medicine-cases (Fig. 13). In its subsidiary features, Ute parfleche-painting resembles Arapaho rather surprisingly; the small apex triangle, the row of small basal triangles, and the small triangle, rectangle, or pentagon enclosed in a larger triangle, all being found.

Half a dozen parfleches and several bags obtained among the Bannock of Fort Hall Reservation give some idea of the position of this tribe in relation to the others. The second, or square-and-triangular, type of design elements is found, but is not so prominent as among the Shoshone. There is a well-marked tendency toward large diamonds occupying the greater part of the central area, or at least the entire length, of the decorative field. As among the Shoshone, the decorative area is well filled with designs; but it cannot be said to be crowded, because the figures are generally large and

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<sup>1</sup> Uintah and Uncompahgre Reservations.

simple. While there is considerable general resemblance to Shoshone designs, elements of the specifically triangular type much outweigh those of the square-and-triangular type.

The Blackfoot style of painting is rather distinctive. The elements are very predominately of the purely triangular type; but the decorative field as a whole is quite different from that of the Arapaho and Sioux. It is more open than the latter, and lacks the general longitudinal disposition of figures of the former. There is very frequently a light border containing triangles or diagonal bars; or the design as a whole may be regarded as consisting of a design (of acute isosceles triangles and diamonds) within a central square area around which is placed a light border containing triangles. When this frame and defined central square area are absent, there are usually no bordering figures such as characterize the Arapaho style. It is not uncommon for a figure or two figures to stand free, as it were, in the decorative field. In this respect there is a leaning toward the Ute style. The resemblances that there are to Shoshone are not so much in the occurrence of the square-and-triangular designs, for these are not numerous, as in the tendency to group smaller designs within a central square. Most of the figures employed by the Blackfeet are small relatively to the decorative field, thus differing from those of the Shoshone, Ute, and Bannock. The subsidiary decorative features characteristic of the Arapaho are wanting, except for occasional rows of small triangles. A considerable proportion of specimens, approximately one-half, show V-shaped designs on the side of the parfleche. This characteristic is also found among the Kootenay and Sahaptin, but (with the exception of sporadic cases from the Assiniboine, Sioux, Gros Ventre, and Ute) is not known to occur among other tribes. This painting on the sides of parfleches must therefore be considered distinctively western, and as more characteristic of the Pacific than of the Atlantic drainage in the Plains culture.

Two Blackfoot bags collected by Dr. Clark Wissler are shown in Plate x, Figs. 5 and 6. These are perhaps extreme cases of the typical Blackfoot tendency toward an open frame and a large central square area.

Half a dozen Kootenay parfleches and painted bags collected by the author in 1900 in northern Idaho are very uniform in style of ornamentation. They show no trace of the typical Shoshone square-and-triangular type of design, but use triangular elements exclusively. A simple but typical design is shown in Plate x, Fig. 4. It will be seen that in the general pattern there is nothing that might not well be Arapaho. Two other specimens show fundamentally the same pattern. Two others are longitudinally bisected by a wide stripe, the two resulting rectangles being internally bordered along their long sides with isosceles or right-angled triangles. Another

specimen has two hourglass-shaped figures stretched longitudinally across the field; between these is a diamond, and on each side there are two isosceles triangles. The figures in all the specimens show the convex roundness visible in the one chosen for illustration, so that actually triangles often approach more nearly to being segments of circles than polygons.

A special subsidiary characteristic of Kootenay painting is the development of rows of small black triangles set upon the outer edges of the main figures. These were said by the Kootenay to represent the trees which, in their heavily timbered and hilly country, everywhere form the limit of vision. As just mentioned, the Kootenay also frequently use side designs on their *parfleches*.

A valuable collection of *parfleches* and some bags was made for the Museum by Dr. L. Farrand among the Sahaptin. Considering that the habitat of these people is in Oregon, the general similarity of their art, as of most sides of their material culture, to that of the Plains Indians of for instance Dakota and Kansas, is very remarkable. In their rawhide painting the Sahaptin show a somewhat greater tendency to use designs of the square-and-triangular type than do the Kootenay, although such designs are neither very frequent nor very prominent among them. It is probable that the occurrence of this type of design among the Sahaptin is due to direct contact with Shoshoneans, principally of Idaho. It is interesting to observe that the wide border-stripe consisting of triangles with squares at the ends, which is so typical of the Shoshone, is found among the Sahaptin as frequently in the form of a transverse end-stripe as it is as a longitudinal border. Central squares of no great size occur several times in combination with adjacent acute isosceles triangles. Wide stripes, sometimes longitudinal and sometimes transverse, are not uncommon. When longitudinal, they occur also in the middle of the decorative field. In this case the two resulting halves of the decorative area are usually occupied mainly by diamonds or hourglass figures. There is very little tendency toward a distinct enclosing frame, as among the Sioux and Blackfeet. There are also very few cases of a repetition, along the longitudinal borders, of the designs in the middle, such as is so characteristic of the Arapaho; but there are cases even of this. Altogether there is hardly any characteristic tribal type which has not some representation among the Sahaptin. The figures are generally large. They are, however, so placed that the white background is comparatively prominent; and the close effect found, for instance, in most Bannock *parfleches*, where large design elements are also favorites, is wanting. The outlines of the figures are usually marked quite heavily in black or dark blue, much as among the Shoshone and Bannock. About half the *parfleches* have paintings on the side, similar to those of the Blackfeet and

Kootenay. The typical form of these side-paintings seems to be a row of angles or V's with the apices directed upward; that is to say, more or less inward as the flattened parfleche is viewed from above. Usually each angle or V contains one or two smaller parallel ones. In a few cases among the Sahaptin, the V-shaped angles are replaced by square U-shaped figures or by diagonal stripes.

The characteristics of Gros Ventre rawhide painting, in spite of some fifteen pieces in the Museum, are difficult to define. There is certainly very little stylistic tendency peculiar to the tribe. A considerable proportion both of parfleches and bags resembles typical Arapaho ones, though on the whole with the difference that there is a less marked longitudinal arrangement of figures, and not quite so much openness of the decorative field. On the other hand, there is visible some tendency toward the use of the Shoshone square-and-triangular type of design, though with an inclination rather toward a central square with acute triangles directed toward it, such as is found among the Ute and Blackfeet, than toward the heavy diamond-filled central square and the square-and-triangular stripe of the Shoshone.

Of specimens which have more or less close Arapaho analogues, there may be mentioned Fig. 5 of Plate XI<sup>1</sup> and specimens Museum Nos. 50-1734,<sup>2</sup> 50-1929 and 50-1776,<sup>3</sup> and 50-1830.<sup>4</sup> A specimen (Museum No. 50-4327) collected by Dr. Clark Wissler may be described as approximately the equivalent of double that part of an Arapaho design which appears on the front of the bag.<sup>5</sup>

Several forms that are quite distinct from anything found among the Arapaho are illustrated in Plate XI. The design shown in Fig. 1 consists in essence of four squares, each containing two inturned obtuse triangles, and is without close parallel among any of the tribes from which there is material. Fig. 2 suggests the entirely-painted-over Sioux decorative field divided longitudinally by a wide stripe which is flanked by two long diamonds. It will be seen, however, that transverse divisions give a marked square effect to this pattern as a whole. Fig. 3 is a parfleche collected by Dr. Clark Wissler. It is in typical Shoshone style, showing the square-ended wide stripes and the general square effect of the central portion of the decorative field. Fig. 4 was also collected by Dr. Wissler, and is in many respects unique. Figs. 5 and 6 are two designs of the square-and-triangular type, but rather of the form used by the Ute than that typical of

<sup>1</sup> Compare Bulletin American Museum of Natural History, Vol. XVIII, Part I, Plate xxii, Fig. 2.

<sup>2</sup> *Ibid.*, Vol. XVIII, Part I, Plate xx, Fig. 5.

<sup>3</sup> *Ibid.*, Vol. XVIII, Part I, Plate xviii, Figs. 3 and 4.

<sup>4</sup> *Ibid.*, Vol. XVIII, Part I, Fig. 36.

<sup>5</sup> *Ibid.*, Vol. XVIII, Part I, Fig. 33.



the Shoshone. Specimen Museum No. 50-1741 (not shown in the plate) is similar to Fig. 6, but contains two central figures instead of one, and lacks the symmetrical half-designs along the edges.

A curious design on a bag is shown in Fig. 11. This, while much specialized, seems to show Blackfoot influence.

While these Gros Ventre pieces show resemblances here and there to the work of a number of tribes, yet they seem distinctly impressed with the tendencies of none. Perhaps fundamentally Gros Ventre rawhide painting is most similar to that of the Arapaho; but there are many departures from the Arapaho type, without corresponding development of any characteristically tribal style. There are some approaches to the art of both the Sioux and the Blackfeet, the two principal large tribes to the east and west; but these resemblances are not very marked. It is not unlikely that there may have been closer correspondences with the Crow. While the Blackfeet, according to Dr. Clark Wissler,<sup>1</sup> called their regular parfleche paintings "Gros Ventre painting," it is quite evident that the influence suggested by this name has actually had very little to do with the origin and development of the present style of Blackfoot painting. Not only do the Blackfeet appear to be in possession of a more distinctive style of rawhide painting than the Gros Ventre, but it is generally evident that any inter-influence of the two tribes on each other in respect to rawhide ornamentation has been inconsiderable.

The cylindrical rawhide cases used by most Plains tribes, generally for holding medicine, are painted, on the whole, in styles resembling those of parfleches; but as the shape of the object and the portion of the decorative field visible at one time are quite different from those of parfleches, there are certain differences of design. At least four types of designs can be made out on medicine-cases; and, as more material becomes available for study, the tribal distribution of these, and especially the transition forms between the pure types, promise to be interesting.

These four types, which have already been partly described in connection with the Arapaho,<sup>2</sup> are shown in Fig. 12 (*a-d*), and may be characterized as

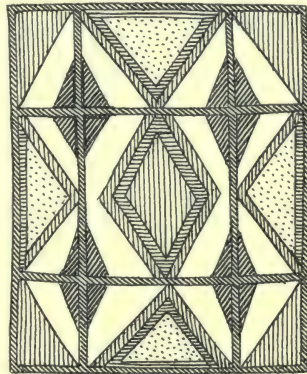


Fig. 11 (50-1805). Design on Bag. Length, 29 cm.

<sup>1</sup> Clark Wissler, *Bulletin of the American Museum of Natural History*, Vol. XVIII, Part III, p. 276.

<sup>2</sup> See *Bulletin of the American Museum of Natural History*, Vol. XVIII, Part I, p. 132.

follows. The first type (*a*) consists of a pattern of inverted tents.<sup>1</sup> The second type (*b*) consists of a pattern of stemmed crescents and forked upright fishtail figures.<sup>2</sup> The third type (*c*) has for its principal or central design a single figure, one of the characteristic elements of the pure triangular type

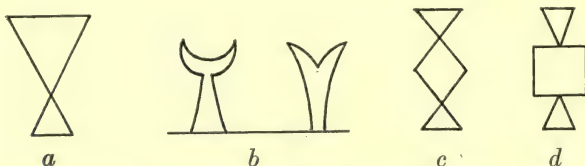


Fig. 12. Designs on Cylindrical Medicine-cases.

of parfleche designs,— a rhombus between two triangles directed toward it. As in parfleches, this figure may be flanked by symmetrical half-figures.<sup>3</sup> The fourth type (*d*) is similar, but substitutes in its principal figure the square-and-triangular type for the purely triangular one. The two Ute medicine-cases shown in Fig. 13 are illustrations.

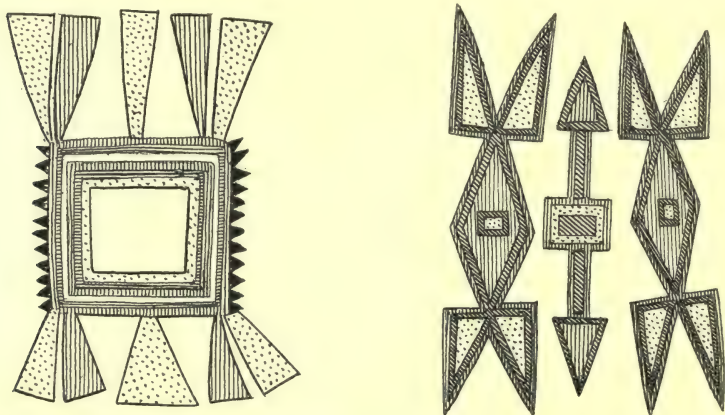


Fig. 13 (50-1255, 50-1276). Ute Medicine-case Designs. Lengths, 40 cm., 71 cm.

Among the Arapaho the tent-pattern seems most common, and next to this the crescent-and-fishtail design. One case of the third type has been found, and none of the fourth. The interesting specimen painted with bear-feet, in the Field Columbian Museum, may also be recalled.

Of Sioux medicine-cases little is known. A specimen in the Museum

<sup>1</sup> See Bulletin of the American Museum of Natural History, Vol. XVIII, Part I, Plate xxv, Fig. 1.

<sup>2</sup> Ibid., Vol. XVIII, Part I, Plate xxv, Figs. 2 and 3.

<sup>3</sup> Ibid., Vol. XVIII, Part I, Fig. 43.

has a design the most prominent figure in which is the spider-web symbol,<sup>1</sup> a concave quadrilateral. Superficially this design resembles those of the fourth type. A specimen in the Museum of the Department of Anthropology of the University of California shows an asymmetrical design, which in some respects approaches each of the four fundamental types here distinguished.

The Ute, to judge from four or five examples in the American Museum of Natural History, employ chiefly the third and fourth types; but their designs of the third or triangular type are almost always tinged with elements of the fourth, or square-and-triangular type.

The Shoshone cases, also represented by several examples, show some variation of pattern; but all are of the triangular type, and generally approach the design illustrated as most elemental. While in parfleches the Shoshone incline more than the Ute to square-and-triangular patterns, they appear to favor them less than the Ute on medicine-cases.

The Blackfoot tribes, also represented in the Museum by several specimens, show the third type, with but little variation from the illustration, quite regularly.

A single Sahaptin case in the Museum is also of this third type.

The only Gros Ventre case obtained is shown in Fig. 27, and the design is of the third type.

A Kiowa case in the Field Columbian Museum, the only specimen from this tribe known to the writer, and previously commented upon,<sup>2</sup> is intermediate between the first and second types.

The Arapaho being the southernmost of the tribes represented, it seems, especially in connection with this Kiowa case, that the first two types of medicine-case designs, the tent and the crescent-and-fishtail patterns, are probably characteristic of the southern Plains. Among the northern, or at least the northwestern, tribes belonging to the Plains culture, designs of the third and fourth types, more closely related to parfleche figures than are the first and second, are clearly prevalent. These are normally of the third or purely triangular form; but among the Ute a special form of the square-and-triangular type of design, found also on the parfleches of this tribe, has strongly influenced the medicine-case designs. Among the Shoshone the fundamentally square-and-triangular tendency of their parfleche-painting is without appreciable effect on their medicine-case style. The position of the Sioux in this classification, although geographically they belong to the northern tribes, remains to be more exactly determined.

<sup>1</sup> Compare Bulletin of the American Museum of Natural History, Vol. XVIII, Part III, p. 248.

<sup>2</sup> *Ibid.*, Vol. XVIII, Part I, p. 134.

## SOCIAL CUSTOMS.

The Gros Ventre system of terms of relationship has been given in a former publication.<sup>1</sup>

Cousins, so far as the relationship was known, were called brothers and sisters, and they called each other's children son or daughter if the cousin was of the same sex as the speaker, or nephew or niece if the cousin was of the opposite sex. Any known relationship was a bar to marriage. The brother of a dead man sometimes married his widow, but this was not always the case.

Large amounts of property, especially horses, were given away for wives for the honor of the act, but there was no rule or definite custom covering the quantity of property so given. The horses might be given not only to the father, but to the brothers, uncles, and other relatives of the girl. Sometimes, without having received any gifts and apparently without any previous understanding, a man would give his daughter to a young man, who thereupon would give him horses, or distribute them among his wife's other relatives. Old men practised this custom in order to obtain the aid and services of a young man in caring for their horses and in other ways, and no doubt sometimes also to insure a more certain food-supply. A young man on marrying received a tent with all the proper furniture, usually from his prospective parents-in-law, but sometimes from his own parents, if they were the wealthier.

Although a young married man often lived with his father-in-law, the well-known taboo custom between mother-in-law and son-in-law—which forbade their speaking, looking at each other, or being in the same tent—existed among the Gros Ventre. There was, however, no father-in-law taboo. The mother-in-law taboo extended to the son-in-law's brother.

If a woman did not wish a man for her lover, she might send him to do a certain act of bravery. If he returned successfully from war, having accomplished the deed, he was then accepted. This custom is said to have led to the death of many young men.

At a person's death his property was inherited generally by his relatives. His father and mother, brothers, sisters, and children would receive part. His father and mother received the most. A man often disposed of his property before his death. If he died suddenly, as on being killed in war, his parents divided his property. It was not customary for a man on going to war to divide his property among his relatives in the contingency of his death. Property particularly valued by the dead person was buried with him.

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<sup>1</sup> Bulletin of the American Museum of Natural History, Vol. XVIII, Part I, pp. 9, 150.

A wife inherited practically nothing from her husband. If she had been faithful to him and had been of a good disposition, her parents-in-law might give her a certain number of horses or other property. The tent was considered the woman's possession while she lived with her husband; but on his death, even this was no longer her property. If the tent was worth keeping at all, it generally went to the dead man's sister, if she was newly married. A man, on the contrary, inherited his wife's property, though he generally gave back part of it to her relatives.

A woman, on her husband's death, went back to live with her parents, or, if these were dead, with her brother, uncle, or other relative. An old woman, on the death of her husband, generally went to live with her children, most frequently with a daughter.

On the death of a brother, especially a beloved one, or of his father or his son, a man cut his hair and went out naked (with only a buffalo robe) on the prairie to cry from morning until late at night. Women, besides cutting their hair, and cutting themselves (especially on the leg) until they bled, would also go out to cry, naked from the waist up. A sister cut herself for a brother, but a mother mourning for a child underwent the most pain. Of course the mourning was greatest for an only child. In such a case, parents might give away everything in their tent and nearly all their horses, stripping themselves of property so thoroughly as almost to go naked. Some mourners fasted for a number of days. If, while a person was crying on the prairie, one should in joke attempt to scare him, he might kill the disturber. Mourners were the bravest people in war, caring about no danger whatever.

Burial was in trees, on high rocks, or in caves inaccessible to wolves and coyotes. The corpse was wrapped in a burial robe.

A menstruating woman was called *niniitixtj*. It is said that she did not retire to a separate lodge, or eat separately from her family; but she did not approach a sick patient, because of the evil effect she would have on his condition by her presence. Some women were said to wear a breechcloth during their menstruation.

In childbirth, women either lay or knelt. They grasped a stick supported in a horizontal position by two upright forked sticks set in the ground. After the umbilical cord had been severed, the end was left on the child. It was thought to fall off on the fourth day. The woman who had cut the umbilical cord received as a gift the knife she had used. A woman who washed a new-born child was given the vessel in which it was washed. The afterbirth was hung in a tree. If it were left lying to be handled, the child would be afflicted with sores. For three or four days after birth, the child was given suck by other women than its mother. This statement apparently refers chiefly to a woman's first child.

Names were given to children very soon after birth. Names were frequently changed and given away. A man would receive his father's name from the latter, or would take it after his death. If a child were sickly, a relative, such as a grandfather, sometimes gave him another name. A sick person sometimes also took a new name in order to recover. Renowned warriors sometimes gave away their names to young men. They might retain the same name for themselves, or take a new one. One very aged man gave away his name to a young man, telling him, "I give you my name in order that you may have as long a life as I." This was done without the occasion or accompaniment of a ceremony.

There seems to have been no prohibition against mentioning the name of the dead, nor even any reluctance on the matter. Some people, however, were ashamed to speak their own names.

Twins, called *ničan*, were named, if boys, respectively *Kaaen* and *Niiça*<sup>n</sup>. The latter name, however, was not always used, an ordinary name being given instead. Girl twins were not called by these names.

The hair was formerly worn in braids, as at present customary among the Plains tribes, but also erect over the forehead. The women wore their hair either in braids or sometimes loose. In mourning, the hair, especially of the women, was cut about halfway across the cheek.

Ear-piercing, which among the Arapaho is performed on ceremonial occasions, and is itself accompanied with ceremony and giving of presents, was said among the Gros Ventre to be unaccompanied by special ceremonial actions. A woman or any one else does the piercing.

Boys who were herding horses sometimes took off their clothes and daubed themselves with mud until they were unrecognizable. They painted their horses, and made shields of willow. Then they came to the camp, mounted or on foot, to steal meat. Approaching the camp like a war-party, they would select the best meat hanging outdoors, charge on it, take it, and run. The old men and women and children chased them with clubs, but of course without success. The boys would go back to where they were herding, and have a feast.

The Gros Ventre say that both hand-shaking and kissing are aboriginal with them.

#### GAMES.

A common cup-and-ball game called *tsöötskuutja*<sup>n</sup> ("throw in") consisted of four hollow deer or antelope leg bones, each about two inches long, attached to a string passing through them, at the end of which there was a needle eight or ten inches long. This game appears to be identical with

the Arapaho type shown in the "Bulletin of the American Museum of Natural History" (Vol. XVIII, p. 397, Fig. 154). In place of the needle, grease-wood or bone was formerly used. The bones usually had small holes bored through their sides, but these, if caught on the needle, scored only one point. The bones were usually swung with the needle pointing away from the body, in such a manner, that, when they were horizontal, a sudden motion backward of the needle drew them over its point. An expert player usually caught all, or at least several, of the bones at each throw. There were usually small loops of beads at the end of the string. Each of these, when caught on the needle, scored as much as had been agreed upon. The four bones also counted variously. In one set they are marked respectively 2, 3, 4, and 5 in parallel notches; but the owner of the game was in the habit of counting them as 6, 7, 8, and 9, the one with the highest value being farthest from the needle. It seems that other values — such as 10, 20, 30, and 40 — were sometimes given the four bones, if the players wished to play rapidly. It is said by some that, whereas a single bone or loop when caught counted as many points as had been agreed upon, if two or three bones or loops were caught, they counted only two or three points instead of the sum of the scores that each was worth individually. A considerable number of sticks were used for counters, a hundred or more according as there were two or more players. As is customary in Indian games, the counters were not divided between the players to begin with, but were in a neutral pile, from which the players took as many as their score entitled them to, until the heap was divided between them. Only after this did they begin to win from each other. Usually a man swung until he had missed three times, when his opponent was handed the game. When there were four players, they formed two sides. It is said that when the original heap of counters is exhausted, the player who is then throwing must hand over the bones to his opponent, even without having missed. The game's stakes, of course, are won when one player or one side has all the counters.

The dice of the Gros Ventre differ from those of the Arapaho. The latter have both small flat dice and long stick dice. The former may have a small form of the game; but long dice are certainly the prevailing type, as all sets seen were of this kind. The Gros Ventre dice are much flatter than the Arapaho stick dice, though of about equal length, and sometimes are made of bone. Thus they form in themselves something of a transition between the two types of Arapaho dice. The Arapaho long dice are essentially split sticks. One side is convex. The flat side may have the pith removed. The Gros Ventre dice are small boards, or similarly proportioned pieces of bone, rounded or pointed at the ends, and ornamented on one side with carving. The Arapaho use two sets of four sticks; the Gros Ventre,

four in all, in two pairs. The Gros Ventre dice are marked with incised lines on one side only. The Arapaho burn marks on the back or convex side in order to distinguish the two sets of dice they use together. The usual Gros Ventre markings consist of diagonal crosses and zigzag lines. A single die is usually specially marked in the middle. By this means the scoring or the playing is elaborated. The number of counters among the Gros Ventre is twelve. Sticks are used for this purpose. The methods



Fig. 14 (50-1768 a, b). Dice. Length, 24 cm.

of counting points are given somewhat differently by various individuals. For this reason the explanations obtained with each set of dice are here presented.

The set of dice one of each of whose pairs is shown in Fig. 14 has one die marked with a bit of string. There are twelve counters. The three unmarked sticks were thrown first. If they fell alike, the other one was thrown separately; but, if one of the first three fell differently from the other two, the marked stick was thrown at it in the hope of turning it over, so that all four sticks might rest alike. If this were the case, whether they were all face up or face down, four points were scored. If two were face up and two face down, two points were scored. If three faced one way and a single one was opposite, nothing was scored.



Fig. 15 (50-1812 b, d). Dice. Lengths, 20 cm., 20½ cm.

The set of dice of which the two kinds are shown in Fig. 15 is also accompanied by twelve counters. One of the sticks in this set is also marked by being tied around. This set was used somewhat differently, the four sticks being thrown together. If the marked stick fell one way, and the remainder opposite, six points were scored. If all four sticks fell alike, four were scored. If two sticks fell face up and two face down, two were scored; but three sticks one way and one the other, unless this single one happened to be the marked one, counted nothing.



The four dice shown in Fig. 16 are white on the face and green on the back. One of the plainer pair of sticks is marked on the face with a cross. If this stick fell up while the other three turned face down, six points were counted. If all the dice fell one way, the score was four points; if they fell in pairs, — two green and two banded, or two plain and two green, — two points were scored; while any other combination did not count. A player

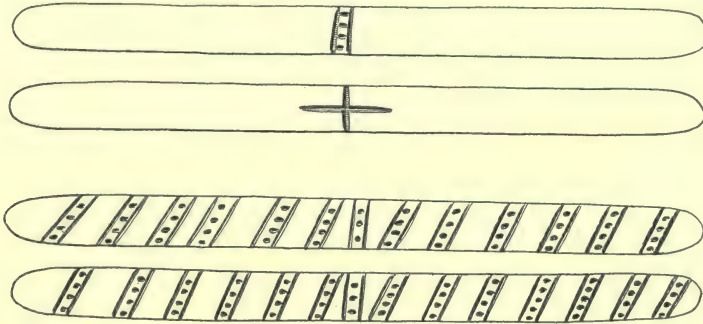


Fig. 16 (50-1869 a, b, c, d). Set of Dice. Length, 23 cm.

that scored was entitled to another throw, but should he fail, his opponent took the dice.

Fig. 17 shows a model of a fourth set of dice, made of bone instead of wood, painted red, and accompanied by twelve counters of grease-wood, pointed at one end to be stuck in the ground. The two pairs of dice are marked respectively with transverse and zigzag incised lines. One of the latter is cut with three parallel lines on the back also. The owner of this

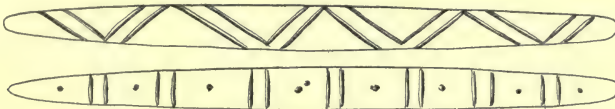


Fig. 17 (50-1909 a, d). Dice. Length, 21 cm.

set scored as follows. Six points were won, if all the dice fell plain side up; and six, if the odd one fell plain side up and the three others marked side up. For all four marked sides up, four points were made; for one pair marked, the other plain, two points; for other combinations there was no score.

A fifth set, Fig. 18, obtained by Dr. Clark Wissler, is of bone. The ornamentation is by small pits. One of the dice with the long single row of dots is marked on the middle of the back with several small holes to set it off from the rest.

A form of the widely spread guessing-game occurred among the Gros Ventre. Two buttons, which were enclosed in the hand, were used. At the beginning each player held one button. One of them guessed in which hand the other held the button. If he guessed wrong, his opponent got four counters; but if he guessed right, his opponent must yield the button

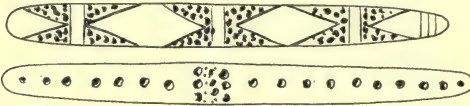


Fig. 18 (50-4325, 50-4325 a). Dice. Lengths, 15 cm., 16 cm.

to him. When he held two, his opponent guessed in which hand each of them was. If his opponent guessed wrong, the player received two counters; but if his opponent was right, the player must hand over both buttons, and himself guess. The game was played for twelve stick counters. These at the beginning were in a pile belonging to neither of the players. This neutral pile was drawn upon until exhausted, before either player gave counters to the other. This method of using counters was customary in Arapaho and Gros Ventre games.

The buttons used in this game are different from those the Arapaho have had in recent years. They lack symbolism altogether, and are even without the red-black color-dualism obvious in the Arapaho game. The elaborate counters, food-sticks, pointers, and head-dresses of the Arapaho are also not found among the Gros Ventre. Of one pair of buttons, one was of brass beads, the other of green glass beads. They were called respectively "long" and "short." Another pair, made of bone, are illustrated in Fig. 19. A single button made of bone, apparently from a toothbrush-handle, is shown in Fig. 20.

Boys shot arrows or threw sticks at a netted hoop, apparently identical with the Arapaho hoop except for nomenclature. The central mesh, called the "crow" or "crow's heart," won the game for whoever hit it. If the "crow's heart" was not pierced, a point was scored by the arrow nearest to it. An arrow passing through the netting without being held in it counted nothing. If one of the hoops rolled within reach, a player was at liberty to

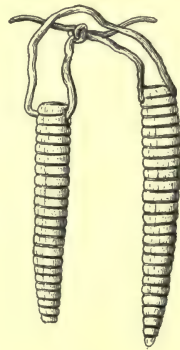


Fig. 19.

Fig. 19 (50-1931 a, b). Hiding-buttons. Length, 7 cm.

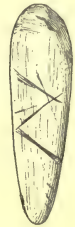


Fig. 20.

Fig. 20 (50-1917). Hiding-button. Length, 6 cm.

spear and catch it on his stick, or, if it was flying through the air, he was allowed to do the same. On winning, he put the wheel on top of his head, keeping it there as long as he could. When it fell down, the others all threw their wheels at him while he cowered under his robe. The wheel was usually thrown overhand, as were the sticks.

Another game was played with bow and arrows. The bow was rested in a diagonal position or held in the hand, while an arrow was several times tapped against the string and then suddenly released so that it was thrown several feet. Another player then followed, trying to cause his arrow to be thrown so as to rest on the first. If none of the players succeeded in hitting the others' arrows, all the arrows used were put aside in a pile as stakes, and the game recommenced.

Still another game played by boys consisted of five sticks or arrows. The smallest, a white stick, was thrown ahead, and the longer sticks were thrown after it. The stick that came nearest the short piece won as many points as agreed upon, but a stick resting on the short piece won the game. This game, like others of boys, was played for arrows.

Another game played by boys was to throw sticks at a forked stick stood up in the ground. A player whose stick rested in the fork won the other sticks played with. If all the players missed, they laid their sticks into the fork as stakes. They continued to do this after each throw, until a player, by dropping his stick into the fork, won all those that were there. The sticks were thrown from a mark in the ground made at a certain distance from the fork.

Boys played still another game by throwing sticks so as to strike the ground, bounce, and slide; the one throwing farthest winning the sticks of the others. These sticks were held at the very end, and thrown underhand. Like all sticks or arrows used in games, they were called "kanii." Sometimes longer darts were used, which were slid over the instep of the foot.

Boys also played by setting up three sticks or arrows in a row, and shooting at them. The one whose arrow rested nearest the middle upright stick won. In case of doubt, a small stick was used to measure the distance. This game seems to have been played indoors. Outdoors the shooting would be from a greater distance. Whoever came nearest to the mark then threw up and shot at a bunch of grass, *exts'ta*<sup>n</sup>. If he hit the bunch while



Fig. 21 (50-1859).  
Grass Target. Length,  
23 cm.

it was in the air, he won. This game was played customarily for arrows as stakes. Such a bunch of grass which was shot at is shown in Fig. 21. It is curved, and tapers to one end, and it is wound with sinew.

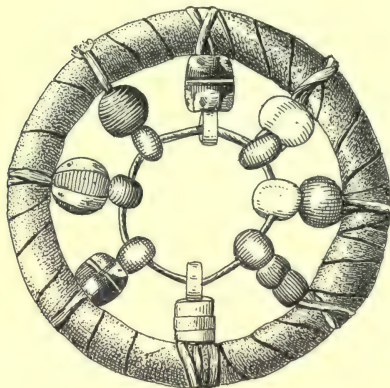


Fig. 22 (50-1954). Gaming-wheel. Diameter, 8 cm.

Adults — instead of throwing sticks, or shooting arrows at a netted hoop — rolled a small hoop in a carefully cleared and smoothed place towards a log or obstruction, while they threw at it with arrows or sticks, trying to have the hoop and the arrow in contact when at rest. The hoops were ornamented with beads or other small objects of different colors or shapes, and certain values in counters were

given to each of these ornaments (Fig. 22). Usually there were two small banks or logs, one at each end of the course, a hoop being rolled alternately back and forth. It is said that, in order to score, it was necessary for some part of the hoop to rest on the point of the arrow, the shaft not counting. If several of the sets of beads on the hoop touched the arrowhead, the score was the sum of the points of the several ornaments.

Shinny was played with bent sticks and a ball by young men against girls. In driving the ball towards the goal, each player tried to keep it to himself as long as he could. The balls were stuffed with deer-hair. The goal at each end of the field was marked by a pair of monuments of stone. It is said that the young women often won from the young men.

Ball was played by women or girls standing in a circle and striking the ball back and forth with the open palm until one missed it, whereupon all rushed for it. Whoever secured the ball started throwing it again. Sometimes it was thrown from one to another around a circle. When one failed to catch it, the others scattered. Picking up the ball, she pursued them with it while they looked for buffalo-chips on which to stand. There they were safe. Some, how-



Fig. 23 (50-1896). Women's Football. Diameter, 14 cm.

ever, could find none to stand on, and this was what gave rise to the excitement and amusement.

Girls sometimes kicked a football upward, as if juggling with it. Such a football was kicked with the instep, either while free or while held by a string. Fig. 23 shows such a football about six inches in diameter. It is said to be made of the skin of an unborn buffalo-calf, and to be stuffed with fur. It is covered with an unknotted network of sinew strands.

The ordinary balls are much smaller than this one, and lack the sinew network. They are made of soft-dressed skin, and painted. In construction and appearance they are not to be distinguished from Arapaho ghost-dance balls, except that none have yet been seen with a plume on the attached thong, as is customary with the Arapaho. One, approaching the last in size, was said to have been struck with a stick, and is therefore probably a shinny-ball. It lacks a thong. The others are smaller, usually with a double thong, and are said to be stuffed with hair.

Specimen Museum No. 50-1729 is the thongless ball mentioned as used with a stick. It is painted red. One side has been lightly gone over with a dark paint,—blue or black. In the middle of the red side is a small dark cross.

Specimen Museum No. 50-1728 is painted yellow. Along the seam where the two hemispheres are joined, it is red. On one side a hand is outlined in green; on the other side, in red. An Arapaho ball described<sup>1</sup> had a smaller hand painted on it, because, it is said, the hand threw the ball.

The ball one side of which is shown in Fig. 24 was said to have been made in connection with the ghost-dance. One side is primarily dark blue or green; the other, yellow. Each side has on it a central spot and a ring of the opposite color. The symbolism of this painting is not quite consistent, but recalls that of the Arapaho. On the dark side three concentric circles were distinguished, representing three successive existences of the world; the fourth was still to come. On the yellow side the central spot represented the entrance to the sky. It thus seems that the two sides of the ball represent heaven and earth, the future life and this.

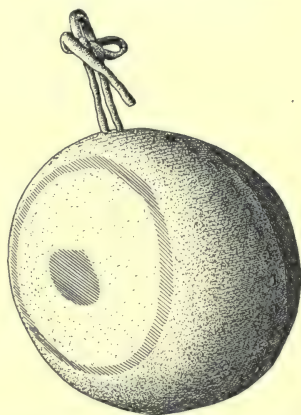


Fig. 24 (50-1981). Ghost-dance Ball. Diameter, 9 cm.

<sup>1</sup> See Bulletin of the American Museum of Natural History, Vol. XVIII, Part IV, Fig. 150.

Fig. 25 shows one side of a small ball painted yellow, on which is a rude embroidery in red, yellow, and green quills, representing a bird. On the opposite side is a red quilled cross. The bird-embroidery recalls the quill-ornamentation of an Arapaho ghost-dance drumstick and hand implement, both of them with stuffed heads of painted skin; also the painting of a crow on an Arapaho ghost-dance ball.<sup>1</sup>

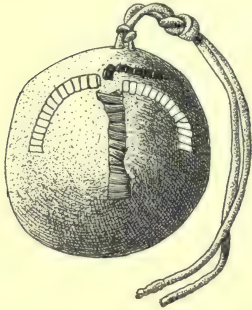


Fig. 25 (50-1731). Embroidered and Painted Ball. Diameter, 7 cm.

A game of throwing willow sticks on the ice, to see who could slide them farthest, was played by women. These sticks were sometimes tipped with buffalo-calves' horns. Young men, as well as women, sometimes threw horn-pointed sticks on the ice. It is said that women

used long sticks, young men short sticks.

Children slid on the ice at a place they had made smooth. A boy and then a girl would slide alternately. When the whole party had slid one way, they would return, sliding in the opposite direction.

A toy made to slide on the ice consists of a bone to which two feathered sticks are attached at a diverging angle. It is called "tataxtsitebya<sup>n</sup>." The object is to bounce or slide the implement over the ice as far as possible. This type of object is found among a number of Plains tribes.

Boys' sleds for coasting on hillsides were made of several buffalo-ribs held together at each end by a long thong winding in and out around the two halves of a split stick. A buffalo-tail was tied behind. These sleds were called "sö<sup>n</sup>w<sup>u</sup>haana<sup>n</sup>." When a man presented such a sled to another man's boy, he received presents from the boy's parents. In early summer, when the grass was green, toboggans of rawhide were used on the hillsides. The front was held up and bent over, and the bottom soon became very smooth.

Slings were used by boys for killing birds and small animals. The entire sling was made of skin. The thongs were passed through holes near the

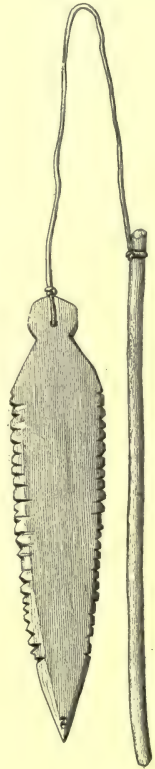


Fig. 26 (50-1788). Bull-roarer. Length, 56 cm.

<sup>1</sup> See Bulletin of the American Museum of Natural History, Vol. XVIII, Part IV, p. 395, Fig. 151.

ends of the main portion of the sling, and then looped on themselves through a slit near one end.

The bull-roarer and buzzer were both well known to the Gros Ventre, but seem to be only children's toys. They were both called *nakaa<sup>n</sup>ta<sup>n</sup>* ("making cold," a name given also to the thermometer), probably from the widespread Indian idea that the bull-roarer breeds wind. The buzzer was made of a foot-bone of a buffalo, with a sinew string on each side, by which it was twirled, and then drawn so as to hum. The Arapaho type of buzzer is the same. The Gros Ventre bull-roarer seems to differ from the Arapaho form. Fig. 26 shows one of two very similar models, both of wood. The small, well-marked head, the long taper and point, and the numerous small notches, mark a distinct form. The sinew string is of about the length of the stick handle.

#### WAR.

Men generally went to war on foot, carrying food and moccasins on their backs. While on the trip they did not boil meat, but roasted it. Scouts, called "wolves," were sent out ahead. When these returned, running in a zigzag course, and shouting, it was a sign that they had seen something. If they had seen lodges, they barked like wolves. While they came, the women in the party stood in a row and sang, having made a pile of buffalo-chips. The "wolves" stopped a short distance away, and the leader of the party went to them. They came with him back to the pile of buffalo-chips, where he stopped, and, facing the party, recounted coups. After this, one of the scouts came before them and reported what he had seen. Upon this, all rushed at the pile of buffalo-chips, and kicked them about. If the enemy were near, they would now take off their heavier clothing, such as their robes, and dress and paint for war.

On returning to their camp victorious, the party approached stealthily, and made a charge upon it, often shooting; and sometimes the people in the tents jumped up out of their sleep in the early morning, thinking they had been attacked. The man who had killed an enemy, the one who had struck him first (whether dead or alive), and the one who had taken his gun, were held in about the same esteem. After the return to camp, a dance was made. Drums were beaten; and the women, who were standing in a curved row, danced in a circle toward the men, who stood in a row, and back again. The women carried the new scalps on sticks. If an enemy were killed near the home camp, his feet and hands might be cut off and carried on sticks, like the scalps. During this dance the man who first

counted coup on the enemy filled a pipe, and held it for the rest of the party to smoke as they stood in a row. The returning war-party, if successful, always painted black, but if a member of their own party had been killed, they returned without rejoicing; unless sometimes, when the loss of the enemy had been greater than their own, and a relative of the dead was in the party, he might say, "One of the enemy pays for my relative. On account of the others, let us enjoy ourselves." Then the party would paint black, and celebrate. Wounds received by members of the war-party would not prevent celebration, unless, of course, they resulted fatally; and they were always regarded as an honor.

Some war-parties started off publicly in broad daylight, having made it known that they were going; and any one who wished joined. Sometimes, perhaps, two men would agree to go, and invited such others to accompany them as they wished. Women not infrequently went with the war-parties. If a man was killed in war, his relatives, especially his parents, mourned for him. His father might go to the tent of a renowned warrior, and cry until this man became angry and announced a day for a party to start out to obtain revenge. On the day set, the party left publicly, usually on horseback.

A man's supernatural war paraphernalia are shown in Figs. 27, 28, and 29. They were obtained from a middle-aged man who had them from his grandfather, who first dreamed of the magpie and the other animals connected with the paraphernalia, and made the objects. A cylindrical rawhide case (Fig. 27), such as is found used for holding feathers and medicine among most Plains tribes, is painted with a yellow, green, and blue design resembling *parfleche* designs. These colors represent the various colors of the birds that were dreamed of by the original owner, and whose feathers are kept in the case. The case is called the "house" of these objects. A wing-bone is attached to the outside of the case to make another whistle from in case of loss of the finished whistle included in the outfit. A small bag containing a necklace is kept in the case. The bag (Fig. 28, *a*) is ornamented with bead-work representing a frog (*kaka*). This frog was part of the original owner's dream. The necklace (Fig. 28, *b*) has various *wasöo* ("medicine-roots") on it. These are said to be neither eaten nor otherwise used, except as they are worn on the necklace. The bone whistle (Fig. 28, *c*) alluded to is attached to a necklace of otter-skin. It is blown during the fighting to prevent injury. A magpie's skin (Fig. 28, *d*) and the skin of a smaller bird (Fig. 29, *a*) are also contained in the case. The white magpie-feathers are dyed yellow. The two skins are worn at the back of the head, and prevent the wearer being injured even in a hand-to-hand fight. A head-dress of ten magpie-feathers and of a white plume on red-painted



thongs, tied together at the ends with a medicine-bag, and four brass bells (Fig. 29, *b*), is tied to the hair over the front of the head. When the warriors sing before dressing for battle, this head-dress is also used as a rattle. The medicine attached to it is chewed, and rubbed over the owner's body, as well

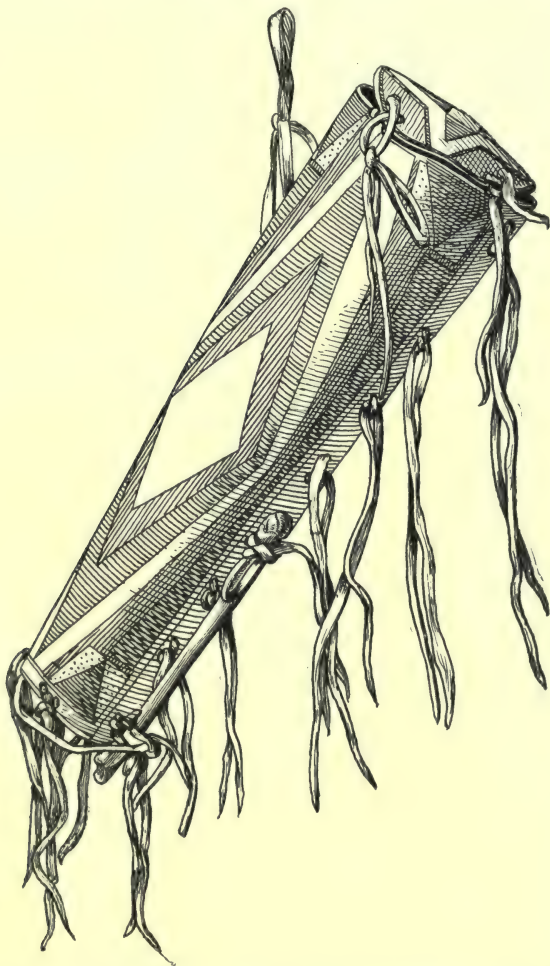


Fig. 27. (50-1952 a) Medicine-case for War Paraphernalia. Length, 40 cm.

as over his horse's, after he has painted himself. Two plumes of eagle-down (Fig. 29, *c*) are tied to the horse. One is tied to its fore-leg, the other to its tail. Then it will not be shot, and, if it falls, will not be hurt. In case of flight and pursuit, a little medicine that is attached to these plumes in a small

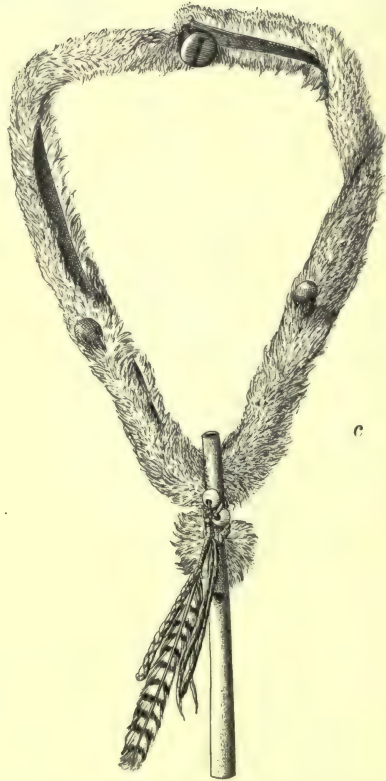
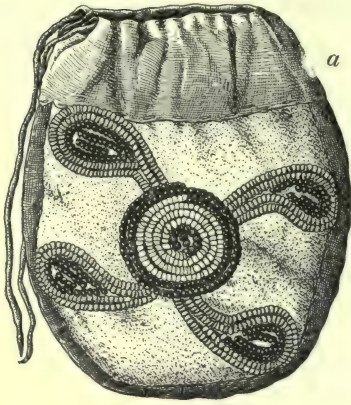


Fig. 28 (50-1952 b, c, d, e). War Paraphernalia. Lengths, 15 cm., 9 cm., 48 cm., 40 cm.

bag is given to the horse to prevent its becoming exhausted. A cloth to wrap the various feathers and the whistle completes the outfit.

A warrior's outfit that was obtained for the Museum (specimen Museum No. 50-1862 a-c) consists of a beaded knife-scabbard, carried because the owner has cut loose horses that were tied by a rope leading into a tent; of a man's awl-case, carried presumably for mending moccasins and for

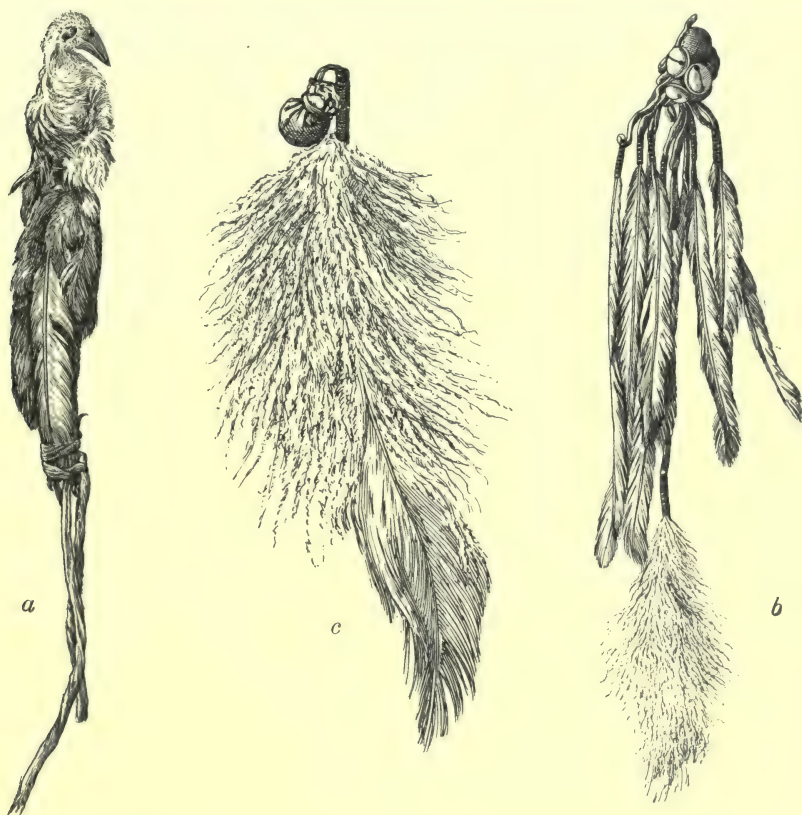


Fig. 29 (50-1952, f, g, h). War Paraphernalia. Lengths, 32 cm., 20 cm., 20 cm.

similar purposes; and of a piece of a scalp ornamented with beads, and worn attached to the shoulder of his shirt. The scabbard is ornamented with rectangular U-shaped bead-work designs similar to those in Fig. 3, and representing horse-tracks.

Sometimes in dreaming, a man saw a person in battle wearing the skin of a certain animal, and fighting very successfully. He would then wear the skin of that animal. Specimen Museum No. 50-1901 is a weasel-skin

used in this way. The owner twice dreamed of a weasel, which told him to use its skin. Thereupon he first wore a weasel-skin in dances, and later carried it to war. Subsequently he lent it to his son and to other men who went to war, and they always returned successfully.

A man to whom a fisher had appeared in a dream or vision used a fish-skin medicine-bag, and on going to war carried this with him.

A renowned warrior, dead for some time, received his personal medicine from the bears, and was forbidden to scalp, count coup on the enemy, or take away a gun. He could only kill. He once killed two Sioux with one shot, at a place which received its name from the event.

A simple riding-whip (specimen Museum No. 50-1821) has on its wooden handle four red marks, each of which is said to represent an enemy struck in the face with a whip in battle.

Representations, used in the modern "war-dance," of the weapons of Black-Wolf, a well-known Gros Ventre warrior, part of whose experiences in war are told below, consist of a shield and spear. The shield, which is made of painted white cloth, represents the shield carried by him on an occasion when he rushed to battle with no other weapon. The shield is decorated with a blue crescent along the lower edge, representing the sun, and bordered by a wavy red line denoting lightning. The wooden spear and spear-point represent a spear with which the owner stabbed a Piegan in battle. The spear-point is painted blue and red; the blue representing iron, the red blood. Red marks on the handle of the spear represent coups.

A pair of beaded and painted moccasins executed by a woman, but designed by an old man, symbolize his exploits in war. An outside rim of beading represents the enemy's camp-circle. In the middle of the camp-circle is beaded the figure of a tent belonging to a chief. To this tent was tied a horse, which the wearer of the moccasins cut loose. This feat is represented by an outline painting of a horse and halter. Three U-shaped figures, also painted, are horse-tracks, and represent the capture of horses. On the other moccasin there are again three such figures in a row, which here were said to indicate a charge on horseback on the camp; while two other such figures, facing each other, indicate a face-to-face fight.

Curtains hanging behind the bed in front of the tent-wall were sometimes painted to illustrate the owner's achievements in war.

#### WAR-EXPERIENCES OF INDIVIDUALS.

The following narratives give an entirely personal account of the war-experiences of three individuals, two of them men of about sixty years of

age, and the third a woman probably a little older. They are not in any sense historical, but were obtained for the picture they give of the war-life of the Plains Indians. Both the men were renowned warriors. Bull-Robe, the older, has since died. In the case of neither was a complete account of all their achievements in war obtained; but both narratives probably refer to every war party or engagement in which they took part down to the point at which the narratives are broken off. All three narratives bear the stamp of naïve truthfulness; which, in view of the importance played in the life of the Plains tribes by the telling of war-exploits and the recounting of coups, is not surprising. It must be remembered that the narrators were not asked to describe the engagements and expeditions in which they were involved, but to narrate their personal share in them. This will account for the frequency with which an insignificant personal experience is told in detail and the general result of a war-party slurred over or ignored. The story told by the woman Watches-All has reference to the great disastrous expedition against the Piegans in 1867.

#### BLACK-WOLF'S NARRATIVE.

When I was a boy I heard about great deeds in war, and resolved to follow in the tracks of such men. When I was a young man I started out alone. I travelled, and reached the camp of another band of Gros Ventre on the Missouri. I ate there and went on to the Bear Paw Mountains. There I slept at the foot of Eagle Butte. I started again before sunrise and crossed the mountains, following Beaver Creek to the end of the mountains. I saw buffalo, and shot at them. Some one else was hunting these buffalo, and heard the shot. After shooting, I had left my horse tied at the foot of the butte, which I climbed in order to look over the country. Then I saw some one below me coming up the butte. A moment later he saw me. I raised my gun, but he dodged and ran off. Thinking he was one of a party, I ran off also, reached my horse, and rode into the timber. When I could hear and see no one, I rode to where there was a trading-post on Milk River. At night all the horses there ran off into the timber. In the morning an Assiniboine was about to go to get them, when I told him that I would go after them, and started with my gun and a rope. Then I saw what looked like a flock of blackbirds flying over a hill. Soon I saw they were people. At first I had seen only their heads. They were coming over the hill towards me, but on one side, in order to ambush me. Suddenly they were riding at me. At first I was as if dazzled, and it looked like a fog to me. Then I recovered my senses. I was some distance from the post. I did not run, but waited for them. Two of them with long whips were in the lead. I

stood there until they had gone by me. Then I ran. One of them shot at me, and I turned and took a shot at the leaders. Then I ran on again and they pursued me, and soon the entire party was all about me, all of them shooting. Bullets struck the ground all about me, and there was no noise but that of shooting. But I was never even scratched. Suddenly the attacking party split. A white man was running from the store with a gun to help me. I ran to him, and reached him almost exhausted. He took my hand and we ran back to the house. The enemy, however, captured all our horses, including those of the trader.

My father had sent word to the trader to keep me there if I should come, so I staid there some time; but I did not return to the camp. One day I had gone out to hobble my horse. Then the same party that had attacked me before came again. They crept up to the house, charged on it, and looked for me everywhere. An Indian woman who was there ran out on the prairie and motioned to me to go away. I cut the hobbles of my horse, jumped on it, and rode away. Looking back, I saw the party of the enemy at the house. I dismounted and lay down on the ground to hide. The woman came to me and told me that they were a party of Yanktons and other Sioux, looking for me; but by this time I knew it without being told. The Sioux looked for me all through the trader's cellar, but I was in the timber in a sort of breastwork I had dug. This was the second time I escaped from this party. Some of them said that they were trying to get the Assiniboine that was there, and some the Gros Ventre, myself. After their first failure to kill me, they had determined to come back; but I escaped them the second time also.

We were camped north of Milk River. A party of us went to where the agency then was on Milk River, and slept there. We were getting ready to start, and I was sent by the leader to saddle my horse and go ahead while they ate. A little boy was crying to go outdoors, and I opened the door for him, when I saw a Sioux a short distance outside. I shut the door and ran back to my companions in the next room. We went out with our guns, but the Sioux was gone. We watched the way he went, and saw him going over a hill westward. Then a band began to come in sight, more and more of them. They were a large party, mostly on foot. Seven or eight were mounted. There were only eight of us. It was a very windy day. The agent commanded us not to shoot, threatening to shoot us if we began fighting, and ordered us to wait until we were shot at. We went up on top of a house to watch. A man put tobacco into a blanket to take to the Sioux, and he had just got out of the door when a dog barked at the Sioux, and they shot. Then the firing began. Those of us who were on the roof sheltered ourselves behind chimneys. Two women were with us. As they hurried

down the ladder below, the wind blew their dresses over their heads. When the man with the tobacco was shot at, he jumped back into the house, spilling his tobacco. We were shooting at them, and the whites also were shooting. The Sioux began to retire. Then I thought I would do a brave deed. I went out into the open space before the house, wearing a conspicuous red robe and black trousers. There I jumped about while they shot at me without hitting me. Then I went back behind the house again. Soon the Gros Ventre mounted their horses and attacked the Sioux, and kept driving them before them until they drove them into the timber at the river. One of our horses was killed, and one man was creased in the leg. There were very many of them, but only eight of us.

A small Gros Ventre camp of four tents had been living with the Crow. We were on our way back to the Gros Ventre, when at night a party of Sioux stole our horses. A company of soldiers was camped near us. In the morning, when we went out for our horses, we could not find them. One of our men saw the Sioux preparing to shoot a buffalo, but he acted as if he did not see them. When the Sioux saw him, they crouched down and hid. He looked over the country with his telescope in directions other than the one they were in. Then after a while he looked at them and counted seven of them. He had miscounted, for there were eight. Then he mounted his horse and rode slowly in another direction, but when he was behind the hill he hastened back to the camp. Two of us Gros Ventre knew English, and told the soldiers of the presence of the Sioux. The soldiers started after them. A mule followed them, and when he saw the soldiers' horses, which the Sioux were keeping hobbled in a gully, he ran to join them, so that the Sioux got possession of the mule also in broad daylight. I had gone to the hill where the Gros Ventre had first seen the Sioux, and was looking for them. From there I went on to the next hill, still looking for them. Another Gros Ventre came to me and said that the soldiers wanted us to go to the next butte beyond, which was across a flat, deep gully strewn with large bowlders. A third Gros Ventre was below us and started to join us. The Sioux were behind these bowlders, and this man below us was almost among them without knowing it. Seeing them raising their heads, he shot. Then, jumping off his horse, he ran; but the Sioux shot him through both thighs. He fell, but sat up again, whereupon they shot him through the head. He was the brother of my companion and of my wife. His brother began to cry, and started to revenge him on the Sioux. Not knowing where to cross the stream before us, we jumped into it anywhere, on our horses. The stream happened not to be deep, and we crossed it safely. Then the Sioux began to shoot. My brother-in-law jumped off his horse, but I turned mine until I was out of their sight. My brother-in-law remained there fighting the

Sioux, while I rode around behind them towards the butte for which they were heading. There I tied my horse and then went up to watch them. Seeing them coming, I withdrew from sight, thinking they would soon stop to fight my brother-in-law, who was still pursuing them. When I thought it probable that they had stopped, I looked out again, and saw that they had indeed made a halt, and had their backs toward me. I had my two sticks for a gun-rest all ready, and raising my gun I shot. I hit one of them in the back and he fell over. He slid down the hill on his hands until he stopped, while the others shot at me, but missed. Then the soldiers approached, coming at a walk. I thought it ridiculous to go to war in that fashion. The wounded Sioux began to shoot at them. That was what they wanted, for they did not want to open hostilities; and they all dismounted and began to shoot back at him. About the last shot of the company knocked him over. Then three of us Gros Ventre made a rush to him. The two others reached him first. One of them took his gun. Another struck him, and I was the second to strike him. He was a fine-looking Sioux, with black blanket, and leggings of black flannel, with long hair tied with otter-skin, brass beads around his neck, and a beaded bag. His gun was a Sharp's rifle. We now missed one of our own men, not knowing that he had meanwhile followed the seven remaining Sioux, and headed them off. He drove them back to the high-banked gully from which they had come, and from which now they could not well come out. Now this man motioned to us to come. The soldiers said, "Let them be. They killed one of you, and you killed one of them to even matters up." But we Gros Ventre wanted more, and persuaded the soldiers to go with us. I went close up to where the Sioux were. The soldiers began to lie down and shoot into the air. They were afraid. A sergeant came up as near the Sioux as I was, but on the other side of them. Just as he was going to shoot, a Sioux shot struck close by his head. He shook his head, cursed, and took aim again. Another shot knocked off his cap. Then he ran to where I was, and I laughed at him. Now the body of the soldiers came up, shooting as they went along, so that the Sioux could not even venture to raise their heads to look. One of the Sioux was in advance of the rest, protecting them. He had two guns. I stood up to look for this man, and he raised his gun behind a sage-bush. I jumped aside, so that he lost his aim and did not shoot. Then I got behind something else and looked for him again. This time I saw the Sioux aiming at the place where I had been last. I aimed at him; he saw me and pointed his gun at me, but I shot him through the head. Then I started to go to the other side, but, as the soldiers were now coming up in formation, I went back in order to get the two guns of the man I had killed; but another Gros Ventre had already taken them both. Thereupon I went up on the bank



overlooking the ravine, and looking down saw a Sioux crawling. The Sioux looked back and saw my head above the bank. He lay on his belly and attempted no resistance. Perhaps he was frightened to death. I shot him, went to him, struck him, and took his gun. Then I came to where two Sioux were lying, one on top of the other. By this time all the Sioux had been killed. I had killed three of them. One Gros Ventre jumped down into the ravine to reach the Sioux, while the soldiers were still shooting, and a ball went through his foot from the root of his little toe to his big toe. Then we scalped and despoiled the Sioux. The soldiers standing by would ask us for scalps, and we would toss them bits. We got much spoil, and all of us rode back home with scalps on our bridles. We came back to our camp, and the dead Gros Ventre was buried with a military funeral by the soldiers. The soldiers cooked a great feast for us, but we, being in mourning, would not eat. The soldiers started to go back to their post, and wanted us to go with them. We set out with them, but the wounded man became so ill that we had to return. Perhaps, if we had gone on with the soldiers, we should have been treated to a good time by them. We had distinguished ourselves on that day, and I had done brave deeds. The wounded man's leg swelled to the hip, and he died.

We were camped with the Crow. Then a man told me to go with him the next morning to cut up a buffalo that he had killed. In the morning we went out while it was still dark. We passed a Crow who was herding horses, and crying in mourning. We had gone only a little distance beyond him when we heard shots, and the Crow stopped crying. Five Sioux charged on him; but he ran among the horses and escaped, while the Sioux drove off the horses. The Crow had other horses tied about their tents, and now came out. My companion and I came across two Sioux who had been left by the five who had attacked the mourner. All together there had been seven in the party. We heard these two men talking Sioux. They took us for some of their own party, and came up to us. Then they shook hands with us. We could see the flashing of the guns where the Crow were fighting the other five Sioux. Then some Crow came out to us. A Sioux who was living among the Crow also came, one of the two men we had found being his relative. He took his relative's horse by the bridle and brought him to his own tent. The other Sioux, who wore a war-bonnet, was kept by the Crow from following his companion. The Crow pursued the five other Sioux, and killed four; but one of them was mounted on a swift horse, and escaped. The Crow with us held the one Sioux's horse until a large crowd had come up. There was a Crow one of whose relatives had been killed by the Sioux, and who was determined on revenge; and he killed the Sioux who was among us. One of them took away his war-bonnet while

he was still alive, and another his six-shooter. Thus five of the seven had been killed. The Sioux who had been brought into his relative's tent sat with his gun leaning against his breast and a large knife in front of him. They tried to take his gun away from him, but he would not allow it. A great crowd was in the tent and around him. At last a chief came, and cried out, "You have had a long time to kill this man and have not killed him. Now go away from the tent, and let him go." Then the Sioux who lived among the Crow took this man, and accompanied him out of the camp for some distance on his way, after which he returned. Then we rejoiced over our victory. I received credit for having shaken hands with the two Sioux before a crowd had come up and surrounded us.

The Crow, Assiniboine, and Gros Ventre were all camped together. Some men were off from the camp hunting buffalo, when a Piegan war-party attacked them. The hunters fled to the camp, and the Piegan threw up breastworks by digging holes in the ground in a large flat. A large crowd of people was there fighting them, each man trying to outdo the others so as to receive the most honor. Then I determined to be as brave as I could, so that the two other tribes would think highly of me. When I came to the place and saw where the Piegan were, I rode right on without stopping my horse. The Piegan were in their holes, and I rode between two of them, so that I was exposed to the firing of those on both sides, as well as to the shooting of my own people. Then I jumped from my horse. I saw a number of brave young men from our tribe come toward the holes, jumping from side to side so as not to be hit. When they were near, the Piegan opened fire on them, and an Assiniboine was hit, being shot through both hips. I heard another shot, and at the very moment saw a horse fall with its neck broken. I saw another man riding in front of the enemy, and heard a shot; and this man fell, shot through both his forearms. He was a chief. Another man was shot in the belly; the ball went in and came out just under the skin. Then we all made a charge on the holes from all sides. There were three holes altogether. In two of them were two men each; the other contained a great many. I charged against one of the holes, and found two men lying in this with their heads against the breastwork. I stabbed one of them in the neck with my spear. The spear struck bone, and stuck fast. I tried to pull it out, and the man backed away from the spear across the hole to the other side, when the spear came out. Then the other Piegan jumped out of the hole with a long double-edged knife, but without a gun. Every one ran off, except myself. I backed away a little. Then the Piegan called to me to come on, and ran out to me. I advanced, holding my spear out. The Piegan ran straight on to this, piercing his breast about at the base of the sternum. Then he backed off, pulling the lance out of

my hand. For a while it stuck in him, the end bobbing up and down; then it dropped on the ground and I picked it up again. The Piegan fled. I did not pursue him, but ran to the hole where he and his companion had been. The Piegan I had stabbed first was lying on his face with a gun in his arms. Dashing over him at a run, I caught the gun-barrel, and, without stopping, ran on, turned, and ran back. This was one of my earliest deeds of distinction in war, and was highly thought of. Such a deed was what I had been wishing to do ever since I had been old enough to go to war, and now I had done it. When a dance was held afterwards, the people could be heard calling out my name. All the Piegan, twenty in number, were killed. Later on, three more were found and also killed; so that the whole party was exterminated, only one of them escaping. At the time we did not know it; but he reached the Piegan, and informed them of the fate of the party, so that they came against us to obtain revenge. Our tribes were moving and had just made camp. An Assiniboine left it to hunt buffalo. The Piegan war-party came across him, killed him, and secured his horses. No one knew that the Assiniboine had been killed, and no pursuit of the attackers was undertaken. The Piegan then went on a high ridge and threw reflections from a mirror on the camp, as a challenge. When this was seen, everybody mounted and dashed off towards the enemy in haste. I took nothing with me but my shield. The Piegan were found on the other side of a ravine. A Piegan was killed; but the others escaped with his body. All that we secured was his rifle, which he dropped when he was shot. For a long distance we pursued the Piegan; but finally they swung us back, and drove us just as hard as the horses could run. At last we stopped running, and fought. One Gros Ventre was killed, and another was shot through the hand, the bullet striking the sternum and being stopped. That was all that happened in this fight. It was considered something of a distinction to carry a shield in battle; a man with a shield being more shot at than others, because he was more conspicuous, and because shields were always desired for capture. I also rode a pinto horse, which made me more conspicuous.

Once we were challenged by the Sioux. The Sioux sent word by the Assiniboine that they would come and exterminate our camp. We were only one band, a small part of the tribe. We made our camp near a black butte, above where Havre now is. The Sioux camped at Three Buttes on this reservation. At this time we already had many rifles. When we received the challenge, we went to the trading-post and bought large quantities of ammunition and new guns, until we were fully prepared. A few nights later the enemy came. It was dark, so that we knew nothing of their approach. A young man was off from the camp crying. It was early in the

morning, and still dark. The Sioux tried to approach him, but he saw them and ran back. The camp was within the semicircle of a high bluff; but the bluff was not very steep. On top of the bluff we had been making intrenchments. It was now about daybreak. My family had already started a fire. I was lying on my side, when I heard a strange noise, like wind but different. It was the enemy coming, and the sound of their approach travelled through the air from above and into the lodges. An old woman came into our tent to get fire. She took coals and went out. She had gone only a few steps when I heard a shot. I jumped up, and there was a war-yell. I started out with my gun, but my father told me to lie down: so I lay until the shooting was over. On all sides I could hear horses falling; some being shot, and some trying to escape and being thrown when they reached the end of their ropes. When the first volley of shooting was over, I jumped up, and ran up the bluff to the edge and looked over. A solid mass of Sioux was there. A solid flame extended all along the edge of the semicircular bluff, so many were shooting. All the horses in the camp were exceedingly wild, but finally we all mounted. Then we charged the enemy and drove them. Most of our horses that had broken loose ran in the direction of the enemy, so that they captured many of them. Some of the Sioux were on foot. On their right, one man was running somewhat behind the rest. I pursued him, shot, and killed him. Then I ran toward him. The enemy turned and fired at me; but without stopping I jumped on my horse, ran to the dead man, struck him with my whip, and took his gun and his powder-horn. The Sioux shot at me in vain. So many shot, that it looked as if they were throwing quantities of fire at me; for it was yet not quite light. Soon it was broad daylight and the fight went on, but the Sioux retreated fighting. Two Gros Ventre were wounded. A girl had been wounded in the camp while lying asleep. The bullet entered her knee and travelled up the thigh. On this occasion, also, I earned distinction. There were more Sioux than Gros Ventre; but they fled. Some in their flight threw away their clothing, and returned home naked. A woman who was with them threw away her dress, and reached her camp naked. Some of the Gros Ventre families did not have a single horse left, as the Sioux had captured the stampeded horses. This was about 1875.

#### BULL-ROBE'S NARRATIVE.

I was a young man when I went on my first war-trip. We started out from the Little Rocky Mountains, crossed the Missouri, and went to where the Yellowstone comes out of the mountains. There we came on a Crow camp. We made preparations, and at night stole eighty horses. I myself

took five. Going back to where our party had camped last, we found a Blackfoot war-party. We went on by them, and the Blackfoot went against the Crow. After sleeping a little, we went on for the remainder of the night and all next day. We ate at the Mussel-shell, and continued running our horses until we reached the Little Rockies. One of our party took two shields hanging on poles at the back of a tent, and one of us cut loose a horse which was tied by a rope passing into the door of a tent. After I returned I was at the camp for some time. Then I started out again. The same night that we had left we were overtaken by another party from our camp, who told us that a camp of Flatheads were in the vicinity. At that time the Piegan were with the Gros Ventre. A number of Gros Ventre and Piegan had already gone to the Flatheads and established peace with them, and were now among them. Accordingly, when we came to a Flathead who was herding horses, he made no attempt to escape. We did not understand this, but went up to him as if without intention to hurt him, and then one of our party, drawing a revolver, shot him through the breast. Then we immediately stampeded his horses. The Gros Ventre and Piegan who were visiting the Flatheads still had their horses saddled, and, joining the Flatheads, pursued us. We took refuge in the timber, and the pursuers set it on fire. It was very hot in the smoke and fire, with the tied horses bucking and trying to break loose. Then one of the Piegan with the Flatheads called to us who we were. Answering in Gros Ventre, one of us asked them if the people there were Gros Ventre, and they said, "Yes." Then they called us to come out of the timber, and we came and went to the Flathead camp all together. We passed by the man who had been shot, who was lying wounded, not yet dead. I had not yet dismounted, riding a horse that belonged to another man, and was afraid they would try to take my horse. My party soon left, and hardly were we gone when the Flatheads began to attack the friendly party of Gros Ventre, and drove them out of the camp. These people were of another band from ourselves, which was the reason that we did not know of their being with the Piegan. When the Flatheads attacked them, we all ran, and I was the first to return to camp, so that I know nothing that happened further.

After some time a war-party started again. There were four of us. Near the mountains we saw a Crow camp. We stole horses. I took two. We wanted more horses; so, turning those we had captured loose where they would not be seen, we went up into the mountains, and camped there that day. At night we went down to the Crow camp again. This time I stole five horses, and each of the others two. Then we returned with our horses to the camp of our people. But we did not sleep even one night there. We returned the very day we came, with another party starting out against

the Crow. This time I took three horses. One of our party took a shield, and three each cut loose a horse from a tent. When we returned, we found that our people had moved to Teton, where we finally overtook them with our captured horses.

I started on another trip. Following the Missouri down, we saw the buffalo leaving the river on both sides, showing that some one was coming. We sent out four men to scout, and waited until they came back. They said that whites were coming up the river, dragging a boat. We went to their camp at the mouth of a creek, and were treated well, being given ammunition and tobacco. A Gros Ventre woman captured by the Crow was with the whites on her way back to the Gros Ventre. From her we learned where the Crow were. Some of our party went back up the stream with the whites, but the rest of us crossed the river and went on. We came to where there was a small creek and a high rocky cliff. We stopped there and ate, and rested at night. We were smoking, when one of us said, "A herd of buffalo is coming. I will go and kill one." Another of us said, "First see what it is." He looked, and saw that it was a large party of Crow. We withdrew into the shade of the cliff. The Crow came extremely near, and sat down. They had seen our tracks, and said very little, and that in whispers. One of us said, "I think that it is the Piegan;" for we knew that a party of Piegan were in the neighborhood. Two of the horses of the Crow came so near us that we could have picked up their ropes. Then two men came up to their horses, and, feeling around in the little creek with their whip-handles for water, stooped to drink. One of our men said in Piegan, "Friends." The Crow jumped, ran, and their horses stampeded; we yelled, shot, and pursued, wounding one man. It was bright moonlight; but in the shadow of the cliff we had been invisible to the Crow. Soon the Crow turned and charged us, driving us before them. Then we turned, and drove them; and so on, back and forth. Whenever we got under the cliff and gave our war-yell, the echo strengthened it, and we frightened the Crow back; but the Crow would not leave us, so that we had to put up breastworks to defend ourselves. We fought all night, and at daybreak the Crow left us. Seeing a rocky butte, we said, "We will go up there. This is a bad place. Day is coming on, and if they charge us again, they might kill us." So we went up on the butte, taking with us a number of articles we had captured when the Crow ran the first time. Then we called to the Crow to come on; but they were leaving and went off. So we took charcoal, and made paint of it to put on our faces, and began to dance as a trial; but one of us said, "This does not satisfy me. I am going on." Then the rest of us all decided to go on too. We left what we had captured, taking only the best pieces. We went on to where we had been

told the Crow were, and found them there. But first we met a party of Gros Ventre and Piegan. They were coming away from the Crow, but now went back with us against them. At night three of us, including myself, tried to get away their horses from two men who were herding, while the rest of the party went into the camp. They captured many horses there; but we three got none, because the herders were watching too closely. Now it was nearly daylight and the rest of our party had gone, and the Crow had discovered the theft. Then we three knew that we could not escape with the rest of the party, for we were unmounted. So we went into the timber not very far from the Crow camp, and hid. During the day a Crow came near us with a large bunch of horses to water them. We said to each other, "When he has watered them, let us each catch a horse, and flee into the mountains." The Crow went back, leaving his horses, and we each took one, — I, a white one; one of the other men, a painted one; and the third, a mouse-colored one. Then we escaped into the mountains without having been seen. We came across another bunch of horses and started to drive them off. Two were hobbled, and I dismounted to cut them loose. A Crow came out of the timber and shouted. He had a gun, but was too frightened to shoot. Thinking there might be others, I jumped on my horse, and we all rode off back on the mountain, leaving the horses we had just found. From the mountain we could see how, when the Crow came to the camp, there was a stir all over it. That night we stole eleven horses. We killed a buffalo, ate, and then went back, with these eleven horses and the three we were riding, to our camp in the mountain. At night we went to get more. Crossing the river, we came to a herd of twenty-three horses, and began to drive them off. Then one of us said, "Something comes up in my mouth that tastes like blood." He had a hemorrhage. Then we ran our horses all night and all the next day, for we were riding good animals. Coming to buffalo, we killed one, and ate. Then we saw the buffalo coming towards us. Watching, we saw that Crow were coming in pursuit of us. They were perhaps a mile away. We fled, and the Crow pursued. Once they would gain, and then we. If we had not had good horses, we should have been killed. Turning suddenly, we went up into a mountain, so that the Crow lost our track. All the next day, however, we fled, and at night came across a camp where a Gros Ventre and a Piegan, on the war-path, were snoring. We waked them, told them that the Crow were pursuing us, and all five of us fled. We fled during the next day. Then we stopped running. These two men had captured a number of horses, so that we had sixty-two in all. I myself had two; my two companions, one each. When we returned, we did not go out for a time. It was now winter.

Then a party started and I went with them. We met five Gros Ventre

who were bringing ninety horses they had taken from the Crow. From them we learned their location. After about ten days, the Chinook blew, so that the snow was all gone. As we were travelling, we heard a shot in the air above, and said that it must have been Above-Nix'a<sup>nt</sup>. Some of the five men we had met were going with us. When we came near the Crow camp, we saw the Crow coming out for buffalo, so we returned to our last camp. At night we came again, and took one hundred and eighty-seven horses. I took six fast ones. Then some of our party took this herd home; but I and some others staid there, not yet having had enough. We stole thirty horses, and, sending these back by some of the party, staid to get more. The next time we took forty-one, which we also sent back. The next time we got nine. These we sent back too, and then took seven more. Then we took successively eleven and twelve, and nine more,— all from the same camp. After this we went there four times, but could get no more. Then we came the thirteenth time, and stole ninety. All this was in one trip. Then the Crow found us out, and we had to flee.

I went on another trip against the same band of Crow. A horse stood with his rope leading into a tent. I do not know whether it was tied inside, or held by some one. I cut it loose, jumped on it, and rode off. That was all I took on that trip.

I started out again in autumn. We fought with the Crow, and a Gros Ventre was wounded, being shot through both hips. Nothing else came of that fight.

Then I went out again, and this time stole three horses.

I started out again, and while we were travelling we saw an elk. I went to head it off, but as I could not shoot it I went back. Returning, I could not find my party. It was a large flat, and, hearing shots, I thought my party were shooting elk, when a party of Snakes on horses came towards me. I fled, but being on foot they soon caught up with me and surrounded me. They all shot, and I do not know how it is that they did not hit me. I was numb, and did not think of my gun. Coming to my senses, I seized my gun, and raising it drove them all about. Then I ran to the timber, and, jumping into the brush, stopped short. A Snake with a tomahawk and shield was pursuing me. He saw me as I was raising my gun, and held up his shield before him. I lowered my gun, aimed at his belly, shot, and hit him. Then I ran without stopping, and escaped. Thirteen in our party were killed by the Snakes; but I, though I was alone, escaped. Most of those in our party who were not killed were children, young boys who had gone along.

Again I went out. We were all mounted. Crossing the Yellowstone, we came to the Crow, and about noon charged on the horses that were near



the camp. The Crow began to shoot, and our party turned; but I continued riding straight on between the Crow camp and the herd of horses, paying no attention to the shots, and succeeded in driving off the entire herd. I had thirteen shots in my shirt, and seven of the eagle-feathers on my shield were cut off by bullets, and my horse was shot through the neck. I was wounded, being creased on the hip. When our party saw me riding on, two of them followed me. One of these was shot in the belly so that his intestines hung out; the other was shot in the arm. So three of our party were wounded, but I only slightly.

I started out again. We were all on horseback. Just north of where the Yellowstone comes into the Missouri, the Crow were about to camp. We killed three, and then went into the timber. The Crow came and made a charge on us, and we fled. So far, I had only led my best horse, but now I rode him. The entire Crow camp pursued us. We also were a large party. As we fled, two of our men on slow horses called to me to come and protect them, for they would be killed. Becoming angry, I turned and rode straight at the Crow. Turning them, I rode among them, scattering them on all sides. The noise of the guns was one continuous roar. I had only a sword with which I slashed and cut. Then I rode back, and the Crow followed me. Two or three times I turned them back. Then a Crow dismounted, aimed, and shot as I swerved my horse. The horse was shot in the ribs. By this time those Gros Ventre who had been the first to flee, had selected a good place to fight, and had thrown up breastworks. Then I went out ahead of the others on foot. The Gros Ventre shot a Crow, and I ran forward and took his gun. I was jumping about constantly, so much did they shoot at me. The Crow charged me, but were not brave enough to drive me back. Two of our men came to me, and we stood below a little ridge. The Crow women shouted, and some of them cried for the dead; but it did them no good. About sunset they stopped fighting, and retreated. Then we got up, put the scalps on a pole, and danced, taunting the Crow. All the Crow women and some of the men cried. At night we started back, and, as we were travelling, two men of the party secretly left us, and went back to steal horses. We waited for them. One of them came back bringing horses, and after a while we saw the other also coming along the edge of the river. He had succeeded in stealing a robe and a shield.

I went out again with a mounted party. Two men went ahead to scout. They went in the wrong direction, and finally saw an Assiniboine camp behind us, not far from where we were camped. Then we turned our attention to it. Two Assiniboine came out from the camp for buffalo, and, looking over the hill, saw us and returned. We now went so near the camp

that we could see the children playing. Then I said to the man in the party that had the swiftest horse, "Lend me your horse, and I will charge on the camp and carry off one of the children." So he gave me his horse; but the others in the party said to him, "You ought not to give it to him. He is crazy and will do anything, and will surely be killed." So the man took his horse away from me again. Then we lay in a gully, waiting for an opportunity. Seeing two horses coming from the tents, we made a charge, and captured them. The Assiniboine did not offer to fight. Ours was a large party, and they were afraid. So we captured these two horses in broad daylight. And that was all that happened on that trip.

The Gros Ventre camp moved to the mouth of Milk River, on a point of land. I was sitting in my tent smoking, and decided to look after my horses. When I went out from the camp, some one came running, asking, "Is that you?" When I said, "Yes," he said, "I have seen some one coming." Knowing that he meant strangers, I ran to my tent and got my gun. Going out with my companion, we saw four of the enemy. He shot, but I pursued them without shooting. I separated one from the three others and pursued him, driving him straight towards our camp. He became so frightened that he ran into a tent. Women were inside doctoring. He went behind the doctoring woman and held her around in his arms. I followed him in, and ordered the women to go out, as I wanted to kill the man. Some of them held me; but I said, "He is an enemy, and I will kill him. He may hurt some of you." So they went out, and the man huddled against the wall of the tent. I fired two shots into him. He jumped up and yelled, and I took a double-edged knife and stabbed him. He took a long time to die, lying groaning. I cut off his entire scalp; then the people began to come in. One man cut off the long hair from the knee of the buffalo-skin lying on the bed, thinking it was the man's scalp. The stranger proved to be an Assiniboine. The Crow and Gros Ventre were camped together at the time.

The camp was moving eastward, hunting buffalo. Two companies of soldiers were seen coming, and everybody went to meet them, hoping to get something to eat from them. When the soldiers left, one man with his wife staid with them for the night. In the morning he left the company of soldiers he was with to go to the other one that was camped near by. While going, he was attacked by Piegan, shot and wounded, and only escaped through the nearness of the soldiers. His wife informed the Gros Ventre that her husband had been shot by Piegan. All the Gros Ventre and Crow started out, and soon saw the Piegan going over the hill. They pursued them over a flat. They thought the Piegan a war-party, and did not suspect that they came from a camp near by. They came suddenly on their

camp, from which all the Piegan now issued, whereupon the Gros Ventre and Crow fled. Their horses were already tired and were becoming exhausted. So some half-Piegan who were with the Crow said that they would make peace. Four of them stopped, motioned, and spoke in Piegan. Then they shook hands with the Piegan. The Gros Ventre meanwhile told those of their men whose horses were most exhausted to continue on, and they did so. The Piegan chief asked if Many-Birds were among the Gros Ventre. He said, "I want to see him. He once saved my life." Then they called back among those who were still fleeing for Many-Birds, and he answered that he was there. A Piegan chief rode up to him and asked him whether his horse was tired. Many-Birds said, "Yes." The Piegan told him, "Take mine. It is fresh. You helped me, and I want to save your life, for the Piegan might still attack you. But they are my children, and I do not think they will." So he exchanged horses with Many-Birds, and gave him his gun and powder-horn also. Then they parted, and all returned except the four half-Piegan, who went with the Piegan. In the evening three of these returned to the Crow, but the fourth one staid with the Piegan over night. In the morning, when he started to return, he met one of the other three. This man (who was really a Crow that had been captured by the Piegan, but had gone back and lived again with the Crow) now had stolen a herd of horses, and was fleeing once more to the Piegan. The one who was returning to the Crow suspected what he had done, and thought that he might try to shoot himself. The traitor did suddenly shoot; but the other was prepared, saw him, and ducked behind his horse. After the shot, he pursued the other man, who fled; but, his horse stumbling, he fell, and the pursuer shot him. Thereupon he drove the stolen horses back to the Crow camp and told that he had killed the traitor. Then the man's relatives went out, buried him, and mourned over him; but the rest of the camp celebrated over his death. That night, after the dance was over, all agreed that it would be well to watch for the Piegan. So the men all watched. I sat by my hobbled horse. Suddenly close by me I saw the flame of a gun and heard a shot. I ran toward the place, but three or four were already upon the man and had struck him. When I reached him, he kicked me in the breast. Seizing his foot, I cut it off with my knife. So we killed him. We never knew of what tribe he was. He was dressed very poorly, with ragged leggings.

We were moving down along Milk River, and made the crazy-dance. A party of Gros Ventre went to war together with some Bloods. Very soon after they started, one of each tribe in the party was killed. The others returned, and the parents of the dead men mourned. I still had the paint of the crazy-dance on me. Then an old man called to me, "Why do you sit still? You ought to pity your mourning grandfather. Go in advance

of the camp to scout.' So I went ahead of the camp as it moved. At the mouth of People's Creek I crossed the river with two companions. Then we saw buffalo. I sent one man to drive them towards myself and my other companion. He drove them, and we ran the buffalo and killed one. We began to cut it up. Then I started to go on with one of my companions while the other finished cutting up the meat. Then he followed us. Looking back as we rode over a ridge, we saw two men on foot approaching him. We motioned and shouted to him, and when he came up asked him, "Did you see nothing?" He said that he had not, and we told him that two men had nearly succeeded in killing him. He had had no cause for suspicion, since the buffalo all about him were still and unalarmed. Then I said, "These are the men that did the killing a few days ago. Now we will take revenge. We have the advantage, for we are three to two. Each of you will take a powder-horn, but I will take both their guns." Then the two men came towards us without offering to fight, and I went to meet them. I shook hands with one and took away his gun, shook hands with the other and took his gun too. Then I said to my companions, "Now is your chance to kill them." But they would not do so. They did not want me to have both guns. So I said, "If you will not kill them, let us take them to the camp and feed them to the dogs." So I took one on my horse, and one of my companions took the other, and we rode double. I made the one with me shoot off his gun. I thought that when he came to be killed, he might hurt some one in the camp. And I told my companion to make the one with him shoot off his gun also, which he did. Now both their guns were empty. We came near the camp, called out, and at once the whole camp became lit up. It was night. The chief came, and asked, "What is it?" I said, "I have your enemies. I bring your food." Then the chief called out, "Bull-Robe has brought your enemies. Do with them as you please." Then the man mourning for the killed Gros Ventre came out, and I told him, "Take your revenge;" but he would not kill them. They took the two men into the camp and set them free. They were Assiniboine.

I started again to go to war. There were Crow and Cree and Assiniboine and Gros Ventre in our party. We saw the Piegan camp. We dressed in our war-ornaments, and I tied up my horse's tail. Then the leader of the party called me a coward, and said I only fought when I was drunk. Taking my whip, I held it to my mouth like a bottle, as if drinking. "Well, now I am drunk," I said. "I will show you what I will do. You will go your way, and I will go mine." Accompanied by a Crow, I went toward the Piegan camp. The remainder of the party approached the camp from all directions. A Piegan came out, and when he was some distance from the camp we two charged on him. I was in the lead, but my horse stepped

into a hole, stumbled, and lost his gait; and the Crow passed me, struck the Piegan, and shot him. The Piegan fell, started to get up again, and I jumped on him astride his body, cut his head and took his scalp. Then we fled. Seeing some of our party, I called to them, "This is the way to do. That chief is nothing." As we fled we saw the Piegan sitting up, holding the skin of his forehead with his hand in order to raise his eyebrows from his eyes so that he could see. The blood was spurting from him the length of this room. So I said, "You had better kill the poor fellow. He is still sitting up." Then some of us went back and killed him. We returned, and celebrated our victory.

I went with another war-party to Sweet-grass Hills, in the Piegan country. In the morning, as we were going, I smelled something like distant fire. "I smell something like fire," I said. They said to me, "You smell something in your nose." So we joked one another until all of them smelled it. Then we sent out a scout. He came back, and reported that a hunting-party was off to the left of our route, and that they were packing up to move. Then I said, "Let us go ahead of them to a place where they will pass, and charge on them." We went down a ravine until we came to where it spread out and was flat. There we lay down, and one of us watched if the Piegan were coming. When we asked him if the Piegan had come, he said, "No." Some of them had already passed by. Either he had not seen them, or he did not want to announce it. Then hearing something like talking, and thinking, "That sounds like talking," I raised my head, looked, and saw part of them already gone by. So saying, "Only dogs stand and watch their food," I charged and the rest followed. The Piegan had their horses loaded with meat. As we came, the women ran, scattering and screaming. Seeing fifteen loaded horses, some of them painted horses, I went to drive them back. The Piegan men who were in advance now came back, charging us, surrounding me, shooting, and trying to drive me away from the horses; but I would not leave them, however much they shot, and kept driving the horses into the ravine. Then Many-Birds came to me, saying, "I am with you to stand by you." Taking the rope of one of the horses I was driving, I gave it to him, telling him not to let it go. This was in the morning, and we fought all day. The Piegan made their camp near by. It was a hot day, and having no water we suffered much from thirst. We unloaded meat from the horses, cooked some of it, and ate. We tied some of the horses fast, but some of them we could not tie; and part of these the Piegan recaptured. We killed three Piegan, but the Piegan secured their bodies. Two Gros Ventre were wounded; one of them low in the leg, the other creased in the back. In the evening we went to a rocky hill, having taken what meat we wanted and left the rest on the ground. Instead of

going on, we stopped behind the hill. When the Piegan rode up to the meat in order to recover it, we gave them a volley, shooting several of them off their horses. They fled; but we rode on, looking for water, until we came to a creek, where we sat drinking a little at a time, quenching our thirst. Then we went home.

I started to go to war again. We found a Piegan camp, and approached it. The others did not want to charge, as the distance to the camp and back again to a place of safety was too great. Then I was going to make the charge alone. Some of our party happened to see five Piegan hunting a buffalo, and called to me what they had seen, telling me to come. So I rode in that direction, but did not see the Piegan. When I came near, I saw them riding toward the timber, and at once rode after them. The Piegan jumped off their horses and abandoned them, making for the timber; but I headed them off just before they reached it. One Piegan was in the brush on the ground, and I tried to ride him over. The brush was in the way, and my horse jumped over him. As I passed, I struck at him with my lance, and he shot up at me; but we missed. Then I went at him again. The Piegan had his gun aimed at me; but I rode straight on and pierced him in the breast, so that he shot to one side. Another one came for me with an arrow on his bow. I pierced him in the breast also, so that he dropped his bow. Then my party reached the place and killed the other three, I having killed the first two. We took the scalps of the five men and everything that they had.

When I went out again we saw smoke of a camp. Then we prepared ourselves and painted. A Crow in the party had his little boy with him, who was old enough to ride his horse well. The man took a large shell gorget from his throat, which he wore as an amulet, and now gave it to his son. Then the boy said, "You want me to do something great. I am only a little boy, but I will do something. You must not mourn for me if I am killed. Tell my mother not to cut her hair except a little, for I do not like it if people cut their hair." Then his father gave him a crooked lance; and the boy ripped and tore off his leggings and his shirt, and they put him on a horse. Suddenly the boy hit his father's hand with the whip, so that he let go the bridle, and then shot ahead. I was leading, but the boy went past me. I did not try to keep ahead of him, but let him go to see what he would do. Then we saw that the people were whites; but the boy kept riding straight on. He charged a shelter and rode right over it; but the men who had been in it had already started, and were on their way. The boy kept on and rode up to them, and, as they stepped aside for him, he struck one of them across the back with his crook. Then we staid with these whites over night. In the morning we went on, and soon saw what looked like a party with wagons.

We went to see. They were Indians on horseback, riding so close together that they looked like wagons. They went into a place where we could not well attack them, and we went on. Then we came near Fort Benton. To avoid being seen, we had to ride along a bank near the river, sometimes in the water. A companion and I raised bunches of sage-brush, and lay behind them on the top of a bluff, watching. We saw two mounted men leaving the trading-post. We went back and told the party, and I said, "I will charge on them." All wanted to be with me. I told them, "You do not know your hearts, but you say you want to charge." I went ahead, and, when we came on the ridge, saw the two men riding slowly along. I signed to the party to be quiet; but when they came up on the ridge they gave a war-yell, and the two men fled. I was already near them, and gained on them. Riding up, I struck one across the face with my whip. He had drawn his gun on me, but it was too late to shoot. After I had struck him, I wrenched his gun from him and stuck it through my belt. Seizing him by the hair, I swung my horse against his, and threw him off, then let him fall. Then I pursued the other. Him also I whipped in the face twice. He too was going to shoot, but when I struck him he could not see anything. I could have wrenched his gun away also, but did not do so. I seized his hair, and dragged him off his horse by swerving mine into his. Following up the horse, I caught it and led it back. Then I saw a great fight in the flat below. Giving my captured horse to one of my men, I went straight at the enemy, who were unmounted Bloods. They were in a line, and I went to ride past their front. I galloped down the middle towards them, and they all fired at me. Then, knowing that their guns were empty, I rode straight into them, knocking them in all directions. Perhaps my horse did it. I counted that I struck seven. Then I rode for my life. We were still fighting, when a white man came and told us to stop. He said to us Gros Ventre, "You have already beaten them enough." So we stopped, and all went to the fort. On our way, I alone charged on the Bloods, and struck an elderly man and his wife. We started to go into the enclosure at the fort, when the gates were shut on us while most of our party were still outside. They had the captured Bloods' horses, and among them, unknown to us, some horses belonging to the whites. Then they let me go out to bring back our men with the whites' horses. Two of our party had already gone off with two mules, but we drove the remainder into a corral. There were so many horses that it could hardly be told to whom they belonged. Then we all camped together, Crow and Gros Ventre and Bloods. There was a Crow woman with the party. A young good-looking Blood became enamoured of her, and made advances to her. She told the Crow, who said to her, "Proceed with him, and we will kill him." Then she went out on the

prairie, and he followed and met her. This she did three or four times, until he was very much in love with her and wanted to marry her. She said that if he would go with her, she would marry him. He was afraid of the Gros Ventre. Then the Crow told us to go in advance, in order that he might go with them. The whites distributed food, guns, ammunition, and blankets among us all. Then we Gros Ventre went off, but lay down behind a ridge. The Crow gave the Blood four horses for himself and his wife, and they started to go to the Missouri. The man whose wife this woman was pretended that she was not his wife. He rode alongside, and, when the Blood's attention was directed elsewhere, killed him. Then we Gros Ventre and those of the Crow with us came out from where we had been hiding behind the hill, and danced, while the remaining Crow brought his scalp. From there we went home. We crossed the Missouri at a place called Magpie Tail, where there are steep hills. We came on a Crow camp, and made a charge on it. One of the Crow charged into it, striking and whipping every one, as if out of his senses. One of the men in camp became angry, pulled him off his horse, hit him, kicked him, and pulled his hair. The man who had charged got up laughing.

#### WATCHES-ALL'S NARRATIVE.

Once I gambled with a Crow woman and lost my beads, and my mother made me cry. The next day a war-party started out, and, because my mother had made me cry, I went with them. All of the party were on foot, except two (women?) on horseback. After we had stopped for the night twice, my mother came after me with a horse for me to ride. We went northward against the Piegan. When we came to mountains, all the women in the party went out to pick choke-cherries. The road was impassable from mud, and it was stormy. Some young men climbed the mountain to look for camps. It was snowing hard and they could not see far; but in the afternoon it cleared, and with a telescope they could see a camp in the distance. They measured it with a ramrod. They went back to the party howling like coyotes, and zigzagging in their course. The women in the party stood in line, and sang. When they came near, the scouts rode about in a circle until one of the party went to them and brought them. Then they reported what they had seen. Then the whole party painted and danced and sang, preparing for the fight. In the evening we started, and travelled all night. One man had a ghost-bone (a human femur). While I was asleep, he summoned the ghost. "What is it?" said the ghost. "Are there many people in the Piegan camp?" asked the man. The ghost said, "There are as many as grass. I give you two persons, also some horses



to steal. Let those who are on foot go back from here, and let the few who are mounted go on against the camp. They will do well, and kill two people, and capture horses. But if all go, a great many will be killed." The next morning my mother told me this. The party, however, were not influenced at all by what the ghost said, and went on. When we came near, two young men killed a Piegan called Sits-in-the-Middle and his wife. Then our party killed two more Piegan close by their camp, but, as one of the men stooped to strike the fallen Piegan, the Piegan stabbed him in the back over the kidney, making a hole large enough to breathe through. We tied him around with gunny sacks. Thus we killed three men and a woman. Then all the Piegan attacked us. I saw more people than ever before. They came like ants, and the smoke hung as over a smelter. Two of the Gros Ventre drove all of our party, even the women, against the Piegan to make them fight. A Gros Ventre was shot through the thigh-bone, and fell from his horse. He stuck his crooked lance in the ground and sat there; and all his brothers went to help him so that he would not be killed soon. And all the Piegan attacked him. Just as one of them dashed up to strike him, he raised his gun and shot him. Another and another came up, until he had killed six. Then he himself was killed. Then some of the Gros Ventre said, "Let us lead them after us from their camp." The Gros Ventre started to run, and the Piegan pursued. The Gros Ventre who were mounted ran their horses as hard as they could. They never stopped running, and a great many of those who were on foot were killed. I was riding behind another woman. Our horse stepped into a hole, and pitched forward. The woman was thrown off, but I was thrown into the saddle. The horse started up again, but stepped on his bridle, which checked him. A Piegan rode up and struck me with his gun. Then he took my wrist, and I dismounted as he did. Another one came, and, after striking me too, took off my bead necklaces. The one who had captured me took me back as far as it is from here to the river (about thirty miles). We saw bodies of Gros Ventre as we went back to camp. We came to the camp about noon. Everybody struck me. All day they came and hit me, and one man hit me on the forehead and nearly killed me. A Piegan woman tied up my head. I wore a fine dress covered with elk-teeth. I took it off, and a Piegan woman took it away. Then the Piegan directed their people to gather all the captives. They asked them if the Gros Ventre had done anything to Sits-in-the-Middle, who had been found in an indecent position with his wife. The captives all said that the Gros Ventre would not do such a thing, and the Piegan were satisfied. Eight Piegan, all prominent men, had been killed.

When our party returned, my father asked where I was. Some one told him that a Piegan had taken me back to his camp. Then my father said

to my mother, who had returned safely, "Go and bring my daughter, or I will kill you." So my mother came alone to the Piegan. When she arrived, there was a big noise. Then a chief came out of his tent with only his knife, and called out, "Do not kill that woman!" Then she went to where the captives were. The man who had captured me, No-Chief, said aloud, "I pity this woman. I will treat her well. Every one all over the world hears it. I will take good care of her." Another Piegan took my mother. Then they brought me to a tent where there were a pipe, a pipe-stem, a knife, and a gun, and two men sitting, who both claimed me. I was told to say which of them had captured me. I held up my hand and told how my horse had stumbled, and how this one, who was No-Chief, had captured me, and how the other one had taken my beads. Then the other one tried to kill me. Some Piegan women hid me. In the morning the Piegan broke camp. I had no moccasins, no robe, and only one dress. No-Chief always rode around me, and protected me from the many people who wanted to kill me. He had taken me for his wife, and would not allow it. When we were camped, he rode over to the tent where my mother was, and told her to come at night to his tent. He would give her and me horses to ride, in order to flee, and would give us clothing and a piece of tobacco, which we were to cut in two, and each of us to give half to her husband. My mother agreed, and he came back; but that night my mother did not come. In the morning a man rode around the camp, crying, "Bring out all the captives. I will put them on my son's grave." Then the women hid me. The other Gros Ventre captives were also hidden. Fourteen of them were saved, but four were killed. Then they brought all the spoils to the middle of the camp, and counted them. They counted how many pieces had been captured, how many horses had been taken, and how many Gros Ventre had been killed. They who had done most became chiefs.

Then No-Chief, my husband, said to me, "If any one wants to buy you from me, I will sell you." Then my mother persuaded a Piegan to buy me. I was angry when No-Chief sold me for two horses. I staid with this other man. Sometimes people still tried to kill me, and he kept them from me. Then we came to Elk River, where there was an encampment of soldiers. The soldiers tried to persuade the Piegan to sell them all their slaves. One Piegan rode around the camp, crying, "Sell all the slaves. They will run off anyway. We cannot keep them." But at night all moved away, and none sold their captives. I always took care of my husband's little boy, and did my work, and got along well. A white man tried to buy me; but my husband did not sell me. I asked the white man not to try to buy me, as I wanted to return home. Another Gros Ventre woman who had been captured persuaded her husband's little boy to ask him to let her go. The

boy asked his father, and the man told her that she could go after tanning ten hides. She prepared the skins, made herself moccasins, took pemmican with her, and went. Her husband did not give her a horse, because many Piegans were then scattered through the country, and would more readily see her if mounted. That winter I staid with the Piegan. We went to the Sweet-grass Hills and killed all the buffalo we needed. About the time the snow thawed, we went back to the former place. Once a Piegan came to get men to reinforce his party, who were attacking a Gros Ventre camp; but the same night the Gros Ventre fled, leaving a dead man and one who had been shot through the leg. These were all that the Piegan found next morning. Two Piegan had also been killed.

Then I went with my husband hunting buffalo. A shot was heard from the top of a mountain, and our party went back. It was a rainy day. Then Bear-Head, a Piegan, took two Gros Ventre women to the foot of the mountain and made them call out, "Come down! Here is something to eat." He wanted to find out of what tribe those on the mountain were; but there was no answer. That night the people on the mountain, who were Gros Ventre, came and stole horses from the camp. The Bloods also stole horses. The Piegan followed their tracks, and killed two of them; but they did not follow the Gros Ventre. Then we went to a place called Needle-Nest, then to Large-Rock, then to White-Wolf, where a Gros Ventre had once made the sun-dance lodge. Then two Gros Ventre women ran away and escaped. From there we went to another place. When we made camp I went for wood with my sister, a Piegan co-wife. Then my sister sent me to my mother, whose husband had just killed a buffalo. I went there; and my mother's sister (co-wife) told her, "Cook something for your daughter." Then I brought back meat to my husband; but my mother's husband was stingy with his meat, and scolded her. Then his Piegan wife said to my mother, "You and your daughter are living poorly. You had better run off." So when I brought back the plates (on which the meat had been carried), my mother said she would escape with me that night. She said she would wait for me all night. She told me to leave my moccasins with her, and I left them. Then my husband whipped me because he thought that I would run off. He told me not to sleep all night, but to sit up straight. Toward morning, while my two sisters slept, I ran out. My mother was waiting for me, and we ran to the creek, over the hills and down again. It stopped raining, and soon it became day. We dug a hole and got into it, and hid all day. At night we ran on again. It was cloudy and dark. We were near Cow Creek. An owl called in the woods. My mother said the owl was calling us, so we went there. It became day, but we went on. We were out of the timber when we saw people coming, so we ran back and

hid. At night it rained again, and was so dark that we could see only by the lightning. I was walking with two sticks. We came to the mouth of Cow Creek, where the banks were high and steep, and slid down. I was thirsty, but could not reach the water: so my mother held my wrist while I scooped downward with the other hand and thus got a little water. We heard the beavers working. Then a steamboat came by up the river (the Missouri). My mother was asleep, but I was awake. Then we crossed Cow Creek at the very mouth, and on the other side of the stream found a piece of gunny sack. I took this for a robe, and gave mine to my mother. We saw another boat going up the river, and my mother wanted us to get on it and go back to Fort Benton, as she wanted to sell me to the whites. Then I held my mother fast in the brush, for I did not want to go, and said, "There are many Piegan women there, and we will be known and taken back." I got out my knife and tried to kill my mother, because I did not want to go. Then we followed the Missouri down along the north side during that day. Soon we saw a bear asleep. We made a circuit around him, came back into the timber, and went on. We saw smoke down the river, and another steamboat came, and we hid in the brush. The boat stopped and unloaded near where we were. Being thirsty, we had gone to the river to drink and wash, and saw the boat. Then we started to run to it. I threw away my gunny-sack robe. Our moccasins were gone. Then we saw Crow and a Gros Ventre woman on the boat. It had started before we reached it, but we called out to it and it came back for us. The boat took us across the river at a bend of the Missouri, where there was a store and a saloon and a camp of Crow. The Crow women pitied us and cried over us because we were so poor, and laid down many robes for us to sit on, and felt the sores on our feet. The storekeeper had a Gros Ventre wife. She had been down the river visiting, and was the woman on the boat. This man opened a keg, and gave us whiskey. We drank some and then more. My mother became unconscious, but I was still drinking, sitting up and telling of our escape.

There was an officer (soldier-chief) at the Bend whose Piegan wife had run off to Fort Benton. He was leaving to go after her, and gave us sugar, cloth, blankets, and a sack full of meat, which he told us to get from the root-house. While we were staying here, my mother asked the trader's Gros Ventre wife to go with us to scrape juice from the inside of cottonwood-bark. The woman refused, being afraid of the Sioux, but we urged her, and at last she went. We were scraping, and the trader's wife was bending down. When she looked up, she saw Sioux on the hill. "Didn't I tell you the Sioux would come? Let us run back," she said. We ran. The woman fell. We raised her up and ran on. Again she fell, being frightened nearly

to death. We turned and ran back and picked her up, and ran on until we reached the store. The Sioux and the white man exchanged shots, but they were too far apart. The Sioux went on and killed a white man who was employed in cutting wood for the steamboats, and who had just shot a bear. They laid this man in the fire and burned him up, so that only his legs were found. After this we women were afraid to go even a very short distance from the store. Then the Crow swam their horses to the north side of the river. In the river a white horse stopped, went down, came up again, and went down; a *baxaa*<sup>n</sup> took it.

Then my mother said that she was tired of staying there, and with a Gros Ventre, Bull-Lodge (there being ten of us in all, six men and four women), we went down the river on the boat. Then the boat stuck and had to back. The buffalo crossed the Missouri, and the whites on board caught them by the horns, cut their throats, and dragged them ashore. Then we had a big feast of ribs and paunches and the best parts. We went on, and stopped at the mouth of Milk River. There Bull-Lodge set up his tent, but I and my mother slept on the boat. The next day we all went up Milk River on foot; only Bull-Lodge and his wife were on horses. We kept on the trail, and came to a recent camp-site. The Gros Ventre and Assiniboine were then at war. One of our party, looking back and seeing some persons coming, asked Bull-Lodge for his horse to scout. Riding back, he saw that six buffalo were coming towards us. That evening Bull-Lodge and his wife went on, while the rest of us went to sleep where we were. Bull-Lodge travelled during the night and reached the Gros Ventre camp, where the old men were still awake smoking. He told my brother that my mother and I were behind and that he had better bring us and the others horses. Then the people came and brought us, and all were glad to see us again.

#### PERSONAL SUPERNATURAL POWERS.

Men went out to fast with the intention of becoming doctors, or receiving miraculous powers. They did not go as boys, but after they had reached manhood. Not all men tried to acquire such powers, and some of those that did failed. They went to hills and high places, usually high up on mountains, among the rocks above the timber. In such a place they would make a shelter in which to sleep. Then they remained fasting and without drinking water for one or two or more often four or five nights. A Crow who staid seven nights and nearly died, being extremely thin when he returned, was regarded as extremely powerful. It was thought that he could accomplish almost any wish by merely expressing it. Besides fasting, a man cried

incessantly. After a time a spirit might appear to him. Perhaps this would be on the first or second night, perhaps later. Sometimes it was in full daylight, and the man really saw the spirit like a true person; but more usually he saw him in his sleep. It might be a person that appeared, that is to say, an untrue person (spirit), or an animal, or the spirit of a rock or of the brush. Some men went to islands and rivers instead of to mountain-peaks. These might receive the otter, or the beaver, or the muskrat, or the water-monster (bax'aa<sup>n</sup>) as their guardian spirit. Sometimes when a man was crying on a mountain-top in a thunderstorm, the thunder (bax'aa<sup>n</sup>) appeared to him. The lightning shot straight towards him, as if to hit him, and the bird was so near above his head that the man sometimes became afraid and ran away. If he staid, the thunder-bird became his spirit, and gave him medicine that was unusually powerful. Generally, it seems, the man cried incessantly, until he was exhausted and fell asleep. Then the spirit appeared to him, saying, "I pity you. What do you want?" The man said that he wished to be wealthy, or successful in war or love, or to become a medicine-man. If he was to be a doctor, the spirit showed him roots and plants, telling him to note their appearance, and informing him of the diseases for which they were a cure. Those plants that he had seen in his dream or vision, the new doctor looked for until he found them. His spirit told him, "In so many years (naming the number) you will begin to doctor." After that time had elapsed, he began doctoring. The spirit or animal told him that the place where he was was its own home. From this time on, the man never killed the animal that had appeared to him (except, apparently, for the purpose of obtaining parts of it as a fetish or amulet); nor did he eat of it under any circumstances. He used a part of the animal, especially the claws or the fur, in his doctoring. If the spirit of a rock had appeared to him, he used a stone.

Medicine-men cured the sick by sucking the body and by brushing it. As is customary among Indians, they were believed to suck through the skin without biting, cutting, or puncturing it. They might suck blood, pebbles, cloth, human finger-nails, bunches of hair, and many other things. If they sucked out old pus, it was evidence that the disease was of long standing. If they brushed or rubbed the patient, they used owl-feathers, skunk-skin, prairie-dog fur, or similar parts of animals. Some used bells as rattles, some whistles, and some drums; and all sang, each doctor having his own songs. After sucking the patient, the doctor chewed up medicine, which he then applied to the patient's body. He often also gave him medicine boiled in water to drink. The powers of doctors varied. Different men were able to cure different diseases. It is said, however, that none could do much for affections of the ear.

Doctors were paid a horse or more for their services. Sometimes several, in turn, doctored a patient, each one blaming those that had failed before. Often they laid the sickness to spirits, or to other doctors. This last occurred especially if in their sucking they extracted human finger-nails or similar objects. In such a case the doctor got his patient to sleep. The patient might then in his dream see the person that had made him sick, and on awaking would denounce him. If the sick man died, his relatives might kill the doctor whom he had named as the cause of his sickness.

There were not so many women doctors as men. They appear not to have gone out to the mountains with the intention of acquiring supernatural power, but to have received guardian spirits when they were away from the camp, mourning.

The jugular and femoral arteries and the aorta were called *ts'niinotandj*<sup>1</sup> ("having no ears"), because, when severed, they did not heed any remedies.

In order to save the life of a sick relative, the joint of the little finger was sometimes cut off in sacrifice to the sun.

There were some medicine-men who, having had their fingers tied, then had their knees fastened together and their hands secured behind their back. After this they were wrapped in a robe and the robe was wound about with a rope. Then such a medicine-man called his spirit. When it appeared, he was loosened instantaneously, and the robe and the rope were thrown at the man that tied him.

A charm used by a doctor is shown in Fig. 30. It consists of a deer-tail with beaded base, and of two black feathers and a bunch of down feathers. All parts of the object are reddened. This piece was used to brush patients. At other times during the doctoring it was worn on the medicine-man's clothing.

A man unsuccessful in winning a woman's love sometimes fasted on a



Fig. 30 (50-1937). Doctor's Charm. Length, 22 cm.

mountain and asked the spirit that appeared to him for a love-medicine which would bring him the woman. Soon after, she would come to him and try to obtain his love, but usually he would reject her, for a time at least, by way of revenge.

A young middle-aged man of the present time is noted for his love-medicine. He tells the following. He was once in love with a woman who only reviled him. For a long time this was on his mind. Constantly thinking of her harsh treatment of him, he fasted in a number of places, and finally received supernatural power. Then the woman came to him. She kissed him on the cheek; but he said, "You have abused me," and he made her go away. Four times she came to him; only the fourth time did he consent to gratify her wishes. Since that time, he has frequently used his medicine. His present wife was living with a white trader, where she had every comfort and great abundance; but by his medicine he made her leave the trader for him. His wife, it would appear, looks upon his powers without jealousy. He sells the use of his medicine to young men for two horses. His young son is crippled, so that he would have difficulty in winning women; but his father is keeping the medicine for him, so that he will be able to possess any woman he desires. The objects used include several medicine-plants. Some of these appear to be used to incense the man who is making the medicine. When a woman is unusually obdurate, wild parsnip (the root supposed to produce the peculiar state of mind of the crazy-dance) is employed by this man. When he begins to exert his influence on a woman, she becomes restless and sexually excited. She leaves the tent frequently, and will cohabit with any man. When the influence of the medicine is removed, she remains faithful to her lover.

#### MEDICINES AND PLANTS.

The following medicines, consisting chiefly of plants, are almost wholly family remedies, and, while no doubt also used by medicine-men, their supposed effects are generally known, and not connected with any personal supernatural experiences of the person using them. As the specimens were secured in winter, it was impossible to obtain material for botanical identification.

Wanouwasöö ("wart-medicine"), a root, is used for stomach-ache (specimen Museum No. 50-1800).

A root called ahaa<sup>n</sup>tjüniça<sup>n</sup> ("wood-like") is used for colic. This seems to be the root of a species of *Asclepias* (specimen Museum No. 50-1836).

A root called baasö ("red medicine," because it is reddish when fresh) is used for diarrhœa (specimen Museum No. 50-1914).



A plant called häyaa<sup>n</sup>t<sup>a</sup> is used both as a perfume and as a medicine. Pieces of it tied by a string to the shoulder of the shirt give a pleasant smell. It is also laid in warm water without being boiled, and the water is then used as medicine for sore eyes (specimen Museum No. 50-1883).

In case of snow-blindness, charcoal is put around the eyes, and believed to be very efficacious.

The green stems of a plant containing a white juice are used for women who have no milk. The Arapaho use the same plant for a similar purpose, and call it "milk liquid."<sup>1</sup>

A root called bätset ("hand," on account of the peculiar conformation of the roots) is laid in very small quantity into cold water, which is drunk by women to insure easy child-birth (specimen Museum No. 50-1946).

The flowers of a composita called niha<sup>n</sup>äänou ("yellow-head") or tjitjixtä<sup>n</sup>sibiisöö are put on coals for a woman who has given birth. She stands above the fire to incense herself (specimen Museum No. 50-1944).

Another plant called niha<sup>n</sup>näänou ("yellow-head"), which grows close to the water, is boiled, and drunk for pain in the back or in the body (specimen Museum No. 50-1945).

A root called niitasou ("sharp") is pulverized, and then applied to sores in the mouth and on the tongue (specimen Museum No. 50-1838).

A rock lichen called benaatsün is chewed for a sore mouth (specimen Museum No. 50-1874).

The root of tyätväniçä is obtained from swampy land far to the north of the Gros Ventre habitat. The roots are soaked in water and the black portions removed. Then they are grated, mixed with water, and applied to the neck for sores (specimen Museum No. 50-1907).

A root called kouh<sup>1</sup>ya<sup>n</sup> is chewed until a sticky paste results, which is applied to sores (specimen Museum No. 50-1919).

A fungus called tsäädjina<sup>n</sup> is set on fire, and when glowing is applied to wounds or sores. It is also pulverized, and put on the gums of children when they are teething. It is said to grow on birch-trees, near the root (specimen Museum No. 50-1837).

The roots of iniitsöö are boiled and the water used to wash the part of the body which has been burned by the application of the glowing fungus tsäädjina<sup>n</sup> (specimen Museum No. 50-1856).

Ibyaa<sup>n</sup>tou-leaves, which are also used as incense, are boiled in water. This is then applied to the body to allay pain (specimen Museum No. 50-1790). This medicine is the Arapaho niibaa<sup>n</sup>tou or ibaa<sup>n</sup>tou (fir or similar leaves), used both as incense<sup>2</sup> and as medicine.<sup>3</sup>

<sup>1</sup> See Bulletin of the American Museum of Natural History, Vol. XVIII, Part IV, p. 438.

<sup>2</sup> Ibid., Vol. XVIII, Part I, p. 32.

<sup>3</sup> Ibid., Part IV, p. 426.

Na<sup>n</sup>kasö ("white medicine") is a fungus growing high on pine-trees. It has a general use for any disease (specimen Museum No. 50-1796).

The leaves of ka<sup>n</sup>kadyikou, growing in the mountains, are boiled, and the tea used as medicine for various purposes (specimen Museum No. 50-1897).

The bark of iinaa<sup>n</sup>söoniçou is either chewed in the native state, or boiled and drunk, for hemorrhages and pain in the back. The plant is said not to grow in the Gros Ventre country (specimen Museum No. 50-1943).

Tawaa<sup>n</sup>nasöö-root is used for pleurisy and heart-sickness. It is said to taste sweet. The root is either chewed, or boiled and drunk. This is the Arapaho häçawaanaxu, and is much used in the age-ceremonies of both tribes (specimen Museum No. 50-1855).

Juniper-berries (çää<sup>n</sup>touwun) are a cure for asthma. They are either eaten entire, or they are pulverized and boiled, and the water drunk. The leaves, called "çää<sup>n</sup>touwusöö," are mixed with the root, and then used as a remedy for hemorrhage. The leaves are also used by the doctors to incense themselves before they begin to doctor (specimen Museum No. 50-1854).

The root called niätä<sup>n</sup>, used by the Arapaho ceremonially and as an ingredient for incense, is employed by the Gros Ventre as a remedy for tuberculosis and hemorrhages. It is said not to be used as incense. The root is boiled before being used. It is eaten in the solid state, or a decoction of it is drunk (specimen Museum No. 50-1793).

The root of naw'asöö ("fish medicine") is eaten for colds (specimen Museum No. 50-1794).

Niitsiça<sup>n</sup> ("hollow root") is primarily a horse-medicine. It is given to horses to strengthen and refresh them. People also use a decoction of it as a remedy for colds (specimen Museum No. 50-1795).

Niha<sup>n</sup>nisö ("yellow medicine") is used for colds. Either the root is eaten, or water in which it has been boiled is drunk (specimen Museum No. 50-1799).

A plant which grows north of the Gros Ventre country, and for which they appear to have no name, is used for colds and sore throat, a small quantity of the root being chewed (specimen Museum No. 50-1848).

A root called taw'haa<sup>n</sup> is obtained from other tribes. The plant is said not to grow in the Gros Ventre country. It is pounded and used as snuff in order to clear the head in case of cold or headache (specimen Museum No. 50-1797).

The stems and leaves of waasöwaha<sup>n</sup>, a sweet peppermint, are used for headache. The plant is also drunk as tea (specimen Museum No. 50-1791).

The root called wanaa<sup>n</sup>sübyaa<sup>n</sup> ("smelling loud") is smoked in the pipe against headache (specimen Museum No. 50-1798).

A plant called *tyääänou* is used as perfume, as a wash for the hair, and as a minor medicine. Bunches of the plant were used as perfume. A tea boiled of it is thought to make the hair grow while perfuming it. Such a tea is also poured into the nostrils as a remedy for headache (specimen Museum No. 50-1920).

*Niibyouäxtjin* is used as perfume. The stems and leaves are chewed, and applied to the body (specimen Museum No. 50-1853).

*Tsaa<sup>n</sup>sübin* is used as perfume. It is chewed, and rubbed on the hair (specimen Museum No. 50-1792).

One ingredient of incense is the callosity from the leg of a horse above the knee. This is cut up fine, and burned with sweet-grass. It is also worn on the body on a string.

Pine-nuts or other conifer-seeds are used for pemmican (specimen Museum No. 50-1913).

For embroidery, dark fibrous water-plants, at<sup>a</sup>hin (the Arapaho *atahina<sup>n</sup>*), are used (specimen Museum No. 50-1891).

Quills are dyed yellow with a solution from a conifer-lichen, no doubt the widely used *Evernia vulpina*, called *otsahaa<sup>n</sup>* (specimen Museum No. 50-1873).

#### TRIBAL CEREMONIAL ORGANIZATION.

The Gros Ventre ceremonial organization is akin to that of the Arapaho with such differences as would be expected from the differences in language and the period of separation of the two tribes. The fundamental feature of this organization, the grouping of men by ages and the observance of a series of a half-dozen ceremonies in order according to age, is common to the two tribes. The ceremonies vary somewhat, and in a few cases their names or order have been changed; but among both tribes there are about six regular consecutive men's ceremonies, one or two that are preliminary or somewhat outside of this series, a single ceremony for women corresponding to those for men, and the sun-dance, which is included by the Indians in the enumeration of their grouped ceremonies, but differs from the others in not being connected with age, or with any society-like association of individuals.

Among the Gros Ventre the dancing-lodge for these ceremonies — which is erected in the centre of the camp-circle, and, like this, opens to the east — is constructed of two large tents. The lodge is open above, and appears to be oval or round in shape. The dancers, before beginning the ceremony, secure old men, who are called their "grandfathers," and are their instruct-

ors and directors through the dance. By these old men the dancers are painted in the dancing-lodge every morning during the ceremony. The dancers' wives take a more prominent part in the ceremonies among the Gros Ventre than among the Arapaho. They are painted at the same time as their husbands by his "grandfather." Every night during the ceremony there are certain observances between the "grandfathers" and the dancers' wives, who leave the camp-circle together in order that the women may receive medicine from the old men. This practice is much more developed among the Gros Ventre than among the Arapaho.

Whether there is in each dance a preparatory period in which the dancers' regalia are made and they are instructed in the ceremony by their "grandfathers," as among the Arapaho, is not clear in the case of the Gros Ventre. The dancing itself in all of the age-ceremonies goes on for four days,<sup>1</sup> and, in some cases, nights. On the last day the dancers leave the lodge, and dance for gifts before the tents of prominent men at different places in the camp-circle. Immediately upon this the camp breaks. The dancers, with the property they have received in gifts, go in advance, and lay the presents on the ground. The camp comes up in a body and makes a rush; the property is seized and divided. The dancers form in a circle, and at the conclusion of four dances rush off to race. On their return the ceremony is ended. Only in the case of the crazy-dance do these ceremonies of the fourth day appear to take place without the camp-circle having been broken; and for four days thereafter the camp remains in position, giving the participants in the ceremony opportunity for the license which is a part of this dance.

All the ceremonies, including the sun-dance and the women's dance, are made as the result of the pledge of an individual in the hope of deliverance from death or danger, either of himself or of a relative. If a member of a company of men who are of the proper age to make the crazy-dance has a relative whom he loves, and whose death from sickness is feared, he may say, "Such and such an old man (naming him) shall put up the crazy-lodge for me this summer." If the sick person dies, the dance is not held. Sometimes a person who is ill himself pledges to make the dance on his recovery. The pledger of any dance is called *ye'nouhuxtj*<sup>1</sup> (Arapaho, *ya'nahūt*<sup>1</sup>). A man in danger in war, or one who has been wounded, may also pledge the dance. The time for the dances is apparently summer. For the sun-dance, spring or early summer, when the trees are full leaved, is specified; and it is added that sometimes, after the pledge is given, the people have to wait all winter to make the ceremony. In the case of the crazy-dance, it is stated that two divisions of the young men of the tribe,

<sup>1</sup> Probably to be interpreted as three nights and three days.

each of which has a ceremony of its own rivalling that of the other (respectively the war-dance and the 'star-dance'), compete in a horse-race, with the agreement that the beaten party is to put up the crazy-lodge. It does not seem that this is a common procedure.

The Gros Ventre abandoned their dances much earlier than the Arapaho, and almost nothing of the organization remains now, except a memory. It is somewhat difficult to procure precise details of the procedure, especially in the older dances. In great part, the regalia used have also perished, and it has been possible to secure only a very few pieces. These show, as do the descriptions given by the Indians, that the objects and decorations used are quite similar to those of the Arapaho. The distinction of several degrees purely of honor within each ceremony, which is so characteristic of the Arapaho age-dances, is also found in the Gros Ventre, though it seems that the distinctions made and the number of degrees are not quite so elaborate. This is evidenced, not only by the fact that few degrees are described by the Gros Ventre, a fact which might be due to their longer disuse of the ceremonies, but also by circumstances such as the one that certain regalia, which in the Arapaho dog-dance are worn only by the members of the second and third highest degrees, are among the Gros Ventre the common regalia of all participants; only the highest degree of the Arapaho being retained by the Gros Ventre as distinct.

The Gros Ventre call their entire ceremonial organizations *benea<sup>n</sup>wu*, a dialectic form of the Arapaho *bäyaa<sup>n</sup>wu*, and, like it, probably meaning "all the lodges." The members of the age-societies are called *beniinen*, commonly translated at the present day as "soldiers," etymologically probably "all-men," or "all-(?)-men."

The ceremonies of the Gros Ventre *benea<sup>n</sup>wu*, with the age-dances given in order from youth to old age, are the following:—

<i>Açeiha<sup>n</sup>w<sup>u</sup></i>	Sacrifice-lodge, <sup>1</sup> sun-dance
<i>Nōubā<sup>n</sup>w<sup>u</sup></i>	Star-dance, partial preliminary
<i>Haha<sup>n</sup>tyā<sup>n</sup>w<sup>u</sup></i>	Fly-lodge, first dance
<i>Nōuhā<sup>n</sup>w<sup>u</sup></i>	Crazy-lodge, second dance
<i>Hotibyā<sup>n</sup>w<sup>u</sup></i>	Kit-fox lodge, third dance
<i>Nanā<sup>n</sup>nahā<sup>n</sup>w<sup>u</sup></i>	Dog-lodge, fourth dance
<i>Bīitāhā<sup>n</sup>wu</i>	Tomahawk-lodge, fifth dance
	Drum (?) lodge, sixth (?) dance
<i>Benuxtcā<sup>n</sup>w<sup>u</sup></i>	Buffalo(?) dance, women's dance.

The members of these successive age-ceremonies are called respectively

<sup>1</sup> Once translated "looked-at-lodge."

hotohuūu, nōubän, hahā<sup>n</sup>tyänen, nōuhunen, hotibyī, nanā<sup>n</sup>nāhā<sup>n</sup>ts or perhaps hiityāā<sup>n</sup>süts, biitaxäänen; or "stars," "flies," "crazy-men," "kit-fox men," "dogs," "soldiers" or "having-war-spikes," and "drum (?) men."

Aside from changes in the order of the ceremonies, of which there are several, the chief known differences between this progressive dance-series of the Gros Ventre and that of the Arapaho are two. One of these differences is, that the first dance of the Gros Ventre is the fly-dance, which the Arapaho lack altogether. The second difference is, that the fifth dance of the Gros Ventre, the nana<sup>n</sup>naha<sup>n</sup>wu, seems to combine the characteristics of the corresponding Arapaho dance (the hinanaha<sup>n</sup>wu or fifth) and of the first dance (the Arapaho hiitceäoxa<sup>n</sup>wu). In its name, its place in the series, and the age of its dancers, the Gros Ventre fifth ceremony agrees with the similarly named Arapaho fifth ceremony; but in the use of war-club-like implements carried by the dancers, and in the symbolic connection of the dance with the buffalo, there is an agreement with the Arapaho first dance. This first dance of the Arapaho is not represented by a separate ceremony among the Gros Ventre. A third possible difference between the two systems is, that no information was obtained regarding any Gros Ventre lodge corresponding to the oldest men's sweat-house among the Arapaho; but it is not unlikely that something similar formerly existed.

The several changes in order of the dances between the two tribes imply something more than mere change of position in the series. For instance, the displacing of the kit-fox lodge and of the biitaha<sup>n</sup>wu, both of which are early ceremonies in the Arapaho and late ones among the Gros Ventre, involves a change of the age of the participants, and therefore necessarily, in some degree, of the character of the ceremony itself, since, the greater the age of the participants in the ceremony, the more sacred it is.

The following comparison shows the respective places of each ceremony in the Arapaho and Gros Ventre ceremonial series.

CEREMONY.	ARAPAHO.	GROS VENTRE.
Sun-dance	Men of any age	Men of any age
Kit-fox lodge	First preliminary	Third dance
Star-dance	Second preliminary	Outside of regular series
Fly-lodge	Lacking	First dance
Hiitceäoxa <sup>n</sup> wu	First dance	Lacking (see Hinanaha <sup>n</sup> wu)
Biitaha <sup>n</sup> wu	Second dance	Probably sixth dance
Crazy-lodge	Third dance	Second dance
Dog-lodge	Fourth dance	Fourth dance
Hinanaha <sup>n</sup> wu	Fifth dance	Fifth dance
Seven old men	Sixth ceremony	Lacking?
Bänuxta <sup>n</sup> wu	Women's dance	Women's dance

The place of the *biitaha*<sup>n</sup>wu is not certain, as no informants were found who would positively express themselves on this matter. It is universally regarded as having been the most sacred and most dangerous of all the ceremonies, these qualities being thought to have led to its abandonment before any of the other dances. It can probably be concluded from this that it was last in the series, and performed by the oldest men.

As among the Arapaho, but somewhat more clearly, each dance refers symbolically to a certain animal. This symbolism is as follows.

The *fly-dance* takes its name from flies or mosquitoes, and was given or instituted by a mosquito. During part of the ceremony the dancers imitate the actions of mosquitoes.

The *crazy-dance* has comparatively little reference to any animal. The participants, however, wear anklets of badger-skin, and an entire badger-skin is used in ceremonies at the time of starting the dancing.

The *kit-fox lodge* was given by the kit-foxes, and a kit-fox skin is used somewhat analogously to the badger-skin in the *crazy-dance*.

In the *dog-dance* the dancers of highest degree represent shaggy dogs. It is also said that the participants in the ceremony largely eat dogs during its course. Among the Arapaho a dog is said to have instituted this lodge, and the Gros Ventre have a similar myth.

In the *nana*<sup>n</sup>naha<sup>n</sup>wu the dancers sing for the buffalo, and it is said that they always succeed in causing them to appear near the camp. Among the Arapaho the dancers represent both buffalo and prairie-chickens. The symbolic reference to prairie-chickens among the Gros Ventre is found in their *sun-dance*; their equivalent of the Arapaho *rabbit-tent* in this ceremony being called "prairie-chicken tent," and the singers in it "prairie-chickens" and "prairie-hens."

The *biitaha*<sup>n</sup>wu, as among the Arapaho, has connection with thunder. The dancers are painted over the body with dots which represent hail. If one of them violates the regulations of the dance, it is thought that it will begin to rain and that the offender may be struck by lightning. The Gros Ventre have an additional symbolic connection of their *sun-dance* with thunder, which is not strictly paralleled among the Arapaho.

The women in their dance among both tribes represent buffalo, and the actions gone through in this ceremony are in both tribes probably more directly imitative of the animals symbolized than in any of the men's ceremonies.

What has been said about the Arapaho in regard to the relation of the entire ceremonial organization to the lives of the men of the tribe, and in regard to the relative importance of the religious, military, and social functions of the age-companies constituting the organization, appears to apply

equally to the Gros Ventre. The Gros Ventre, however, used a method of organization as regards the performance of the age-ceremonies of which nothing was heard among the Arapaho. The men of the tribe of age to make any one ceremony were not all in one society or company, but in several; the total number of the companies being three or four times as great as the number of ceremonies. Each of these companies had a name, which it retained throughout its existence, irrespective of the dance it had last performed; and each held its ceremonies without participating in those of any other company. It seems that, when one of these companies had made all the dances, the surviving old men grouped together the available young men in the tribe, and formed them into a new company of the same name. With this organization it was possible for each ceremony to be performed in the tribe much more frequently than if all those of an age and previous ceremonial experience entitling them to make a certain dance had performed this together, as appears to have been the case among the Arapaho; or the ceremony could be given at short intervals without involving the repetition of it for a considerable number of times by the same body of men. The Gros Ventre companies could and did repeat the ceremonies, especially the earlier ones, but do not seem to have done so more than once or twice.

The names of these companies resembled nicknames, and for the most part had a character not very different from the clan names in use among the Gros Ventre and other Plains tribes, in which a certain humorous or derisive element prevails. The following are the companies whose names were obtained:—

Green-grass, wanoçetyi	Ugly-dogs, wasaa <sup>a</sup> tibyī
Young-sheep, waotei	Seed-necklaces, hityīisütyä <sup>a</sup>
Small-horses, tsaāa <sup>a</sup> çibyī	Having-back-fat, hiinanihits
Rosebushes, yāāniisö <sup>a</sup>	White-noses, nanaa <sup>a</sup> tsööbä <sup>a</sup> ts
Calves (of leg), itsiitsün	Eat-enough-to-last-over-night, äteino-tä <sup>a</sup> ts
Sleeping-on-the-breast-of-a-woman, bitenanaa <sup>a</sup> kataāa <sup>a</sup> bei	Holding-dogs'-tails, hotibyī na <sup>a</sup> ninaa <sup>a</sup> -nä <sup>a</sup> ts
Grass-in-their-pockets, wasöön tinaäy-huts	White-blankets, nana <sup>a</sup> tsöübänts
Big-bellies, tjiitää <sup>a</sup> ts	Fur-wrapped-wands, hiibiiçöuts
White-horns, nanä <sup>a</sup> tsö <sup>a</sup> nitä <sup>a</sup> ts	Bad-horns, wanaa <sup>a</sup> sönitä <sup>a</sup> ts
White-backs, nanä <sup>a</sup> ts'etä <sup>a</sup> ts	(? Stars, hotohuūu)
Men-across-the-river, ha <sup>a</sup> söitjänen	(? Feathered-sword-wands, iikoköuuts)
Different-from-beniinen, kaa <sup>a</sup> söbeniinen	(? Having-spikes, hiitjaāa <sup>a</sup> süts)

The list is probably not complete, as, with the disuse of the ceremonies, the formation of these companies has been discontinued for some time.



It seems impossible to tell at present whether these and the additional ones that there may have been, all existed contemporaneously, or whether some grew up as others died out. The last few named are doubtful as true companies. The Indians sometimes include the dances themselves among these companies, calling their members "flies," "dogs," "kit-fox men," and so on. This is, of course, a cross-division, as each of the numerous companies in turn makes, for instance, the fly-dance. During and after the ceremony its members are called "flies," as well as by the name of their company. As there is a star-dance, it is therefore possible that there was no true star company. The sword-wands and war-spikes are also somewhat doubtful. These names refer to objects used as regalia in the Arapaho first dance and in part in the Gros Ventre fifth dance. The participants in the Gros Ventre fifth dance, it seems, were also called by the latter name. It is therefore probable that these two names refer to dances and not to real companies.

The companies held together, to a certain extent, outside of their dances. They were likely to act together in war, and there was a spirit of rivalry between them. In the sun-dance, and possibly on other ceremonial occasions, the younger men of the tribe took part in certain actions by companies.

The following specific statements of the ceremonial experiences of a few of the old men of the tribe alive in 1901 will make the general scheme of the organization more concrete.

A man known as Bill Jones, reputed to be the oldest man in the tribe, belonged to the "big-belly" company. Of this, only one other member survived at that date. He himself had been keeper of one of the sacred pipes; and he and his "big-belly" companion, together with the five survivors of the next oldest company, were spoken of as the seven oldest men of the tribe. As all the Gros Ventre ceremonies have been discontinued, it is not possible to deduce from this statement with certainty that these seven men would in former times have constituted a definite body with distinct ceremonial powers and observances, like the Arapaho water-sprinkling old men. This man had made the fly-dance, the crazy-dance twice, the kit-fox dance twice, the dog-dance, and the nana<sup>n</sup>naha<sup>n</sup>w<sup>u</sup>. He had not made the biita-ha<sup>n</sup>w<sup>u</sup>. Younger men than himself have seen this; but it appears to have been abandoned some time before he became of age to take part in it. He had made the star-dance before the fly-dance. He had also taken the part of the man who shoots a buffalo (in the women's dance?).

Bull-Robe, now dead, a renowned warrior, belonged to the next age-company, "those-who-eat-to-last-all-night." He had made the fly-dance, the crazy-dance, the kit-fox dance, and the dog-dance. The nana<sup>n</sup>naha<sup>n</sup>w<sup>u</sup> seems to have been discontinued before he reached it. In the first three of his dances he was one of the leaders, or recipients of special degrees.

Subsequently he was a "grandfather" in the crazy-dance, but in none of the other ceremonies. He never participated in the sun-dance, having had no occasion to do so, he said. Nevertheless he once was the man selected during the sun-dance to kill a buffalo with one arrow, the buffalo's skin being cut up into thongs with which the rafters of the lodge are fastened. He succeeded in killing the buffalo with one arrow.

Another man, now middle-aged, belonged to the "holding-to-a-dog's-tail" company. He made successively the fly-dance, the star-dance, and then the crazy-dance.

#### STAR AND WAR DANCES.

At present the organization into comparatively small companies is no longer maintained. In its place there is a division of the young men of the tribe into two groups, one of which practises, or did until recently, the star-dance; the other, the grass or war dance. The latter is universally stated to be a recent importation from the Sioux, apparently within the present generation. The star-dance, however, is an old ceremony, it is claimed; and this assertion is borne out by the occurrence among the Arapaho of the analogous star-dance. Among the Arapaho the star-dance, like the kit-fox dance, is a preliminary which appears to be gone through by all the men of the tribe, but has neither the standing, the organization, nor the definite observances and regalia of the subsequent ceremonies. Among the Gros Ventre the star-dance was formerly also outside the regular series of dances. It is generally spoken of as having been a warrior dance, made at any time and on any suitable occasion, and without the rigorously prescribed course of other dances. Some men seem to have made it before the fly-dance, and others afterward. Even in former times, however, before the war-dance had come among the Gros Ventre, the star-dance included only part of the young men of the tribe. The old men surviving from certain companies have never taken part in the star-dance, and explain this by the fact that there was rivalry between their company and the star-dancers. It might thus, perhaps, seem that a star company had a ceremony of its own, the star-dance, from which the members of rival companies naturally held aloof; but it is very improbable that only one age-company parallel to the others, and none of these others, should have had a distinctive ceremony. It is also improbable that this company, being one of many, should have been so large as to include about half of the men of the tribe, for it appears that some such large proportion took part in the star-dance. This makes it almost impossible to believe that there existed a star company exactly

analogous to the "green-grass" and "young-sheep" and other companies, but having an additional ceremony confined to itself. On the other hand, if the "stars" were not one of the age-companies, it is hard to see with what groups of men they competed. It is therefore not improbable that there formerly existed among the Gros Ventre a star-society, which had a ceremony of its own, and which, while based partly on age in being constituted of young men, was outside and independent of the scheme of the *benaa<sup>n</sup>wu*, with which it had no, or only indirect, relation, and with whose working out it must in some measure have conflicted. Such a society, which would be a true society in being based on a membership determined by choice, purchase, initiation, or supernatural experience, — in other words, by selection, — would be of a type of organization quite distinct from the ordinary Gros Ventre or Arapaho age-company performing in the course of its existence an entire series of tribal ceremonies, but would have abundant parallels in other ceremonial societies on the Plains and elsewhere. Its presence would therefore be readily explainable as an incipient intrusion due to the cultural influence of some other tribe, the chief objection to such an explanation being the occurrence of the star-dance also among the Arapaho, but without a known association with a special society. This suggested character of the Gros Ventre star-society and star-dance fits the facts, but is after all only hypothetical; and altogether the relation of the ceremony to the remainder of the Gros Ventre ceremonial organizations is not yet clear.

The star-dance as formerly held is said to have lasted four days and nights. There might be further subsequent dancing. At the beginning of the ceremony, the dancers went to four places at the camp-circle facing or representing the four cardinal directions, and at each place danced before the tent of a prominent man. The owner of the tent gave away property and filled a pipe for the dancers, after smoking which they proceeded to the next one. After having danced in the four places, they danced in the middle of the camp-circle. This might be in the open air, or in a lodge made of two large tents combined. The singers were four old men, who accompanied themselves on small hand drums. The dancers' wives sat behind these four old men and sang with them. The dancer's relatives at times went to them and danced with them, taking their rattles and temporarily using them. The dancers' bodies seem to have been variously decorated; but they had no distinctive regalia except rattles. These were alike in general character, being loop-shaped, and decorated with gaudy paint and attachments, but there seems to have been no attempt at making them uniform. The dancing-lodge was elliptical, with the door towards the east and a fire near the western end. The singers were at this end, and the dancers near them, in two lines, along the sides of the lodge, facing each other. In dancing

they did not stay in one place, but at times moved about. They shook their rattles constantly. They did not sing, but uttered a pressed-out "Hah." Two atsaan (assistants or servants of the dance) attended near the door. They brought back such of the dancers as became exhausted from lack of sleep and left the ceremony. Two men who had fought and struck a mounted enemy while they themselves were mounted, rode on horseback. When they went to dance, the assistants went to them and helped them dismount. If the dancers were inactive, these two men went about among them to make them arise. If the dancers remained on the ground, they struck them with their whips. The spectators outside lifted up the bottom of the tent and looked underneath; or, as the tent was not very high (the lodge being roofless), those who were on horseback looked over it.

The Gros Ventre star-rattles consist of a tube of rawhide, an inch or less in diameter, bent on itself into a hoop three or four inches across, and attached to a stick handle half a foot or more in length. Apparently one end of the tube projects out from the hoop forming the head of the rattle, sufficiently to allow the stick to be inserted. The rawhide is painted, and ornamented with three or five bunches of feathers. The handle is wrapped with cloth, the upper end of which usually is cut into a small fringe at the base of the head of the rattle, while the lower end hangs free beyond the handle. The general outline of the rattle is similar to the Arapaho star-rattle, this having a round or kite-shaped flat head at the end of the handle. The hoop feature is, however, wanting in the Arapaho rattles, which are without a perforation. The Gros Ventre decorations of their rattles — whether feathers, cloth attachments, or painting — are usually crude and gaudy. It seems that the rattles now in use are a degenerate modern form. In the majority of cases the feathers attached are dyed: some are cut from the quill. This indicates a recent modifying influence. Many of the feathers are cut off transversely. This may or may not be an old feature. The piece shown in Fig. 31 has least of the base qualities of these rattles, and is a probable approximation to the older type.

Of some of the specimens to be seen in the Museum, descriptions are here given.

Fig. 31 (50-1783). Handle covered with red flannel, which hangs below the handle about two feet. Fringe of same at base of head, and same forms periphery of head. Rawhide of head painted blue, red on inside of loop. A string appears to have been wound around the head while the hide was fresh, and removed after the painting, leaving radiating white depressions. Head ornamented at top and sides with three bunches of four black-and-white, squarish, half-downy feathers attached by thongs. At the top there is also an eagle-feather. Handle wound with thong, forming at the end a loop to pass over the wrist. The head of this rattle was said to represent a star.

Specimen Museum No. 50-1767 has a small rough head and a crooked handle. Handle wound with blue cotton cloth. Two strips of green cloth hang from the end of the handle. No fringe at the base of the head. Head painted yellow-green; on this, eight red spots centred with yellow and bordered with green; on the opposite side, five green spots bordered by red. Three bunches of feathers. Feathers at top, — one eagle; several smaller, dyed violet-blue and yellow, cut off or slit from quill. Two bunches at sides, yellow-dyed and chicken feathers. Places at periphery for the attachment of other bunches.

Specimen Museum No. 50-1806. Handle short, scarcely six inches; head forming a large even circle nearly four inches across. Handle wrapped with blue woollen cloth, chiefly covered by the winding of a red-painted thong; free end of blue cloth more than a foot long. Fringe of three or four pieces of the same cloth at base of head. Head painted over red. Feathers attached in three places, all cut off across, and dyed violet. Two are attached at top, one on each side.

Specimen Museum No. 50-1807. Handle about six inches, head scarcely three. Rawhide covers the stick nearly to end. Two upper inches of covering exposed; below this, handle covered over rawhide with dark-blue cloth; short fringe above; fringe of several strips, about one foot long, below. All rawhide painted yellow; on each side of head, a red line; inside of hoop, about eight blue spots; periphery, blue. Feathers in five places. Top, eagle-feather, white portion reddened, yellow-green stripe on black along quill; three green-dyed cut-off feathers. At each side, below, one or two yellow-dyed cut-off feathers. On each side, still farther below, two or three similar feathers dyed green.

Specimen Museum No. 50-1808 is similar to the last in several details, and was obtained from the same person. Size a little larger than last. Extent and painting of rawhide the same. Handle completely covered with winding of red cotton cloth; no fringe above, two short ends below. At top, bunch of fifteen yellow-dyed feathers cut off very short; on each side, bunch of four (in one case, two) feathers dyed green; the upper portions of quills cut out, the vanes more complete.



Fig. 31 (50-1783). Star-dance Rattle. Length of loop and handle, 30 cm.

The large amount of individual variation within the limits of the general type characterizing these rattles occurs apparently also among the Arapaho star-rattles.

In the war-dance as it was held when first introduced, there were two men who had wands representing swords, and several wearing the familiar belts of crow-feathers with tails falling behind and projections at the lower part of the back. As among the Arapaho, these belts are referred to the crow. A drum was used, made of a cottonwood board or slab bent into a circle, covered both above and below with horse-skin, and hung on four sticks. Four drumsticks went with it, one of which belonged to the owner of the drum, the three others to three different individuals. The sides of the drum were covered, half with red cloth and half with blue, and the skin was painted half blue and half yellow. When the men who owned the swords, the crow-belts, and the drum, gave these away, which they generally did at the same time, a dance was held. The new owners, in turn, by giving the objects to their successors, would furnish the occasion for another performance of the dance.

The war-dancers dressed quite variously. Some wore skunk-skin strips around the leg below the knee, beaded, and with small bells attached. Some wore similar strips around the head. Others had the well-known upright head-dress of deer-tail hair. Some carried fans of eagle-tails; some, whips; some, painted sticks with attached feathers. The dancing went on in a lodge similar to that of the star-dancers. The owner of the drum had his tent near this lodge in the middle of the camp-circle, and the members of the dance went to him to eat. If the head man of the star-dancers was popular, he was asked by the rival war-company to pitch his tent in the middle of the camp-circle, near the owner of the war-dance drum. There are said to have been no assistants in this ceremony, nor any old men as singers; but four of the wives of the dancers were selected to sing. The two men with swords (*kakaat*) had functions similar to those of the two mounted men with whips in the star-dance. They urged the laggard dancers to get up, and, if they fell down, struck them with their wands. If the man thus struck bore the blow like a man, as the Indians call it, the sword-bearer made him a present; but if he became angry he received nothing, and appears to have been looked upon with ridicule or contempt.

The war-dance as at present given is different from the form described. It is no longer a young men's dance, nor confined to a certain group. All the people of the tribe take part in it. It is very similar in general character to the present-day Arapaho crow-dance, as well as in the place it occupies in the life of the people. Among the Gros Ventre it is now the only dance held.

Recently these two bodies of young men performing respectively the star-dance and the war-dance have supplanted entirely the older, more numerous age-companies. In late years they have taken the place of the age-companies in the ceremonies connected with the erection of the sun-dance lodge. There was then considerable rivalry between them, and it is said that a member of either company who should take part with the other would be abused by his companions, and perhaps have his clothes torn. Recently also the two groups have had certain social functions, which among most Plains tribes are in the hands of tribal bodies or societies. They had charge of the moving of the camp-circle and of locating it. If a man disapproved of their selection, or pitched his tent elsewhere than they directed, they overturned it, and perhaps destroyed his property or killed his horses. If buffalo were seen and others than themselves went ahead and killed them, these two companies cut both the meat and the skin of such game into small pieces.

#### THE FLY-DANCE.

The fly-dance (nouba<sup>nw</sup>), the first of the dances, seems to have been regarded in some ways as preliminary to the series, rather than part of it, somewhat like the Arapaho kit-fox and star dances. The dancers were called noubän ("flies"). They were young men, sometimes described as boys. Apparently they were of an age where many or all of them were still unmarried, for no mention of their wives participating in the ceremony is made. The duration of the dance is not quite sure. It is said, like all the other ceremonies, to have continued four days; but another informant gave one day as the length of the ceremony. It is not clear whether or not a lodge was erected for the ceremony. In any case, however, the dance was performed outside of the camp-circle. A prominent feature seems to have been the food cooked by the relatives of the young dancers, and brought to the dancing-place. In distinction from what occurred in the other dances, "grandfathers" were secured very easily for this ceremony, which goes to show the light regard in which it was held by the elder men. The old men of the tribe are said to have gone out to the dancing-place, and, on being selected by groups of dancers as "grandfathers," to have accepted at once.

The dancing went on during the day. The dancers were practically naked; and their entire body, as customary in Arapaho and Gros Ventre ceremonies, was painted over. A common style of painting, or perhaps the characteristic one of the dance, was red, with a white stripe on the face and another on the belly. The pledger of the dance (yenouhuxt<sup>j</sup>; Arapaho, yanahut<sup>i</sup>) was painted yellow, with corresponding black stripes. After the

painting, an old man took the lead, followed by the pledger, and he by the dancers in file. All the dancers carried small hoops ornamented with quill-embroidery and with small feathers. These hoops were carried on sticks. When the old man stopped, the dancers gathered in a circle about him to dance. They took hold of the corners of their robes, and flapped them like wings, buzzing and humming like mosquitoes. After they had



Fig. 32 (50-1839). Fly-dance Horn.  
Length, 18 cm.

done this four times, they lay on the ground on their faces. Beyond the small hoops there seem to have been no regalia. There were also neither whistles, rattles, nor drums used, except that the "grandfathers" each had a leafy branch (as of willow, cottonwood, or cherry), which they shook, rustling it in time to the singing. Towards evening the dancers went to one side of the camp-circle, but still outside of it. There they danced. Going west of the camp-circle, they danced there, then to the side opposite to that where they had begun, and finally to the east or opening of the camp. When they had danced four times here, all the people had retired to their tents for the night, and all outdoor work had been done. The dancers immediately started out in all directions, looking for people. If they saw any one, they pursued him until they overtook him. They carried cactus-spines and sharp claws, with which they pricked him. If he succeeded in reaching a tent, they walked around outside, pelting the tent with pebbles. It is said that if the person attacked fanned himself, as he would for flies, the dancers would not sting him. In all their actions in this part of the ceremony, the dancers seem to have imitated flies or mosquitoes. Going about among the tents, they also took meat hanging outside, cooked it, and ate their fill. They also played and ran races until they were tired.

As to the origin of the dance, it is said that once an old man was asleep, when he dreamed this dance. The fly that gave him the ceremony was a mosquito. It directed him to institute the dance, and showed him how it should be conducted.

Fig. 32 shows a small mountain-goat horn, painted over red, used in this dance as one of the implements for pricking or scratching.

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Towards evening the dancers went to one side of the camp-circle, but

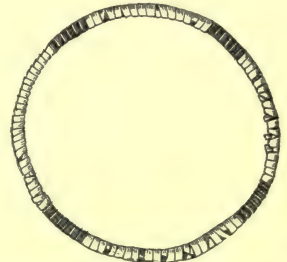


Fig. 33 (50-1936 a). Fly-dance Hoop. Diameter, 8 cm.



Fig. 33 shows one of the small quill-wrapped hoops carried on a stick in the fly-dance. It is about three inches across, and lacks the feathers once attached to it. The hoop is not continuous, but consists of four slightly curved sticks. Each of these is wound with yellow quills, and in the middle with black (really dark-brown) fibres. The quill-wrapping encloses a sinew strand, which passes from one stick to the other, holding them together into a flexible, somewhat four-cornered hoop. At each of the four dark marks an eagle-plume was formerly attached, and in addition an eagle-feather (specimen Museum No. 50-1936b) was hung from the hoop. This hoop was made, for the man from whom it was obtained, at the time he took part in the fly-dance.

#### THE CRAZY-DANCE.

The second ceremony, the crazy-dance, corresponds pretty closely to the Arapaho crazy-dance. When it was summer, and the time came to make the ceremony in fulfilment of the pledge previously given, the different bands of the tribe gathered in a single camp-circle. Certain men, leaving this camp, then went out to select a suitable site for the dance. When they had found this, the camp started for the place, while they made piles of buffalo-chips in a circle, indicating the place for the camp. The company about to make the ceremony gathered at night, and, taking a pipe of black stone, went stealthily to the tent of an old man whom they had selected to put up the lodge (that is, direct the ceremony) for them. They entered his tent while he was sleeping, woke him, and handed him the pipe. When he signified his acceptance by taking it, they kissed him in thanks, and made him presents. After he had smoked the pipe, he told them to obtain "grandfathers," which they did.

When the preparations had begun to be made, crows and owls were killed by the dancers, because they used their feathers. The dancers' regalia consisted of anklets of badger-skin and of quill-embroidered leg-lets, to both of which four crow-feathers and buffalo-fetlocks, or antelope-hoofs, were attached as ornaments and rattles. Around the head they wore a narrow strip of skin embroidered with quill-work, to which an owl's head was tied on one side. Around their necks hung another quill-embroidered thong, at the end of which was a whistle of eagle-wing bone. A buffalo robe painted red was worn. A round hole was cut in this through which the head was put, so that the dancers did not have to hold the garment in place. The piece cut out for the head was not entirely detached, but left hanging down the back. Two long streamers of skin hung down the back

from this part of the robe. At the end of each of these, a bunch of owl-feathers, or rather a piece of owl-skin, was attached. The dancers carried bows, to each end of which seven crow-feathers were tied. Down was fastened to the bowstring at several places. At the handle of the bow a strip of bear-skin, owl-feathers, and some sage were fastened with a buck-skin thong. Four arrows accompanied each bow. One had a metal point, which subsequently was made more effective by medicine. The three other arrows were blunt, or had wooden points that had been chewed soft so as to be harmless.

The pledger, and three other men called "brothers" (hinähäbyitou), who sat apart from the other dancers in the lodge and acted somewhat differently on certain occasions, had bows that were unornamented, except for the down on the string. These four men wore their robes turned so that the hair was outside, whereas the other dancers wore the dressed side out.

All the dancers were painted entirely red. Their hair was daubed with white paint. They stopped the left ear with a mushroom, such as was used for tinder, and put paint (apparently white) over the ear and the entire left side of the face.

Four young men who would be good workers were selected to be the assistants or servants (atsaan) of this company. They brought wood and water, and performed other services.

The lodge for this dance is described as having been made of travois or tent poles about which tent-skins were drawn. It was open to the east. There was a fire about in the centre. Facing the opening of the lodge was a small partial enclosure or screen constructed on dog-travois. In this were the pledger and his three companions, the "brothers." The dancers are said to have occupied the northern half of the wall in the dancing-lodge; the "grandfathers," behind whom sat the dancers' wives, the southern half. As among the Arapaho, the dancers were divided into two sections; the tall men toward the rear and the short men toward the front, of the lodge. These two divisions competed against each other in the races to follow. The dancers' bows were stood up in the ground in a row just beyond the fire.

During the four days of the dance, the dancers, every morning before sunrise, went to their "grandfathers" to be painted. Apparently they went to their "grandfathers'" tents, and not to the dancing-lodge, for this purpose. The dancers' wives went with them. They were naked, and were painted too. No one but the "grandfather" looked at them. Before being painted, the dancers made incense of sage-leaves on burning charcoal. They also rubbed their bodies with fragrant fir or balsam leaves

crushed and mixed with fat. When the painting was completed, food from the young men's parents was brought to the old men. The old men also presented their "grandsons" with food. The food was then eaten. During the day the dancers and their "grandfathers" were in the dancing-lodge. In connection with the beginning of the dancing, a badger-skin was used. This was entirely wrapped, except at the head, in a flat rope of rawhide, half of which (one side?) was painted red, the other half black. This skin lay on the ground before the pledger of the dance, in or in front of his small enclosure, with the head toward the east. Glowing charcoal was laid before the row of bows, and sweet-grass (niasö; Arapaho, niox<sup>u</sup>) was put on the coals to incense the bows. The pledger, rising, took the badger-skin, and, holding it with the head pointing forward, walked slowly around the inside of the lodge, and then to the smouldering incense, over which he made four passes with the skin; then returning to his enclosure, he laid the badger-skin on the ground. Taking out a stick tied in with the skin, he struck the skin as hard as he could. At this, a singer at the middle of the back or western end of the lodge — who held a stick as high as a man, wrapped with buckskin, and with buffalo or antelope hoofs hanging along its length — struck the end on the ground, thus beginning the rattling that accompanied the singing. The old men began to sing, while the dancers simultaneously blew their whistles, and cried "Yaa!" The old men stood up and sang, and the dancers went to them, each of them to his "grandfather," usually three or four to one old man. The old men then drilled them, showing them how to dance and how to handle their bows and their robes. It seems that the dancers stood at the opening of the lodge, somewhat on the south. After dancing to four songs, during which they whistled and at the end of each of which they cried "Yaa," they dashed off in a race around a monument that had been erected at some distance to the southeast. If one of the division of tall men returned to the lodge first and thus won the race for his side, the short men filled pipes for the tall men and presented them to them to smoke, and, of course, *vice versa*.

After the cessation of the dancing, and when it was dark, old men cried out to the people to retire to their tents, the dancers' wives being about to go out with the "grandfathers." As the women went out, the dancers stood in the lodge in a circle, singing loudly and shouting in conclusion. The "grandfathers" went to the north of the camp-circle, where they stood in a row. Their "grand-daughters," that is to say, the dancers' wives, each carrying a pipe, followed them, and stood behind them. They addressed their "grandfathers," praying them to take the pipe and smoke it. After much persuasion, the old man accepted the pipe. Then the woman prayed to him again, asking him to pray in her behalf, that she might be

successful and happy in this world, in acquiring wealth and in living a long life. Then the old man pointed the pipe east, south, west, north, and up, lit it, and smoked it. Then wiping it, and dropping the ashes out of it, he held the pipe up toward the sky, and prayed for his "grand-daughter," then laid it on the ground. The woman was naked, except for her robe. She then begged the old man to give her the medicine called tawaanasöo (the Arapaho häcawaanaxu). It is said that sometimes the old man gave her none, but undoubtedly it was customary for him to give it to her. Only a small piece was used.

After this the women returned to the dancing-lodge, where their husbands were waiting for them. They did not go together, but singly. A boy or young man had been selected to stand outside the door, and watch for the women returning. As a woman came near enough to be recognized, he called into the lodge that she was coming, whereupon the dancers came out. Her husband and all the others kissed her. Her husband kissed the "grandfather" also. One by one the other women came back, and were received in the same way. If the woman had received medicine, she gave half to her husband. He chewed it up, and then rubbed himself over his body with it.

For four nights this appears to have been done. On all but the last night, it is said, that, on the return of the women, they and their husbands left the lodge and returned to their tents to sleep, to be painted again next morning. The last night, after the women and their "grandfathers" had returned, the old men picked out from the row of bows their "grandsons," and, standing north and south of the fire, danced, holding the bows; their "grandsons" meanwhile dancing with them, but the women sitting in their places.

These observances connected with the giving of medicine by the "grandfathers" to the dancers' wives are found, without essential modification, in the three following dances, as well as in this. It will be seen that they are considerably more developed than the corresponding practices among the Arapaho.<sup>1</sup>

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<sup>1</sup> In the Arapaho crazy and dog dances the procedure is not carried quite so far. Dorsey has described almost the same practice as occurring in the Arapaho sun-dance. What takes place on this occasion in the Arapaho crazy and dog dances has been summarized in Vol. XVIII, pp. 193, 200, of the Bulletin of the American Museum of Natural History. The following somewhat more precise account is appended for comparison with the Gros Ventre. The "grandfather" and the dancer's wife (who is naked, except, presumably, for a robe) go off. As or before they go it is said aloud, "He gives his wife away." She is given, theoretically, not to her husband's ceremonial "grandfather," but to "the four old men" that play a part in esoteric Arapaho ritual. The woman prays, asking the old man for life. He spits medicine on the ground four times, once for each of the four old men. She lies down before him, stretching her legs and arms, facing him. He asks "the grandfather above" — apparently "our father" — to look, and puts away his desire. Restraining himself, he covers her with a robe, draws her up, and leads her back, pushing her gently before him. When she rejoins her husband, the latter says, "Hahö'u" ("thanks") four times. That this custom of the Arapaho and Gros Ventre is not confined to them, is evident from a well-known passage in Lewis and Clark.

All that has been described took place for four successive days. While it is not clearly so stated, it seems likely that the four nights on which medicine was given to the dancers' wives constituted the four-days' period of painting and dancing. On the fourth day, after the dancing, certain special spectacular ceremonies were gone through, analogous to those which in all the succeeding dances terminated the ceremony. In this dance, however, a second period of four days, in which the dancers acted in their assumed capacity of being crazy or foolish, followed these spectacular ceremonies of the fourth day.

On this fourth day, two prominent chiefs, noted for their success in war, were selected. They held bared knives, and two tent-poles were brought to them. Each of them recounted four of his most distinguished coups. They then cut up the tent-poles into small pieces, and piled them up at the fireplace of the lodge and set them on fire. The flames blazed up high, while the dancers stood north and south of the fire with their "grandfathers" and danced. The fire was kept up and tended so that all the wood would be simultaneously consumed. The dancers' relatives held them by the hair or body, wherever they could seize them, while the dancers stood like horses trying to break loose, and blew their whistles. Each tried to be the first to rush into the fire. They seem to have moved toward the fire four times without entering it. The fourth time, at a signal, they were released, and rushed into the fire, dancing and stamping it with their bare feet until they had put it out. Medicine was put on the skin, and no one is said to have been burned; but men have fainted in the fire. One informant, who said that he had been the first to jump into the fire, stated that the soles of his feet became very hot, but that his skin was not burned.

After the fire had been put out, the dancers went to their "grandfathers," who prayed over their bows, put medicine on them, and gave them to the young men. The old men then sang and the dancers marched around in a circle for four songs. At the end of the last song, they ran out of the lodge, racing to a monument, which had been erected by the young men of other companies, at some distance to the southeast, and back again to the lodge. As they returned, each passed between two men standing near the entrance of the lodge, to whom he gave his bow as he ran between them. One of these two men was the tallest man that could be secured; the other was as short as possible. One of them took the bows of the tall division of dancers; the other, of the short division. It is said that these two men received bows until they had a large armful, but that they never made a mistake in taking a bow from a man of the other division. It appears, however, that the racers carried their bows in their right or left

hand, according as they belonged to one division or the other. Vessels of water were ready to pour on the racers in order to cool them. The four "brothers," the dancers previously separate from the rest at the eastern end of the lodge, did not run with the crowd, but started out slowly together, their faces covered with their robes. They trotted at a slow pace over the same course as the other dancers. As they returned, long after the crowd, the boys, young men, and young women of the camp, had gathered on both sides, and pelted them with buffalo-chips until they reached the dancing-lodge. There is, in this slow following of the pledger and his three companions, a reminiscence of the white-fool, the dancer of highest degree in the Arapaho crazy-lodge, who on all occasions contrasts by his slow movements with the other dancers.<sup>1</sup> After the return of all the dancers, they presented horses loaded with property to their "grandfathers," and these made similar presents to them. These gifts seem to have been payments to the old men for their instruction and painting, and to have been made at the conclusion of the part of the ceremony which was under their control. From this time on, the dancers' wives returned to their tents, and took no further part in the ceremony.

After this followed two observances. It is not certain which of the two came first. A crowd of people were waiting for the dancers in the open. The dancers, wearing their best moccasins put on loosely without being tied, left the lodge; and the waiting people, mostly women and children, ran after them, pulling off their moccasins, and, when they could not succeed in doing so otherwise, seizing their feet, and tripping them as they went. The dancers did not try to escape, or save their moccasins, but allowed them to be taken. Or, again, an old man who was poor was selected, and, having been given a pipe to smoke in order that he might accept, he went to the east of the camp-circle. A buffalo robe was brought, incensed four times with sweet-grass placed on burning charcoal or buffalo-chips, and then placed over the old man, with the hair side out, as, bent over, he knelt on the ground. The dancers gathered about him, and

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<sup>1</sup> According to an Arapaho account obtained, somewhat different from those previously utilized, there are two white-fools, not one. It is not clear which information is more correct. The white-fools always follow the dancers. If one of the ordinary dancers should be behind them, he would become unable to move. This is the result of any violation of a rule of the ceremony by a participant. In such cases the white-fools have the power to cure them by taking off their owl-feather head-bands, and rubbing them over the body with them. The white-fools are addressed as *heicābihin* ("sisters-in-law," strictly, "brother or sister-in-law" of opposite sex from the speaker). The dancers, to look at a person, put their head to the ground, and pretend to look with their rump. They throw dung into tents, calling it "food." If people look at them through awl-holes in a tent, they at once shoot the tent in that place. Going out on the prairie, they say, "Let us not shoot into the air," and shoot up. When the arrows fall in plain sight, they cannot find them: if they fall into brush or tall grass, they find them at once. They imitate, often with obscene renderings, anything that they hear, such as a person's speech, or a dog's bark. They paralyze dogs by pointing at them an arrow to which *tetecāātcei* is attached. They give the dogs they kill to their "grandfathers" to eat. As soon as they take off their head-bands, they become rational. Mooney's account of the Cheyenne and Arapaho crazy-dance, which seems to refer chiefly to the former, mentions two white-fools; compare *Ghost-Dance Religion*, op. cit., 1033.

the old man who had directed the ceremony stood by him. Until this time, the dancers' bows, which were to play so prominent a part in the dance of the next four days, had been unstrung. Each of the dancers carried a pair of moccasins in his belt, or perhaps some other property. The pledger now came up to have his bow stretched. The old man in charge of the dance, receiving the bow from him, rested it on the back of the crouching old man. Four times he bent it, and the fourth time slipped the string into its notch. Then he untied the three arrows from the bow and gave them to the young man, who put his moccasins or other gift under the croucher's robe. Another and another dancer came up with his bow, until all their bows had been strung on the back of the old man, and his robe swelled out from the accumulating gifts.

While the bows were being strung, the people took down the dancing-lodge, which, by the time of the return of the dancers to the centre of the camp-circle, was completely gone. The dancers now stood in a circle while the old man in charge of the dance, or, according to another account, two of the "grandfathers," sang for them. The long stick with rattling hoofs was shaken, and the young men danced for four songs. At the end of each song, they aimed an arrow at the sky, making a motion of shooting, and crying "Yaa!" At the end of the fourth song, all shot as high up as they could. As the arrows fell back they did not try to avoid them, and, it is said, were never hit. By this time the people had watered their horses and done whatever outdoor work was necessary, and retired to their tents, for, immediately after shooting into the air, the dancers rushed in all directions; and from this moment they had full liberty about the camp, except indoors, for four days. Any one seen outside of a tent was shot with the soft blunt arrows. He was pursued amid shots and blowing of whistles. If a man was caught, he was made to sit down, and all the dancers, seeing what was happening, gathered. If he rode, he was pursued on horseback until he was overtaken, whereupon he would say, "Do not wait: I will not give you a dance," meaning "Wait: I will give you a dance." Then they stood about him, and he sang and they danced. At the end of his song, every one shouted "Yaa!" and kicked him until he was knocked over. Perhaps he would say, "Kick me hard." Then they would barely touch him. Sometimes he said, "Now you must kill me." If, however, he said, "Do not hurt me," he would be hurt severely. Scarcely any one went out during these four days, except, of course, the dancers' "grandfathers," who were exempt from annoyance.

The pointed arrow tied to each bow, and ordinarily not loosened, was prayed over for each young man by his "grandfather;" and a piece of root esteemed as exceedingly powerful, and called *tjitjäätsä*<sup>n</sup> (Arapaho, tee-

tcäätcei), was attached to the shaft just behind the point. This root is the well-known poisonous wild parsnip. The arrow-point seems to have been painted blue. Even a slight scratch with this arrow was, on account of the power of the medicine, supposed to cause fits and death. The theory was, that if any one became angry under the unbridled annoyances of the crazy-dancers, and attempted to resist, he would be shot with this arrow. It is, of course, extremely unlikely that this ever actually occurred, or, if it did, the offender was, as among the Arapaho, no doubt immediately cured by the dancers from his imaginary convulsions or paralysis. If buffalo were driven among the tents of the camp-



Fig. 34.



Fig. 35.

Fig. 34 (50-1884 b). Crazy-dance Regalia. Length, 29 cm.  
 Fig. 35 (50-1884 c). Crazy-dance Regalia. Length, 23 cm.

circle, they were shot with these arrows, and are believed to have been killed, even if only very slightly wounded. Dogs were also killed in this way.

After four days of this playing, the ceremony ended. At its conclusion the bows were given away to boys who were relatives of the dancers; but the other regalia were kept, as the dance was not infrequently repeated.



More regalia of the crazy-dance than of any other ceremony were obtained for the Museum; but not a single set secured is complete. The Arapaho do not keep their crazy-dance bows after the ceremony, so that, under the present much more complete disappearance of Gros Ventre regalia, the preservation of a bow (see Plate XII) is very fortunate, though it lacks string, arrows, the sage for the handle, and the buckskin thong for wrapping the handle. The remaining ornaments of the bow have been re-attached to it. None of the peculiar crazy-dance robes or capes seem to be any longer in existence. Descriptions and drawings by the Indians show



Fig. 36.



Fig. 37.

Fig. 36 (50-1884 e). Crazy-dance Regalia. Length, 37 cm.  
 Fig. 37 (50-1884 k). Crazy-dance Regalia. Length, 25 cm.

that they must have been very similar to those of the Arapaho. The Gros Ventre, however, declare theirs to have been painted entirely red; those of the Arapaho are part red and part white. Two pieces of feathered owl-skin

for the ends of the streamers of this robe have been preserved in a few sets of these regalia. The head-band, leglets, anklets, and feather and fur attachments of the bow, also exist in two or more sets in the Museum. They agree entirely, so that only the set shown in Figs. 34, 35, 36, and 37, need be described. This set lacks only the whistle and whistle necklace, which have been supplied from another set (see Plate XII).

The bow (see Plate XII) is three feet long, an inch wide, nearly rectangular in cross-section, unbacked, and slightly reddened. At each end is tied a piece of skin slit into seven fringes, to the end of each of which is wrapped a crow-wing feather. At the middle of the bow is tied a strip of bear-skin a foot long and an inch or less wide. With this are six owl-feathers, — all to be held to the bow, it will be remembered, together with some sage, by a thong. The pieces of owl-skin for the streamers on the robe (Fig. 34) need no comment. The anklets of badger-skin are (Fig. 35) a foot long, an inch or more wide, tied together by two thongs, and near one end have four small hoofs attached. The head, leg, and neck bands differ from one another only in length and in attachments. They consist of a strip of skin a quarter of an inch wide, completely wrapped with yellow porcupine-quills. In four places are areas extending about half an inch, that are covered with dark-brown fibres. Attached to the head-band (Fig. 36) is part of a small owl-skin, including one of the mandibles. The whistle on the neck-band (Plate XII) is made of the wing-bone of an eagle or similar bird, and appears to be unornamented. It has been broken. At one end of the leg-bands (Fig. 37) are four small crow-feathers, attached by red-painted thongs.

#### THE KIT-FOX DANCE.

The kit-fox dance, the next in order after the crazy-dance, was called nouha<sup>n</sup>wu; and the dancers, nouhunun (“kit-fox men”). In its general course this ceremony was exactly analogous to the first part of the crazy-dance. For four nights, the dancers’ wives went out with their “grand-fathers” to receive medicine, and for four days, the dancers themselves danced in the lodge erected in the centre of the camp-circle. On the fourth day of the ceremony, or “after four days,” as the Indians say, the dancers went to the tent of a prominent chief and danced at his door, which was equivalent to asking him for gifts. The chief would give them horses and other property. Three other chiefs were accorded the same distinction. The camp thereupon broke, and the dancers, going ahead, put the property which they had received down on the ground in a row. The camp coming up, the brave men of the tribe made a charge on these things, as if they were

an enemy; and each took from among the property as nearly as possible such objects as he had actually captured in war. One who had stolen horses would take a horse; one who had taken a gun from an enemy would pick out a gun. While this was being done, or soon after, the dancers were dancing, concluding with a race similar to that in the crazy-dance. This marked the end of the ceremony.

There were several degrees of distinction in this dance. Two men had crooked lances wrapped with otter-skin. In four places these lances were tied about with small strips of white fur from which a pair of eagle-feathers hung. These lances were called nouçã<sup>nts</sup>'ta<sup>n</sup>. Two other lances were straight, and wrapped with jack-rabbit skin. These also bore feathers. A single dancer had a rattle of the globular shape common on the Plains. Half of the rattle was painted red, and half blue; and feathers were attached both to the top of the rattle and to the bottom of its handle. These regalia of honor were given to men renowned in war. A pipe was brought such a man, and if he thought himself entitled to the honor, and was ready to accept it, he took the pipe. If a man felt that others were really braver than himself, or had some other reason, he refused to take the pipe. One informant stated that he had declined the proffered honor because his wife's brother had recently died. The rank and file of the kit-fox dancers are said to have worn belts of prairie-dog skin. How far these corresponded with the biitaha<sup>n</sup>wu belts of the Arapaho is uncertain. The fur-wrapped crooked and straight lances are certainly similar to the crooked and straight lances indicating the second and third degrees in the Arapaho biitaha<sup>n</sup>wu.

Two girls took part in this ceremony. They were girls who were much thought of and beloved by their relatives. One of the dancers carried a kit-fox skin, the inside of which was painted blue. His companion had the rattle that has been described. While he rattled, the other, holding the skin by the neck and the tail, pointed it at the other dancers. These ran off, and this seems to have been the signal for the beginning of the dance. The two girls followed these two men everywhere. Their parents and relatives gave away great quantities of property in the dancing-lodge. Something similar is found in one of the Cheyenne society-dances, in which four young women accompanied the dancers from place to place.

Nothing was learned about the origin of the kit-fox dance, except that it is said to have been given by the kit-foxes, which is like what the Cheyenne tell of their analogous society.

A neck-band of badger-skin is the only object secured said to have been used in the kit-fox dance. To the end of it a tip of whitish rabbit-fur is attached. The lower part of the piece, which bears this rabbit-fur, hangs down the dancer's back. The upper portion, which is about four inches wide, is slit for a distance of a foot. Through this slit the head is inserted.

## THE DOG-DANCE.

Next after the kit-fox dance is the dog-dance, hotibya<sup>n</sup>wu. The dancers were called hotibyi ("dogs"). What has been said about the general course of the kit-fox ceremony applies also to this. On the last day, the dancers danced before the tents of several prominent men of the tribe for gifts. Then, going ahead of the route which the camp would take, they spread out this property and waited. When the camp arrived, a stick with rattles attached, similar to that used for the same purpose in the crazy-dance, was struck on the ground by one of the old men, whereupon the singing commenced, and the dancers danced four times. At the end of the fourth song, they raced, during which time, if not before, the people of the camp, it appears, seized the property.

The dog-dance is said to have been given by a dog. A long-haired dog was left behind when the camp left. An old man going into the hills to acquire supernatural power saw the dog following the trail, and, wondering, went to see, and pitied him. He went to sleep by him; and the dog, knowing the old man's pity for him, pitied him, and, appearing to him in a dream, said he would give him a dance, the dog-dance. He especially described to him the highest degree of the dance, the tsöoyanehi, which seems to be a representation of himself.

The dancers wore a strip of skin or red cloth on which four round figures were embroidered in quills, and which passed over one shoulder and under the other, the lower end dragging on the ground. At this end there was a hole, through which, in time of war, a stick was stuck. The wearers then did not flee, even if to remain resulted in their being killed. These scarfs appear to have resembled closely the scarfs worn by the Arapaho dancers of the second and third degree in the same ceremony. They were called naa<sup>n</sup>tsöiya<sup>n</sup>. In addition the dancers wore bunchy head-dresses of owl feathers and of two eagle-feathers. They also carried rattles of a stick on which hoofs were hung.

Two men were of higher degree, that is to say, honored on account of bravery. These were the "shaggy dogs," and were called tsöoyanehin, the dialectic equivalent of the Arapaho tciyanehina<sup>n</sup>. Among the Arapaho, however, there is only one dancer of this highest degree. As among the Arapaho, these men did not get up, or take part in the dancing, unless they were struck, or driven to it. They wore a shirt all over which circles were fastened in *appliqué*. To the centre of each circle, feathers were attached. On their heads they had owl-feather bunches like those of the rank and file of the dancers; and around their necks were long strings of bear-claws.

They also had rattles similar to those of the rank and file of dog-dancers,— a row of small hoofs attached to a stick,— except that the rattles of the tsööyanehin were forked instead of single. In addition they each had a long wooden whistle.

Some of the “grandfathers” are said also to have worn scarfs, like the dancers; but as these were made of pieces of old tent-skins, undecorated and ugly, it is probable that this action was intended to be ridiculous.

The “shaggy dog” took his whistle, forked rattle, and head-dress with him when he went to the lodge, but left his crow-feather-covered shirt behind. When he was in the lodge, a woman was sent for the shirt. She put it on, and went to the lodge, wearing it. Standing before the “shaggy dog,” she pulled it off, and, holding it open at the bottom, moved four times as if to put it on him. The fourth time, she drew it over and on him. The place of the two “shaggy dogs” in the lodge was at the western end, the middle of the back.

The dog-lodge is described as having been constructed like the crazy-lodge, and to have had the same small screen or partial enclosure at the eastern end, facing the entrance of the lodge.

The beginning of the dancing was as follows. One of the old men who would sing, went in a circle four times. He was followed by the two “shaggy dogs.” The old man began to sing and dance, and the two “shaggy dogs” whistled. When they moved to any distance away from him, the old man motioned and clicked to them, as one does to a dog. Then they danced toward him. After this, the rank and file of the dancers stood up and danced. Four servants of the dance, said to have been chiefs, sat in front of the small enclosure at the east. When they thought that the dancers had danced long enough, one of these went among them and said, “Friends, rest.” Thereupon they all stopped dancing, standing in their places. Then this man told a war story. When the singers thought that the dancers had rested sufficiently, they began to sing and the members of the company took up their dancing again. Altogether they danced four times, being made to rest each time by the exhortation of an old man who told a war story. This dancing took place four days, during which period the dancers were supposed not to sleep.

When at night the dancers left the lodge and danced before the tents of chiefs, begging for gifts, the two “shaggy dogs” are said to have stood by the door of the tent. It is therefore probable that the body of the dancers formed a circle in front of the tent, as they do among the Arapaho on this occasion. When the owner of the tent had given them property, he pulled at the flaps hanging at the sides of the feather-covered shirts of the “shaggy dogs,” whereupon they sat down and the dancing ceased. This dancing for gifts is said to have continued for four entire nights.

As in the other ceremonies, the dancers were painted over the entire body. It does not seem that the long-continued painting of the Arapaho dog-dance, in connection with which the relationship between the dancers' wives and "grandfathers" found its chief expression in this tribe, existed among the Gros Ventre. The women, however, took considerable part in the ceremony as in the others, being painted with their husbands, sitting in the lodge and singing, and at times putting on their regalia; whereupon the men took hold of the ends of the regalia, and their wives led them about.

The complete disintegration and disuse of the old ceremonial life of the Gros Ventre is shown by the fact that not a single dog-dance object belonging to an ordinary dancer has been collected. It is therefore the more fortunate that the Museum has been able to complete, through Dr. Clark Wissler, a valuable set of the regalia of the highest degree of this dance. This unique group of specimens is shown in Figs. 38, 39, and 40, and Plate XIII.

The coat (Fig. 38) is in shape an ordinary deer-skin shirt. At the neck is an edging of red flannel. On the upper arms are two short, transverse bars of white quill-embroidery, the quills laid on in diagonal zigzag stitch. At each of the sides, at the bottom of the shirt, hang two long, pointed strips, as customary on men's shirts, — the legs of the animal decoratively used. Under the armpits are similar shorter flaps. The two sides of the shirt are open from the bottom to under the arms. These open edges, the hanging strips, the lower border, and the ends of the sleeves, are ornamented with a fringe about an inch long. The lower portion of the shirt for a width of about half a foot, and the hanging strips, are painted yellow. All the remainder of the shirt has been stained brown, apparently over yellow paint. On the two sides there are in this brown area a total of 225 yellow circles about an inch and a half in diameter, which have not been painted over with the brown stain. Each of these circles is edged by white quill-work, and from its centre hangs a mutilated crow-feather by a thong. The edging of the circles is produced by using single quills as threads in an in-and-out rotary stitch. The crow-feathers have the quill broken, in from one to four places, without being severed. The vanes are for the most part considerably disarranged, as if intentionally. At the lower end the feathers are cut off square and the quill is flattened by cutting on two sides, as if to get rid of the lowest part of the vane. The quill is cut in this way so far from its natural base that it is entirely solid. The feathers are simply wrapped against a thong with sinew. The end of the thong projects a little beyond the sinew. The thongs on the outside of the skin average half an inch in length, and are painted yellow. Each passes through a hole in the centre of a yellow circle. Behind this, that is, on the inner side of the shirt, it is

knotted on itself sufficiently to keep from being pulled out. Of the circles, forty-two are on one sleeve, forty-three on the other; on the two sides of the shirt there are sixty-three and seventy-seven, in seven and eight rows of from six to thirteen.

The owl-feather head-dress of this set of regalia (see Plate XIII) contains

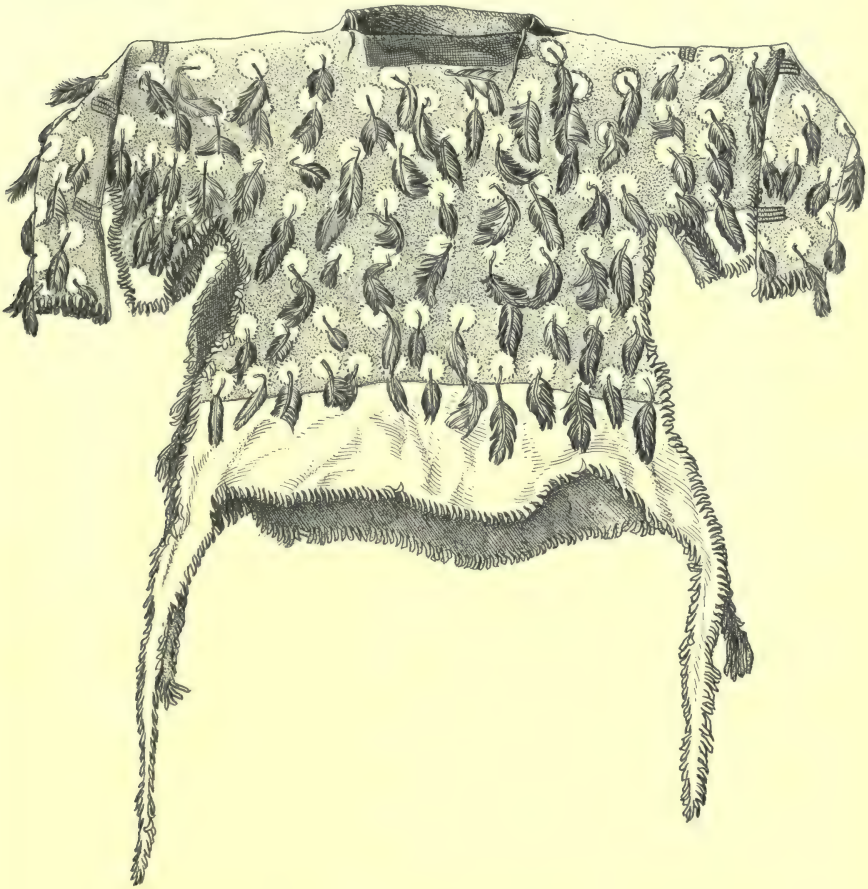


Fig. 38 (50-4277). Dog-dance Shirt, Highest Degree. Length, 70 cm.

several hundred feathers mounted on a skin cap. This cap is of heavy skin, circular, somewhat over a foot in diameter, and surrounded by a short fringe. The inner ends of this fringe are wound with white porcupine-quills. The upper surface of the cap is painted yellow, the under side is unpainted. Two thongs hanging from the edge of the cap serve to tie it.

The feathers on this cap all have the quill split nearly as far down as the vanes extend. They are attached to one or perhaps more thongs painted yellow, which form a continuous, or at least virtually continuous, expanding spiral of six or more turns from the centre of the head-dress to about one-third of the distance to the edge. This thong gathers several feathers, then passes for a short stitch through the skin of the cap, not penetrating to the under side. Thus it continues its spiral course, lying for almost its whole length on the upper surface of the cap. The feathers are all attached to it in one fundamental manner, the thong passing through a loop formed by the turning-back on itself of the cut-down end of the quill. But three variations



Fig. 39 (50-1789 a). Rattle of Dog-dancer, Highest Degree. Length, 47 cm.

of this method appear. Sometimes the end of the quill is turned into itself. In other cases the end is bent forward in the same way, but laid over the outside of the quill, and lashed to it with wrapping of sinew. This sinew wrapping, however, is used also with the first method, though it is not absolutely essential. In other cases the end of the quill is bent backward on itself so that its inner side is out, and fastened in the same way. When this is done, a smaller feather has its quill inserted in the sinew wrapping holding the loop of the main feather. Why the quill should be looped backward whenever a small feather is included, and only then, is not clear. The area encircled by the thong with its hundreds of feathers strung on it is only a



small part of the surface of the cap. The feathers are long enough to extend beyond the outer edge of the skin as they fall. Two special, slightly longer wing-feathers of the same species of owl are separately attached near the top of the head-dress, on opposite sides, like horns, by thongs passing through the skin where their ends hang loose. These evidently correspond to the two eagle-feathers once mentioned as occurring on the owl-feather caps of the rank and file of the dog-dancers.

The rattle of the Gros Ventre *tsööyanehin* (Fig. 39) is very similar to the Arapaho dog-dance rattles, its most prominent peculiarity being that it is

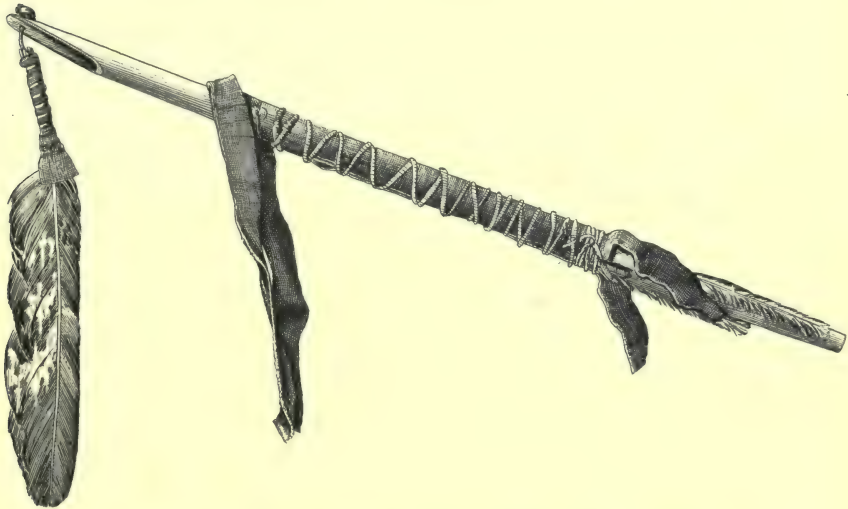


Fig. 40 (50-1789 b). Whistle of Dog-dancer, Highest Degree. Length, 60 cm.

bifurcated. Two sticks appear to have been joined at the handle so as to spread slightly. The sticks, where separate, are incased in skin painted yellow; at the handle they are wrapped together with a flat thong. Across each stick pass three stripes of quill-embroidery, each consisting of a red row of quills bordered on each side by white. At the end of each fork hangs an eagle-wing feather, the base of its quill covered with red cloth. Along the lower side of each fork are the small hoofs that rattle. There are on each stick about thirty-three pairs of these hoofs. Each pair is attached to a yellow-painted thong passing through the skin casing of the stick where this is joined in a sinew-sewn seam. The ends of these thongs pass through holes at the upper ends of the irregularly pyramidal-shaped hoofs. Inside the hoof, the end of thong is knotted around the middle of a little strip of red flannel or blanketing. This prevents the thong from being pulled out

of the hoof; at the same time the two ends of the red cloth hang out of the hoof, giving a decorative effect. At the end of the handle the skin casing of the sticks emerges from under its thong wrapping, and hangs down free about two-thirds of a foot. Part of this loose strip is cut out, so as to make of the remainder a loop to pass over the wrist. In this cut-out portion are four narrow thongs,—two wound with white quills, two with red. The end of this loop-strip is fringed and quill-wound; a deer-tail, its base covered with red cloth, hangs from it.

The whistle (Fig. 40) is of wood, in which it differs from all Arapaho *bäyaa<sup>n</sup>wu* whistles, painted yellow, and two feet long. The end farthest from the mouth is cut off diagonally almost to a point. Here is hung an eagle-feather, its base covered with red cloth. Along the middle portion of the whistle are laid two strips of red cloth, held by two sinew bands and by a long doubly wound thong wrapped with white porcupine-quills. These red strips are not quite wide enough to entirely cover the whistle. The two ends of both pieces hang free. Where the cloth ends on the whistle, toward the mouthpiece, two magpie-feathers are laid along the wood, nearly to the end, their bases being held by the last wrappings of the cloth. One or more small yellowhammer-feathers are also held by these wrappings.

Another dog-dance whistle secured (specimen Museum No. 50-1899) was said also to have been used by a *tsööyanehi*. Its only essential difference from the piece just described is that it is painted red, whereas the previous one, like all the regalia which it accompanied, was yellow. The present whistle is one-third shorter, has the yellowhammer-feathers displayed more conspicuously, has a plain instead of a quill-wound thong to hold the red cloth, lacks the red cloth at the base of its end eagle-feather, and has this feather painted over red. All these differences, except that of general color, are either insignificant or matters of proportion.

#### THE NANĀ<sup>N</sup>NAHA<sup>N</sup>W<sup>U</sup>.

The fifth dance is known, nearly as among the Arapaho, by the name of *nanā<sup>n</sup>naha<sup>n</sup>wu*. The exact meaning of this term is not known. It is generally translated "soldiers' lodge." The dancers are called *nanā<sup>n</sup>nähä<sup>n</sup>ts*, or *hiityāā<sup>n</sup>süts*, which means "those who have war-sticks," the *teaā<sup>n</sup>sö* or Arapaho *teeäox*. The lodge was made, as for the other dances, of the two largest tents available, in the middle of the camp-circle, with the door towards the east. The dancers obtained medicine from their "grandfathers" through their wives at night, were painted in the morning, and danced during the day, or, according to another account, at night. In the songs of this dance the buffalo were called, and it is said that the ceremony always resulted

in the approach of the buffalo, even if previously there had been none in the vicinity of the camp.

The dancers carried representations of war-spikes or tomahawks, which apparently resembled the buffalo-shaped sticks of the first dance of the Arapaho. The sticks are described as being about as long as women's digging-sticks, and, like them, sharpened at one end. The other end, however, was bent. The stick was painted red, and a quill-embroidered strip of skin was wound around it as a handle. A buffalo-calf's tail and a bunch of buffalo-fetlocks, and no doubt other objects, were also attached. The stick was used as a rattle.

The conclusion of this ceremony presented a feature not found in the two preceding ones. According to one account, the gifts obtained by these dancers were received in payment from the spectators looking in at the lodge. After four days the camp broke, and followed the dancers. On reaching a place where the property had been laid on the ground, the people of the tribe stood in a long row, facing the east. One of the dancers filled a pipe, and selecting one of the poorest men in the camp offered it to him. When the old man took the pipe, the dancer prayed him to allow that all of his company should strike him (count coup on him). A bed of sage was then made for the old man in front of the assembled tribe. Along the edges of this bed, buffalo-chips were laid. The old man crouched on his hands and knees with his head toward the east, and, like the old man undergoing a similar humiliation in the crazy-dance, was covered with a buffalo robe the hair-side of which was turned out. The dancers faced him in a row and danced, rattling. After four songs they ran to the old man, and one after another struck him lightly, each placing beside him a moccasin or some other object, which the old man, on getting up, kept for himself. Then the dancers' "grandfathers" each picked up one of the buffalo-chips from the edges of the sage, and, when they had prepared them, one of the dancers squatted over each. Then his "grandfather," taking him by the shoulders, motioned with him four times, and the fourth time pushed him down. When they had all sat down, each "grandfather" spoke to his "grandson," telling him, "From now on, you need not be afraid to interrupt a sacred performance. You can talk obscenely to a chief, and no one will say anything to you." The people had been watching this performance, which marked the end of the dance.

#### THE BITAHA<sup>NW</sup>U.

As stated, this dance has been abandoned a long time, and very little information was obtained regarding it. Men are alive who have seen it,

but none are living who have taken part in it. The meaning of the term, as among the Arapaho, is unknown. One informant gave the etymology "drum-dance" (from *biitaxääna*<sup>n</sup>, "drum"). The dancers were called *biitaxäänen*. As in the preceding ceremonies, a man took part in this dance accompanied by his wife, or, if it happened to be held while he was at war, his wife took part as if he were present. Nothing is known as to the conduct of the ceremony nor as to the regalia, except that the dancers, or certain of them, carried crooked sticks wrapped with white fur. The dancers were painted over their body with dots resembling hail. The dance is looked upon as having been very dangerous, as a mistake in painting or in other observances would result in death from the thunder.

It is not impossible, that, if the present Arapaho series of dances represents a more original order of arrangement than the Gros Ventre, in the development of the Gros Ventre series the *biitaha*<sup>nw</sup> was displaced by the kit-fox dance, which grew in importance from a dance of the youngest men to one of older men. This would account for the use of crooked fur-wrapped sticks in the Gros Ventre kit-fox dance as well as in their *biitaha*<sup>nw</sup>. If this was the course of events, it does not follow that the *biitaha*<sup>nw</sup> became the sixth dance of the series. It may simply have been displaced, and fallen into disuse. Lack of knowledge of the proper conduct of the ceremony would be sufficient to make the Indians afraid to undertake it. It has been stated that no informants could be found who professed to know the place of this dance in the series, and it is possible that its dangerous qualities were not due to its greater sacredness through being the dance of the oldest men, but to such lack of knowledge. On the whole it is very difficult to see how such differentiations in the order of dances as exist in the Arapaho and Gros Ventre schemes of ceremonial organization may have taken place.

#### THE WOMEN'S DANCE.

The women's dance — called *benuxtea*<sup>nw</sup>, the dancers being named *benuxtciïä*<sup>n</sup> — resembles the Arapaho women's dance quite closely. The dancers had on their ordinary clothing, but wore belts to which four buffalotails were fastened, and head-dresses which fell down the back of their heads and from which horns rose. These head-dresses are said to have been covered with feathers; but it seems possible that this statement refers only to the dancers of certain degrees, as among the Arapaho only the dancer of highest degree wears such a feather-covered head-dress. Four of the dancers wore no horned head-dress, but "war-bonnets." These may have been equivalent

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<sup>1</sup> The Gros Ventre declare that they do not know the significance of the word element *benux-te*.

to the Arapaho "white-stand" and "red-stand" head-dresses of upright feathers surrounding the head. The dancers are described as all old or elderly women, which among the Arapaho was not the case. The exceptions were two participants called "calves" (nihanou, "yellow calves"), who were middle-aged, or, at any rate, adults. Among the Arapaho the "calves" were children. There is a further difference, that, whereas among the Arapaho the "calves" were of high degree in the dance and for the greater part of the time were not allowed to stir, the Gros Ventre "calves" took the place of the atsaan or servants in the men's dances. They are said to have worn no regalia. The dancers were painted with the symbol of a pipe on each cheek, close under the eye. Old men sang for them, rattling but not using a drum. The women in dancing shifted their weight from one side of the body to the other, and cried like crows. Two tent-poles, two pegs, and two ropes belonging to the dancing-lodge, were painted respectively one black and one red. On the fourth day of the ceremony there were observances outside of the dancing-lodge. A prominent chief was selected to take a burning stick. The dancers, moving and running about like a herd of buffalo, pretended to scent the smoke of his fire from windward, and stampeded. Another distinguished warrior pretended to shoot at the herd as if they were buffalo. Both of these features of the ceremony are found among the Arapaho. A third distinguished man (or perhaps several) was honored by being offered a pipe to smoke, and on his acceptance was given a vessel of water containing berries. He then gave away property.

#### THE SUN-DANCE.

As stated before, the Gros Ventre sun-dance, haçeiha<sup>nw</sup>, is not restricted to men belonging to certain age-companies, but, as among the Arapaho, can be made by any man.<sup>1</sup> Like the other dances, however, it is made as the result of the pledge of an individual for deliverance from sickness or danger. As soon as the pledge has been publicly announced, or as soon thereafter as the buffalo begin to get fat in spring, the pledger and his relatives begin to accumulate buffalo-tongues, which they slice and dry like buffalo-meat. They also save a buffalo-skin, which is packed with the tongues, two sticks being wrapped up in it. When the time comes, a large lodge made of two tent-covers is set up in the middle of the camp-circle. Into this many women enter at night to sing. This marks the beginning of the ceremony. The tent is called tjinaa<sup>nw</sup> ("prairie-chicken lodge"); and the participants, "prairie-chickens" and "prairie-chicken women." The pledger brings his buffalo-skin to this lodge. He incenses it four times.

<sup>1</sup> See Bulletin of the American Museum of Natural History, Vol. XVIII, Part II, p. 152.

Entering the tent very slowly while the people are singing, he stops four times at the end of a song, and motions with the skin. The fourth time he throws the skin among the singers, who shout, and seize it, spread it out, and commence to beat it with their sticks and sing the songs of the night. They go through all the sun-dance songs this night. In the morning the entire camp breaks, and moves to another place not far away. That night the entire ritual is gone through again, and this is repeated altogether four times. The pledger provides food for the singers in the prairie-chicken lodge. The singing in this lodge is called "singing-for-it" (niinibyaan<sup>n</sup>tou).

After the four nights of the prairie-chicken lodge, seven chiefs are selected to go out as scouts looking for trees to be used in the dancing-lodge. The trees should be straight, and the largest one, for the middle, forked. These men scout for the trees as they would for an enemy. They are painted as if for war, and wear what they would in war. When the people in the camp see them returning, they rush to the centre of the camp-circle, carrying hand-drums. The scouts go circling and dancing, and crying like wolves or coyotes, whereupon the people cry out that the scouts are returning successfully. Those who bear drums stand in a line abreast; in front of them is a pile of rocks. The scouts, still circling, and crying each time they face the direction from which they have come, approach nearer and nearer. Then one by one they circle about the heap of stones, and, stepping forward a short distance, stop and stand abreast, facing the drums. A prominent man who has been selected steps out from the people and recounts his most distinguished coups. Thereupon he goes up to one of the seven scouts, and leads his horse forward by the bridle. The scout then recounts four coups. Then the chief leads forward the horse of the next scout, who also tells four stories; and so on until all seven have spoken. Thereupon the first of the seven addresses the people, and reports that they have found good-looking people and a chief, meaning the smaller poles and the central fork of the lodge.

Some time after this the people go to the trees. The young men especially dress and paint themselves as well as they can, and ride their best horses. They go first to what is to be the central pole. One man dismounts, and places coals and fir-needle incense on the ground on four sides of the tree, thus incensing it. Then all dismount, and, standing about and having shouted, begin to sing. After they have sung, two men stand by the tree and swing axes four times, as if to strike it. Then they begin to chop it. When the tree begins to lean, every one shoots at it; and when it falls, all dash up to it and strip it of branches and leaves. Thereupon they scatter in the timber, cutting the smaller forks and poles, and as each one of these falls it is shot. There are many small parties getting these smaller forks,

and there is much noise in the timber. Many young men tie ropes to the centre post, and, riding their horses, drag the tree to the camp, while others follow shooting it. The smaller trees are brought back in the same way.

While the people are bringing the trees, four distinguished warriors have been selected to go out on the prairie to kill a buffalo-bull, which one of them is to kill with a single shot. Theoretically the four men have only a single bow and arrow, or a gun with only one cartridge. As soon as they see the buffalo, they stop, and each of them recounts coups. Then they attack the bull. It is said that, if the designated man kills the bull with one shot, the coups which he has counted have been told truly; but, if more than one shot is required, he has lied. It is said that they are almost always successful. They skin the bull, and leave the body.

Meanwhile the old people of the tribe have been digging the holes in which the upright forks of the lodge are to be set. When the young people return with the trees, and the four chiefs with the buffalo-skin, these holes are completed. Two prominent men are selected, and, after each has counted four coups, they cut the fresh hide into thongs. These are used to tie the horizontal rafter-poles of the lodge fast to the upright forks in which they rest. The two men who have done the cutting then give away property to old people.

After this the members of the age-companies gather. In more recent times the war-dancers assemble on one side of the lodge, the star-dancers on the other. They carry tent-poles, which are tied in pairs by a short rope near the top. Each man holds one pole of such a pair. The poles are used to lift the centre fork, which will rest on the thongs connecting the tops of the poles. The pledger now goes around the lodge very slowly, painting the poles as they lie on the ground, rubbing each with the palm of his hand in four places. It is probable that, as among the Arapaho, he does not go alone in this painting. The people who are to raise the centre fork are standing where the outer wall of the lodge will later be, singing. At the end of the song they shout. Then they proceed to the centre pole, which is lying with the top toward the east. The pledger and the old men stand in a row at the eastern end. The old man keeping the sacred flat pipe incenses this four times, and sings the songs that relate to the pipe. The hole into which the butt of the tree is to be set is incensed with sweet-grass. Then the keeper of the pipe touches the head of the tree with his pipe, and motions to it four times. The motion of the pipe is supposed to raise the tree. The joined poles have been placed under the tree, and other people support it with their hands. Four times the tree moves under their efforts and the influence of the pipe. The fourth time, the keeper of the pipe says "Now," and the tree is entirely raised up, and set in its hole. As soon as the centre

fork is upright, the young men all compete, trying to raise their rafters into position in the centre fork and in a fork at the periphery, before the others. After the tree has been raised, or possibly before, the young men go out, apparently by age-companies, to cut willows to form the walls of the lodge. More recently the star-dancers and war-dancers have done this, those of each company taking the wives of the men of the other company on their horses behind them. As they go, they shoot up in the air, and when in the timber each man cuts a willow-branch. They return holding the branches and singing, ride around the lodge, and then deposit them. After the outside rafter-poles of the lodge have been tied fast in the forks, these branches are leaned in position, forming an enclosure of the lodge.

The centre fork has a buffalo-tail attached to it. A bundle of brush, called a "nest," is also fastened in the fork. A lightning symbol is made on the western side of the tree down to the ground. Inside the lodge a low screen, said to be about waist high, is erected at the western end, opposite the entrance. Behind this is the pledger of the dance. In front of the screen is a painted buffalo-skull. Two sticks of cherry-wood, one red and one black, stand on each side of the skull. A wheel or ceremonial hoop made of a stick bent in a circle, wrapped with skin, and with feathers attached, is hung on one of these sticks. Just as clothing is hung at the ends of the horizontal rafters of the lodge, or possibly on the centre fork itself, as an offering to the sun, objects are said to be hung on this brush screen at the western end of the lodge.

Apparently the general course of the main portion of the dance, which follows the erection of the lodge, is similar to that of the Arapaho sun-dance, though there are certain features entirely without parallel among the Arapaho. The pledger and the other dancers neither eat nor drink during the ceremony. Women join in the fasting, but do not dance. The dancers stand whistling, and looking up at the "nest" in the tree.

The self-torture characterizing the sun-dance among most tribes is found with the Gros Ventre in its usual form. Four knotted thongs hang from the centre fork. Two sticks are passed under the skin of the dancers' breasts, one on each side, to which the thongs are fastened. The dancers try to tear the sticks out of their skin. Some whose skin is tough do not succeed. In that case a medicine-man comes to them and makes them unconscious of pain, so that they break loose easily. When they have fallen, he restores them to consciousness. One after the other, the dancers go through this ordeal. While the dancers are thus tied to the tree, they move back and forth, apparently dancing. This is called *niina<sup>n</sup>tsöia<sup>n</sup>*. Some dancers also fasten shields in a similar way to the skin of their back, and pull these out. Others are attached by the breast to a post located outside of the dancing-



lodge. Other men go up into the hills near the camp, where they are fastened to a post, and fast from sunrise to sunset. In the evening their ceremonial "grandfather" comes and cuts them loose. Young men who want to meet with success in war pierce the skin over their shoulder-blade, and, having inserted sticks, hang two guns to these on each side. Sometimes a crooked-hoofed horse is fastened to the sticks. Thereupon they go about outside of the camp-circle, crying constantly, hoping that some supernatural being will pity them. Still others tie four or five buffalo-skulls in a row, which they fasten in the same way to their backs. They also go around the camp-circle.

If it is thought possible that the enemy may be near at the time of the dance, a man brings a filled pipe to the pledger of the dance and offers it to him, asking about the enemy. The pledger takes out his medicine-bag, which is the skin of the animal he saw in his vision, incenses it, and performs the acts which this guardian animal commanded. Every one is quiet, and the fire is put out so that the lodge is completely dark. The pledger blows his whistle, and the people sing for him as loudly as they can. He makes motions around his head with his medicine, thereby asking his guardian spirit to enable him to see supernaturally. He continues his motions until he is able to see the enemy. Thereupon he sits down. After this, another man offers him a pipe, saying, "We wish you to tell us what you have seen. Therefore take this pipe and smoke it." After he has smoked, the pledger tells the people how many people he has seen, and where they are. He says, "I saw so many buffalo-bulls (men). They are coming from there. Take charcoal for successful battle" (black being the paint of victory).

The dancers also have the power to see the enemy. If, as they look at the "nest" day and night, they see legs hanging down, or a headless body in the tree, it is the sign that an enemy will be killed by the tribe. If, on the other hand, they see blood on the poles overhead or running down the central tree, a member of the tribe will be killed. Sometimes they see a man whom they can recognize as a member of the tribe, black as coal and very thin, hanging from the poles above them. Then he will die soon.

Each day certain men, who seem to be young men, are selected, and their names called out. These men dress as if for war. When they enter, it seems that they sit in a row at the left of the entrance. The bravest of them are then selected, and taken to the back of the lodge, where a bed and headrest have been prepared, on which they sit. One of these men counts a coup, and picking up a stick puts it into the fire. One after another they do this until a large fire is blazing. These men are called *tsöotaxwuhuu* ("inside dancers"). Thereupon two old men, going to the centre of the lodge and conferring in whispers, select six or eight warriors. As soon as these

men are named, their female relatives return to their tents, and cook. When they have prepared food, they all together bring a large quantity of it to the lodge. The men selected carry weapons, and are dressed for war. They are usually mounted. Where they themselves or their horses were wounded, they paint themselves. If they have ridden over an enemy, a man is painted on the breast of the horse. When the food which has been brought by their female relatives has been eaten, these men, two at a time, go through numerous performances of their achievements in battle. This is done each day of the dance.

A group of men and women, called, like those in the preliminary singing-tent, "prairie-chickens," and therefore probably the same persons, seem to be the singers for the dance. They beat a rawhide in place of a drum, and hold branches, which, at the end of each song, they shake, shouting.

The dancers may not drink water, no matter how great the heat. If one of them is unable to endure, and a pitying relative gives him even only a drop, a thunderstorm follows, and the offender may be struck by lightning, or one of his horses may be killed by lightning. In case it seems necessary for the dancers to drink, a pipe is taken to one of the old men. If he accepts it and smokes it, he goes to the central tree. He wears a robe with the hair-side out. He has a whistle in his mouth, feathers in one hand, and a crow-skin in the other. He strikes the bill of the crow four times, with a downward motion, against the lightning symbol on the tree. A vessel is held against the tree at the bottom of the symbol, and, after the fourth blow, water is said to run out until the vessel is filled, when it stops. This water is given to the dancers, each of whom drinks a very small quantity. The actions of the man producing this water are said to be determined by his personal supernatural vision.

After the four days of the ceremony are completed, the lodge is left standing. All the cloth and clothing that have been attached to it remain in place, and it appears that other clothes, especially of children, are left at the lodge. This is done in order that the children may live a long life.

From drawings made by a Gros Ventre, it appears that the buffalo-skull is painted with spots, and has its nose and eyes stuffed. Behind it is represented a dancer holding the wheel. He is presumably the pledger of the ceremony. The wheel is bisected by two strings, and has eagle-feathers and down-feathers attached to it. The dancer blows a whistle at the end of which is a plume. The whistle hangs from his neck. At the back of the head is a plume. Lines of paint proceed from his breast to his wrists and ankles. On each of these are four diamonds, two on each upper and lower arm, thigh, and calf. If this is a correct representation, the Gros Ventre use at least one style of painting that is like the most typical Arap-

aho sun-dance paint. Usually the Arapaho paint only two diamonds on each limb; but four have been seen on the northern Arapaho pledger, as in this picture. Another drawing repeats this painting, and adds a head-band, anklets, and wristlets apparently corresponding to the sage ornaments of the Arapaho. In a third drawing a dancer is painted with lightning symbols down his legs and arms.

The Gros Ventre and Arapaho sun-dances differ about as much as their respective age-company ceremonies. The principal discrepancies seem to be the following.

The Gros Ventre accumulation of buffalo-tongues by the pledger after the making of the vow and before the ceremony. This feature is found among the Blackfoot, but not among the Arapaho.

The prairie-chicken lodge with its four-nights' singing apparently corresponds somewhat to the Arapaho rabbit-tent; but its daily removal, accompanied by the camp-circle, is not found among the Arapaho. The prairie-chicken singing recalls a feature in the Arapaho hinanaha<sup>n</sup>wu, the fifth of the age-ceremonies.

According to the account obtained, the public ceremonies relating to the erection of the lodge do not take place until after the four-nights' singing in the prairie-chicken tent. Among the Arapaho, they occur while the rabbit-tent is in use, and are in large part connected with the rites within it. It is also not clear how long a time these public ceremonies — the scouting for the trees, the bringing-in of the centre pole, the killing of the buffalo, and the painting of the lodge-poles and erection of the lodge — occupy. They are described as if they occurred in the space of a day. This would not be impossible; but it is likely that this impression is due to indefiniteness of narration. It is, however, distinctly stated that the buffalo is shot while the people are bringing in the centre pole. Among the Arapaho, the centre pole is brought in two days after the buffalo has been shot. The skin of this buffalo is kept entire and taken into the dancing-lodge; by the Gros Ventre it is cut into thongs for fastening the lodge-beams to the upright forks.

The "altars" of the two ceremonies cannot be definitely compared, owing to the indefiniteness of information from the Gros Ventre. The screen corresponds to the seven small trees of the Arapaho; the skull and the wheel on the stick are common to the two ceremonies; the red and the black upright stick have no Arapaho equivalents. The Arapaho trench, red and black logs, seven red and seven black sticks, seven wickets, and two sods with bushes, have not been mentioned among the Gros Ventre.

The miraculous raising of the centre pole does not seem to exist among the Arapaho.

The Gros Ventre also introduce into the ceremony a thunder symbolism that the Arapaho lack, or have in a much less developed form. The lightning symbol on the centre pole, from which water can be drawn, and the power of the thunder to strike with lightning any dancer who drinks other water than this, evidence this.

Another element special to the Gros Ventre is the introduction of ceremonies relating to war, such as the dramatic performances and the seeing of the approach of the enemy by the pledger.

Features introducing miraculous and sometimes purely personal supernatural powers are apparently quite lacking from the Arapaho ceremony. Among the Gros Ventre there are the raising of the centre pole, the production of water from the centre pole with the crow, the clairvoyance of the pledger as regards the enemy, and the visions of some of the dancers.

In summary, the exact duration and sequence of all events in the Gros Ventre ceremony are not yet clear; the preliminary prairie-chicken tent does not correspond very closely to the Arapaho rabbit-tent; and the connection of the ceremony with the thunder, the introduction of warlike elements, and that of miraculous or personal features, are peculiar, or nearly so, to the Gros Ventre as compared with the Arapaho.

#### MODERN CEREMONIAL OBJECTS.

The recent ceremonial objects of the Gros Ventre are somewhat different from those of the Arapaho. The Arapaho were deeply affected by the ghost-dance movement, more, it is said, than any other tribe; and many of their modern religious regalia have a distinct character of their own. The Gros Ventre received the ghost-dance from the Arapaho, but it seems to have taken little hold of them. The only distinctive ghost-dance objects seen or obtained were two small hoops and a few balls, all of which resemble Arapaho types. The chief modern dance-ceremony of the Gros Ventre, the only one performed at present, is the grass or war dance obtained from the Sioux, and evidently a modification of the widespread Omaha dance upon which the Arapaho crow-dance is also based. This dance has in recent years been still further modified, until its character now is very similar to that of the crow-dance. The regalia used in this dance at present are very individual, usually crude, and almost always stylistically degenerate. The delicate character and distinct style of the majority of modern Arapaho dance-objects are lacking.

The treatment of feathers in such objects is quite different among the Gros Ventre and Arapaho. The Gros Ventre rarely ornament their feathers

with dyed plumes or tufts of horsehair, as the Arapaho so frequently do both at the base and top of the feather. Feathers with the vanes cut from the quill, except at the very top, are also scarcely used by the Gros Ventre. Instead, they usually cut the feather squarely off across its end, or split the quill, from the end down, for the greater part of its length. Sometimes the uppermost part of the quill is entirely removed, with its attached portions of the vanes, leaving the top of the feather forked. Plume-feathers are also much less used by the Gros Ventre than by the Arapaho. In dyeing, the Gros Ventre generally used cruder colors; a blue-violet, a pink-red, a light-bluish green, and yellow, all of them aniline colors, being the most common. The Arapaho use true red and green more frequently, and in most cases employ the dyes more lightly, thus obtaining enduring or delicate effects where the Gros Ventre are garish.

The Gros Ventre methods of feather-treatment, both the cutting-off and the splitting of the end of the feather, go back, at least in part, to their older tribal ceremonies. Both these processes are found employed on the dog-dance regalia described.

As regards other differences, the Gros Ventre probably employ more weasel-skin in ornaments than the Arapaho, though far less than their neighbors the Blackfeet. They use cloth (both cotton and woollen goods), red, green, or blue, without reluctance; whereas the Arapaho have clung very tenaciously to skin in all ceremonial objects. Skin thongs and sinew for binding are, however, very rarely replaced by strings and thread, even with the Gros Ventre.

The few objects obtained belonging to the ghost-dance movement are the following.

Fig. 41 shows an imitation of a netted playing-wheel. The piece is about two inches in diameter. The stitch of the meshes seems to be correct, though there are fewer meshes than in the full-sized wheels. The "crow," the centre mesh, is painted red; the rest of the thong, yellow. To the centre mesh are attached four magpie-feathers cut off across. This object was worn tied to the hair on the side of the head, or hanging from the little finger when the people joined hands to dance. Several very similar objects, lacking the feathers, are attached to the girl's painted dress shown in "Bulletin of the American Museum of Natural History" (Vol. XVIII, Plate LXXV).

A head-dress consisting of a hoop of about the same size, quill-wound and bisected by two quill-wound strings, and of three long, blue-and-white quill-wound pendant thongs with plume-feathers at the ends, was collected by Dr. Clark Wissler. It is not known whether it belongs to the war-dance or the ghost-dance: its general similarity to certain Arapaho head-dresses

makes the latter seem possible. It differs from Arapaho objects chiefly in that the color-ornamentation of the quill-wrapping divides the hoop into three instead of four parts. At the upper end of the hoop is attached a bunch of seven small strips of whitish rabbit-fur, resembling the weasel-skin style of ornamentation characteristic of the Blackfoot.

Two balls (Figs. 24 and 25) are identical in character with Arapaho ghost-dance objects, and the latter was made in connection with the movement. These balls are described above.



Fig. 41 (50-1922).  
Wheel Head-dress.  
Length, 21 cm.

The following objects, many of which were obtained by Dr. Clark Wissler and which were probably not connected with the ghost-dance, are of a character that does not seem to make it worth while to represent them in illustrations; but they resemble Arapaho or other pieces sufficiently for a brief description. They all appear to have been used in the war or grass dance.

Specimen Museum No. 50-1742 is a feathered crook modelled on the familiar type of curved lance that is common on the Plains, and to which the otterskin-wrapped lances of the second degree of the second Arapaho tribal ceremony belong.<sup>1</sup> The Gros Ventre too had such crooked lances in probably two of their tribal ceremonies. The present piece is about four feet long, and made of a stick painted yellow. There is no blade, or representation of it, at the lower end. At the end of the crook hangs a single eagle-feather. The greater portion of the shaft is covered by a casing of green cloth from which hang, attached by thongs and sinew wrapping painted yellow, a row of eighteen eagle-feathers.

A forked stick (specimen Museum No. 50-4328) resembles the Arapaho pieces of this kind described in the "Bulletin of the American Museum of Natural History" (Vol. XVIII, p. 358). It is about six feet long, quite slender, and painted red. Some distance in the fork a quill-covered hoop is attached to the two spreading sticks. This hoop is red, with four white, blue-bordered areas on it. The ends of the fork are ornamented with a short green-cloth fringe, tufts of yellow-dyed hair, and feathers notched at the top. From the junction of the two arms downward,

<sup>1</sup> Compare Bulletin of the American Museum of Natural History, Vol. XVIII, Part II, Plate xxxii.

the stick is first covered with green cloth, then with skin covered with red and blue quill-work, and at the pointed end is bare, except for its red paint.

A feathered wheel a foot or a foot and a half across (specimen Museum No. 50-4292) is covered with red, blue, green, yellow, white, and black feathers and plumes, many of them dyed, and tied to the hoop without any attempt at color-pattern or other arrangement. Most of the feathers have the quill split.

Another hoop (specimen Museum No. 50-1745) is a little smaller, and is covered with brown buffalo-fur instead of feathers. At one point, five split owl-feathers and six black unsplit feathers are attached; at a place opposite, two small yellowed feathers, one with a green plume at the base.

Other specimens secured by Dr. Clark Wissler are a ceremonial spoon with long, thin, decorated handle, and a quirt. The latter (specimen Museum No. 50-4305) is similar to Arapaho ceremonial quirts.<sup>1</sup> A heavy wooden handle consists of two parts, — the handle proper and a longer portion with five deep notches in the lower edge. The upper edge is straight. The part of the handle that is notched is ornamented with brass tacks. From the end of the stick hang two ends of thong, the whip. At the handle is attached a skin of a fox or similar animal, ornamented with eagle-feathers.

A feather shield consists essentially of a circle of radiating feathers, worn on the back.

A crow-belt, also secured by Dr. Clark Wissler, is quite similar to the Arapaho one described in the "Bulletin of the American Museum of Natural History" (Vol. XVIII, p. 345). It is interesting that of the five Arapaho pieces in the Museum, this is at once the crudest in construction, and the most perverted by white influence from aboriginal style. In the present Gros Ventre belt, a rectangular piece of rawhide is bent over a stick as a support for the remainder of the specimen. The two hanging "tail" strips are of yellow cloth, quite narrow, hanging apart. Eagle-feathers, some dyed red, are attached to them. The belt proper is formed by two pieces of woven yarn. In the middle of the piece are attached the head and breast of an eagle. Below this, between the two hanging strips, is an ornament of a row of eagle-feathers pointing downward. These are attached in the folded edge of a squarish piece of rawhide, thus resembling the analogous piece in the Arapaho crow-belt referred to and the Arapaho *biitaha<sup>n</sup>wu* head-dresses. The ornament, however, is fastened to the remainder of the piece, so that it cannot have been worn as a head-dress. The two usual projecting arms consist each of a black eagle-wing feather, with a strip of quill-embroidery laid along the quill of the feather, and with several small bells,

<sup>1</sup> Mooney, Ghost-Dance Religion (Fourteenth Annual Report, Bureau of American Ethnology, Vol. XIV, p. 987, Fig. 94), shows a very similar quirt attributed to the dog-dance.

whitish fur, and dyed horsehair tufts at the ends. At the base of each arm are red, yellow, and violet feathers. These are either cut off across the end, or have the uppermost part of the quill with its attached vanes removed.

#### CUSTOMS CONNECTED WITH RELIGION.

Sacred pipes were important in the religion of the Gros Ventre. The beliefs and practices connected with these differ somewhat from those of the Arapaho. The Arapaho recognize only one sacred pipe, which is pre-eminent over all others. Its worship is entirely tribal, though it is in the keeping of an individual. It occupies much the place in tribal life that the sacred pole did among the Omaha. While there are other sacred objects, such as the wheels and bundles, none of them equal the pipe in the regard in which they are held. Among the Gros Ventre there is an analogue of the Arapaho pipe, but also several others. This multiplicity distinctly differentiates the character of the Gros Ventre pipes from that of the Arapaho. The Gros Ventre pipes are not all primarily connected with the origin of the world; they are in part obtained from other tribes. They thus resemble the inter-tribal peace-pipes of the eastern and northern Plains.

The sacred pipes were kept by old men. Their keepers could retain them as long as they wanted. They transferred their pipe to another keeper or owner whenever they wished, especially if some one prayed on their behalf. At present the Gros Ventre have three pipes. It is said that formerly they had more, some of which have been buried with their last owners. The most sacred of these pipes is called "flat-pipe" (*çäëitsa*). This is described as being made of catlinité, with the bowl in the shape of a person (*initä*). The Arapaho sacred pipe is also called "flat-pipe," and also is not flat; but it differs from the Gros Ventre pipe in being cylindrical and tubular. About the centre of the stem of this Gros Ventre flat-pipe is tied a string. A person in the tent where the pipe is kept should not tell myths. If through forgetfulness he begins to do so, it is necessary for him to continue all night.

A sick man sometimes pledged to smoke one of the sacred pipes for his recovery. Then he provided food, and distinguished warriors were invited. Each of these had to recount four coups before the pipe could be lighted. A green cherry-branch was then taken, greased, and put into the fire to light the pipe with. If it burnt well, the man would recover; if it burnt poorly, they were afraid that he would not become well, or that something would happen. Then the pipe was smoked in the greatest silence. Cloth or calico was "given" to it, the wrapping last given being the one on the out-



side of the bundle, it is said. Except at such ceremonies as this, only the keeper could touch the pipe.

Pipes were sometimes given to other tribes, and were sometimes received from them. Sometimes they were carried by war-parties. One of the three pipes still in existence is said to have been given by the Cheyenne to the Crow, and by the latter to the Gros Ventre, when peace was made between the two tribes. The stem is ornamented with feathers, weasel-skins, and at the end with a bunch of eagle-feathers. The sacred pipes were kept wrapped in many pieces of skin or cloth, and hung up in the tent. In good weather they were hung on a stand of three or four sticks, behind the tent. The keepers of the sacred pipes observed stringent rules. They could not eat of the head or back of any animal, nor of any part of the white-tailed deer, nor any eggs. They were not allowed to bathe, or to paint (except red), or to take the ashes out of the tent. They had to smoke in certain ways. They did not eat dogs, or allow them in the tent; nor did they let dogs touch them, or walk over their legs, or walk before them, while they were smoking. The keepers of the sacred pipes wore their hair uncut and uncombed. They could not cut it until they had given the pipe to another keeper. The hair was worn tied in a bunch just above the forehead. Fig. 42 shows such a bunch of matted hair, said to have been that of the grandfather of the father of the man who was the oldest in the tribe in 1901. This former keeper of the pipe became so old that he lost most of his hair, and the bunch shown was cut off by him before it should drop off. To this hair the later owner of the pipe, his present great-grandson, tied the first of his own teeth to fall out from old age: they are contained in a small cloth sack.



Fig. 42 (50-1902). Matted Hair, Length, 41 cm.

The sacred flat-pipe was also used in the sun-dance. It was once captured in war. Then the man who took it had bad dreams, until the pipe spoke to him in his dream and said, "Return me, or your tribe will be destroyed." Then this man brought back the pipe, and his tribe made peace with the Gros Ventre.

The making of a sweat-house was not restricted to certain persons. A man wishing success in war would make a sweat-house for another person, in order that he might accomplish the deed he had in mind. Or, if a person was sick, one of his relatives might pledge to make a sweat-house for him, just as he would a dance. In this case the sick person himself would not necessarily use the sweat-house. On the other hand, a doctor might prescribe sweating for a patient, and in this case the sick person would enter the sweat-house.

About twelve or fourteen willow poles were cut for the sweat-house. The entrance always faced the sunrise, and a small cottonwood-tree was erected in front of it. To this, calico or other property was tied by an old man as a gift to the sun. The cloth was partly blackened, the corners being rubbed with charcoal.

When all the participants were inside, the blankets were pulled down and the house closed tight. Water was poured on hot stones, at first five times. Thereupon the lodge was opened at the entrance and at the



Fig. 43 (50-4255). Sweat-house Tail.  
Length, 36 cm.

opposite west end, and the people cooled. It was then closed again, and this time water was poured on the rocks seven times. After cooling once more, water was poured on the rocks nine times. The fourth time, the man that poured the water could put as much or as little on the stones as he wished. After the fourth time, the participants came out and bathed. If they were suffering from pain, they whipped that part of the body with buffalo or horse tails. This practice made the heat greatest at that point, much as if it were beaten into the body.

A man who pledges and erects a sweat-house does not participate in the sweating. He makes the fire, heats the rocks and passes them into the house, raises and lowers the blankets, and performs other services.

In sweating, animal tails were sometimes used to beat the body with. Fig. 43 shows such an implement, made of the tail of a buffalo, on a stick handle cased in the skin of the tail. This object is similar to the Arapaho specimens described in the "Bulletin of the American Museum of Natural History" (Vol. XVIII, p. 316), but is noticeable for the shortness of the hair on the tail.

When people were called to come to sweat, *hixteib'nix'a<sup>nt</sup>* ("Above-Nix'a<sup>nt</sup>") was first called to sweat with them. Then the people were called. This personage, whose name also means "Above-white-man," is said to have been prayed to before the whites were known; but the Gros Ventre, like the Arapaho, state that they do not know whether he is identical with the *Nix'a<sup>nt</sup>* of their myths. Ordinary prayers were always addressed first to *hixteib'nix'a<sup>nt</sup>* or to *iicanānin* ("our father"), then the sun and moon would be mentioned, next the sacred pipes, and then the earth. After these had been mentioned, anything else could be prayed to.

A charm tied on horses to make them run fast consists of rabbit-feet painted red and tied together. The Arapaho used rabbits' feet for the same purpose.

Specimen Museum No. 50-1804 is a pair of wild-cat-tails worn by young men at the shoulder, or at the heel of a moccasin. They were also tied to children's belts, next to the skin, in order to keep them from wetting the bed.

Specimen Museum No. 50-1903 is a gorget (commonly called by the Indians in English "moon-shell") said to have been made in the old way from an intervertebral disk of a buffalo. At present these objects are usually slightly concave, and are made of china.

The Gros Ventre, according to Dr. Clark Wissler, call certain corrugated fossil stones "thunder-stones." The Assiniboine seem to use the same name. The Blackfeet, who perhaps have most developed the cult of these objects, call them "buffalo-stones." A specimen from the Northern Arapaho is shown in the "Bulletin of the American Museum of Natural

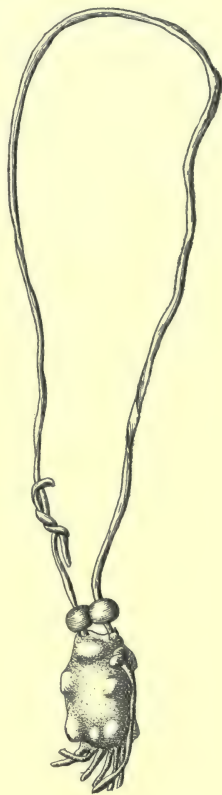


Fig. 44 (50-4280).  
Thunder-stone Necklace.  
Length, 21 cm.

History" (Vol. XVIII, p. 443, Fig. 176). Fig. 44 shows a small Gros Ventre specimen attached to a thong, for wear around the neck. The entire stone is tightly incased in a piece of skin which preserves the form so closely as to be scarcely noticeable. At the lower end of the stone is a small fringe of skin. Skin and thong are painted over red.

#### BELIEFS ABOUT THE DEAD.

Dead people go to a barren region in the north. People have been there, but the ghosts are invisible. The dead are often heard whistling, speaking, and calling about human habitations; houses and tents may be closed, but still they are heard. They speak as a living person would, and people in return ask them questions. When at war, people often ask the ghosts what luck they will have, or where the enemy are. The dead always tell the truth, and, if they say one of the party will be injured, it always happens. The ghosts are never seen, but only heard. Sometimes, if a medicine-man asks one of his spirits to bring him a dead relative, the door is heard moving, and after a time the spirit returns with the dead person, who, when he is asked questions, answers. Every one who is present can hear him plainly. Sometimes, on the arrival of the person, a noise like the whirring of wings is heard. Then there is a tapping at the top of the tent-poles. Then the tapping moves about the tent. Now it may be at the door, now at the back of the tent. When a ghost or spirit is seen, as occasionally happens, it is only for a glimpse.

If a man keeps a tooth or a bone of a dead person, after a time the spirit of that person appears to him. Some ghosts lie, but some are truthful. A man who controls a ghost, or a medicine-man who has a spirit, can see it; but it is invisible to other people. It is summoned only in the dark. People who have lost horses bring a pipe to a man that has a spirit, and pay him. Then he calls his spirit, and it tells where the horses are. If people try to ascertain by the help of a medicine-man where they have lost a small valued object, the spirit may throw it at them. Stolen property is found in the same way. A ghost or spirit is called "untrue person."

An old man who has been several times quoted tells the following: "I once died. I think that Above-Nix'a<sup>n</sup>t pitied me, and let me live to be an old man. I was very sick with cramps and fits. The camp was moving, and the last I remember was that the tents were being pitched. Then I knew nothing about it; but the people were mourning for me and had put paint and my best clothes on me. I was travelling. I went north until I came to the Cypress Hills. There on the hills I saw two bears going into

their holes, in which they had fires. I started to go around where they were, but when I came abreast of their holes one of the bears pursued me and caught me by the leg. I turned and seized it by the ear, and saw that it was a very small bear. Then I continued on my way, the bear clinging to my thigh, and I holding its ear. I went on until I came to a creek where there was an enormous camp, the largest I have ever seen, stretched as far as I could look up the creek. Those in advance were just setting up their tents. I went to the first tent I came to, which was a large one. A number of naked men were sitting there, each of them with some weapon. By the door a woman sat cooking. The men called out to her to catch me, that they would eat me. I ran out, and she after me. She caught me by the robe, but I loosened myself and ran back. Then my relatives, who were kissing me, noticed that I was breathing, and said, 'He is alive.' Then I recovered my speech, but I was still out of my senses. They told me later that I argued with my relatives, insisting that I had brought a bear, and asking them where it was. The next day, when my senses returned, the back of my thigh itched where the bear had been. Still later, when I had more nearly recovered, I saw the tent in which I was, full of people that I could not recognize. Then I lost my senses once more, and became so strong that they could not hold me. It was a long time before I entirely recovered. All this happened to me while I was still a young man, soon after I was married."

An old man tells that once he was going from one camp to another at night, when suddenly he heard a humming of a stone like a bullet, which struck in front of him. He was frightened, but did not run. Another stone flew over his head so close that he felt the wind it made. Then he ran.

On another occasion he was mourning for one of his sons. In the evening he went to one of his friends. It was already dark, and he had to pass through the brush. Then he heard a noise as of canvas being dragged over the brush, and there was loud whistling. He was not frightened, but stopped and said, "You should pity me. I am mourning." Then it shouted "Yes" loudly, and the noise stopped.

At another time he saw a ghost's light. An old man who had died had been buried in a tree. The narrator with six other men was driving horses past that they had captured, when they saw a flame on the dead body.

A man tells how he was once in an isolated tent, far from any camp. He was leaning against a tent-pole listening to those in the tent who were talking and smoking. Suddenly, close by his ear, there was a loud whistle which made him jump to his feet. The others all heard it also, and asked, "Who was that?" Going outside, they could find no one, and knew that it had been a spirit.

An old man relates that he once saw something that he thought was a spirit. In full daylight he was hunting horses, and came on a ridge where there were a few pines, while below there was a flat and a stream. Down there he saw a dead cottonwood aflame and a person by the tree who was burning it. Limbs fell down burned off. He thought that it was some one from his own camp who was burning the tree; but he lay down and watched. The person took a fallen limb, carried it to the stream and threw it in, and he could hear it splash and hiss. He saw this a second time and a third time, but, happening to turn his head, when he looked back there was no one there. He waited for some time, but the person did not reappear. Going to the stream, he saw the burned branches and the tree still afire.

The Milky Way is called tsöökanibyaa<sup>n</sup> ("ghost road"). The dead travel by it.

#### MYTHOLOGICAL BELIEFS.

Bax'aa<sup>n</sup> is the name of the water-monsters inhabiting rivers, as well as of the thunder. The water-monster is also called byiïça<sup>n</sup>. It is the enemy of the thunder. This idea is common in the Plains tribes, and it seems probable that the relation into which the thunder and the water-monster were brought through this general idea of the opposition between them, is what has resulted in one name being applied to both of them by this tribe. The description of the water-monster is the usual one. It is long, snake-like, and black, with a long head and turned-up nose and horns. It causes the death of all persons who drown.

That persons drowned are taken by a bax'aa<sup>n</sup> is believed the more because the monsters are said to have hands like a person. As they have long, sharp teeth, and are known in one recent instance to have eaten a buffalo, it is supposed that they eat the persons whom they drown.

A hunting-party once saw a water-bax'aa<sup>n</sup> being carried away through the air by a cloud which extended downward toward the earth. They saw the monster writhing, and turning its tail.

A hunting-party once killed a buffalo at the edge of a river. They were cutting the meat when they saw waves approaching the buffalo. The water rose and was pushed toward the buffalo until it covered it. Then the water receded, and they saw a water-monster lying eating the buffalo. One of the men said he would kill it. The others urged him to desist; but he shot, and struck the animal between the eyes. Then, as it writhed, he declared he would despatch it with his knife. Again they tried to dissuade him; but he said, "I have come to seek death, and am not afraid." Taking his double-edged knife, he killed the monster, and dragged its tail out of the

water. He was regarded as having done one of the bravest deeds imaginable. This animal had crooked horns, a body and tail like a snake, long teeth, short legs, and hands like a person. According to another version of this incident, the warrior approached the monster, which thereupon retreated into the water. Then he hid behind the buffalo, and when the monster reappeared, shot it, and then despatched it with his knife.

When one of the present old men of the tribe was a young man, a party, all of whom he knew, went to war. They came to a dry lake to the south of the present reservation, in the centre of which there was a small pool of water. Not having seen any buffalo on the way, they were very hungry. So when they found a bull standing by this pool, they killed him. Thereupon they saw that his legs were quite short and his hair long. One of the party said, "He is something strange. Let us not eat him." But another said, "We are too hungry. We will eat anything." And he stuck his knife into the bull's belly. Water immediately spurted out, and came in enormous quantities. The lake rose rapidly, and the men fled with the water at their heels. The lake-bed was a large one, and when they finally came to the bank enclosing it, and jumped up and crawled above, the water dashed against the bank.

The father of the same narrator was with a war-party when they came to a dry lake. They saw three stones in a row, and from the traces left on the ground saw that the stones were moving and that they were something wonderful. The whole party stripped naked and made sacrifices to them, and began to cry before them. Thereupon the water began to rise in the dry lake, and approach. All became afraid and ran off, except one man, who remained by the stones. When the stones were covered with water, they saw that the offerings that they had made moved toward the centre of the lake, although the water was flowing from the centre toward the edges. The one man who had remained continued to cry without fear, until the water reached his neck, when it stopped.

Some women once saw a *bax'aa*<sup>n</sup> in a spring from which they were getting water. For some time they were unable to move. When they finally succeeded in escaping, no one would any longer approach the spring. The women had seen only the monster's head.

An old man tells that once the camp moved, and at dusk came to the edge of a lake. The tents were not put up, but the people slept in the open air. It was winter and the lake was frozen. At night the narrator was awakened by a terrible roaring and crashing, as if the ice were breaking up. He did not need to wake any one else, for every one had been aroused by the noise. He told every one, "It is the water-monster. Be still." Early in the morning he went to look, and where the noise had been heard there

was a clean cut through the ice, about two feet wide, the path of the monster. It had moved about in the lake until it reached the bank above which the people were sleeping. The monster had struck this bank, the impression of its head and two curved horns being visible. Then it had turned and gone back to the centre of the lake, and there disappeared, making another path, on each side of which the ice was piled up. The narrator gave to it several pieces of property.

It is said that it is not known whether thunders have ever been seen; but old men say that they have seen marks on the ground where one is thought to have alighted. The grass about was scorched, and two zigzag lightning-marks, each forking at the end, extended in opposite directions along the ground.

The people were once camped east of the present reservation. A terrific rainstorm came and passed over them. When they thought it had gone by, there was a fierce clap of thunder, and a man and his wife and their boy were struck by lightning. The man and boy were killed, but the woman is still alive. There were two small holes in the tent, and through the bedding into the ground there extended two small holes of the size of a small calibre bullet-hole. On another occasion, a woman was untying a curtain at the back of the tent in order to keep a bed dry, when lightning struck the tent-pole, and she was killed. The other people in the tent were merely stunned.

Not many years ago a strange thing happened to a man and a woman still living. During a thunderstorm the woman, who had been sitting at the door, went to the back of the tent and sat beside her husband. Lightning struck the tent, and shot a hole through every metal plate, cup, or dish on the ground. Where it entered the tent, it left a mark like a sword. The people then painted the tent dark-blue.

A woman out mourning for her mother on the prairie saw a small thunderstone (bax'aa<sup>n</sup>ayāa<sup>n</sup>). It was creeping slowly, leaving a trail or mark. The woman thought she would leave it, and pick it up later. When she came to the place again in the evening, the stone had vanished. Its trail was still visible, but ended where she had seen it last.

The rainbow is called bax'aanāyaa<sup>n</sup>t ("thunder's fishing-line"). Nāyaa<sup>n</sup>t seems to mean any fishing-implement.

The whirlwind is called ināäçitā<sup>n</sup>. This is also the name of a red legless water-worm (not a leech).

The three stars of Orion are called "buffalo-bulls." The two below them, to one side, are hunters who were going to shoot them and suddenly found themselves in the sky.

The Gros Ventre once lived far north of where they are now, where there were nothing but forests. There they found a metallic object. The object



was like the flat rocks on which women pound berries, perfectly round, rough above, and perfectly smooth on the under side. Many men lifting together could not move it; but when offerings were made to it, and it was asked to rise, one man was able to lift it easily. Several people tried to sleep near it in order to dream about it, but none of them ever staid the whole night through. They would dream that it was a large metal kettle coming toward them on legs, and filled with boiling water, whereupon they jumped up and fled.

West of the present Gros Ventre Reservation there was, until the whites took it away, a stone shaped like a person, except that it lacked the face. This was once a Snake Indian. A war-party saw him sitting on a hill, and pursued him into a flat. They had nearly caught him when he turned to stone and has been there ever since. Once, as a camp went by and the people made offerings of calico and other property, a man said, "Why do you do that?" Taking a club, he knocked off the head of the figure. The man died the same summer.

A complete buffalo of stone, with hump, horns, ribs, and other parts, half of it underground, has been seen by the Gros Ventre, and many offerings and prayers have been made to it.

To the north of the Gros Ventre Reservation is a lake shaped like a buffalo, with legs and all parts complete. The tail runs out into a river, the hoofs are patches of brush, and the horns are streaks of timber of the shape of horns.

Lizards are thought to bite persons and then to hang fast to the wound, sucking the flesh into themselves. It is said that a certain man was bitten and the lizard could not be pulled off. The man's flesh had to be cut off around the lizard's mouth.

There is believed to be a kind of bear with one white fore-leg, which is fiercer than the grizzly. The jack-rabbit is called "white rabbit;" and the cottontail, "left-hand rabbit." The prairie-dog is called "large gopher" (?); and the mink, "prairie-dog weasel." The bat's bite is thought to be exceedingly poisonous.



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THE HARD PALATE IN NORMAL AND FEEBLE-  
MINDED INDIVIDUALS.

BY

WALTER CHANNING, M.D.

AND

CLARK WISSLER, Ph.D.

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## INTRODUCTION.

This paper discusses some measurements made upon casts of the hard palate in living subjects. These casts are from both normal and feeble-minded individuals, representing by far the largest and most unique accumulation of such material so far brought to our attention. They were systematically collected by Dr. Walter Channing in response to his interest in the much discussed question of correlations between certain variations of the hard palate and states of feeble-mindedness. For this reason, the junior author made a rather detailed comparative study of the two series, his chief interest being in the application of anthropometric methods to this type of anthropological data.

In 1897 Dr. Channing published a paper in "The Journal of Mental Science," entitled "The Significance of Palatal Deformities in Idiots." His attention had been directed to certain theories concerning idiots' palates, which had been advanced upwards of thirty years ago by Dr. J. Langdon Down, who was at the head of the Earlswood Asylum for the Feeble-minded in England.

Dr. Down had said, "I have made a very large number of careful measurements of the mouths of the congenitally feeble-minded and of intelligent persons of the same age, with the result of indicating, with some few exceptions, a markedly diminished width between the posterior bicuspids of the two sides. . . . One result, or rather one accompaniment, of this narrowing, is the inordinate vaulting of the palate, which assumes a roof-like form. The vaulting is not simply apparent from the approximation of the two sides, it is absolute; the line of junction between occupying a higher plane."<sup>1</sup>

Dr. Down further stated that the "V-shaped" palate was characteristic of a very large class of idiots, and that a certain peculiar shaped palate was pathognomonic of congenital idiocy.

Dr. Norman W. Kingsley, an able and reliable American dentist who did not agree with the conclusions of Dr. Down, visited the Earlswood

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<sup>1</sup> Mental Affections of Childhood and Youth, p. 281, 1887.

Asylum, and in company with Dr. Down examined the palates of the inmates. "Together," Dr. Kingsley says, "we made a careful examination of every inmate of the institution, with a result not so widely different as I supposed must exist. There were, to be sure, a larger percentage of irregularities of the teeth than I had before observed. About two per cent might be said to be pronounced cases of narrowed or V-shaped arches, and another five to ten per cent might be said to have more or less tendency in that direction; but of the more positive cases I did not see one so marked as I have seen and treated in private practice, and associated with full intellectual development."<sup>1</sup>

This refutation by Dr. Kingsley, which was certainly authoritative enough to leave the question still open for discussion, appears to have received little attention.

The conclusions of Dr. Down thus assumed an importance to which at this time they do not seem entitled, because they were the first formulation of the relation and significance of certain palatal shapes to feeble-mindedness, and because they were accepted by many writers as essentially correct. At a later date, when stigmata of degeneracy began to be exploited until there was almost a stigma cult, Dr. Down's theories concerning the palate aroused renewed interest, indicating as they did that the palate was the seat of the most pronounced stigmata.

To test the correctness of Dr. Down's conclusions by a more thorough study than had yet been made, and incidentally to determine, if possible, how much weight should be attached to palatal shapes as stigmata of degeneracy, Dr. Channing had casts made of the palates of a thousand feeble-minded individuals and five hundred school-children.

The conclusions which he arrived at as a result of his studies were as follows:—

- "1. Two-fifths of the palates of idiots are of fairly good shape.
- "2. Palates of normal individuals may be deformed.
- "3. In the idiot it is a difference in degree, and not in kind.
- "4. In either case it shows irregular development anatomically.
- "5. Palates of average children and idiots, under eight years of age, probably do not in the majority of cases markedly differ.
- "6. There is no form of palate peculiar to idiocy.
- "7. The statement that a V-shaped or other variety of palate is a 'stigma of degeneracy' remains to be proved."<sup>2</sup>

<sup>1</sup> An Inquiry into the Causes of Irregularities in the Development of the Teeth, New York, 1875.

<sup>2</sup> The Significance of Palatal Deformities in Idiots (The Journal of Mental Science, January, 1897).



Dr. Channing, in his published paper, made the further statement that, "as far as the idiotic or feeble-minded are concerned, I believe the deformed palate to be only one of an indefinite number of indications of imperfect anatomical development, occurring, to a marked or very slight degree, as hereditary and environmental causes may determine."

This statement, and the conclusions summarized in the paper referred to, met in the beginning with some opposition, which has grown less as time has gone on. At the present time we hear much less of the *stigmata of degeneracy*; the whole subject of these *stigmata* having been brought into disrepute by the exaggeration of past years, and its value and significance placed under suspicion. We may say now, that apparent defects or deviations from the normal are not dignified as *stigmata*, unless the claims that they are such are based on satisfactory scientific data. There still are writers, however, who continue to reason along the old lines, the recent data available not being of a sufficiently convincing nature to impress them, or extreme conservatism or preconceived opinion rendering them unwilling to accept new views.

During the ten years since Dr. Channing published his paper, nothing new has been brought forward to lead him to modify the views he then expressed. In the interest of research, however, we have thought it desirable to make a new study of the casts collected by Dr. Channing, recently augmented by the addition of a large number of those of normal individuals, for the purpose of retraversing former conclusions, and proving or disproving them.

In the paper of Dr. Channing already referred to, the claim was made that the most satisfactory results in the study of palates could be got from casts, and a classification was made based on shapes. We are still of the opinion that casts must be used, if a convincing and conclusive inquiry into the subject of palatal deformities is to be made.

#### COMPARISONS BY MEASUREMENT.

Recent developments in statistical methods have made anthropometric research fruitful. Unfortunately, these methods are not sufficiently well known for us to proceed without, at least, a few general statements.

All problems involving comparisons of morphological types must concern themselves with variation. Certain general assumptions underlie all procedure in such problems. A morphological type is a complex result of causes imperfectly known and little understood. It is assumed, that, whatever may be the number and nature of the causes tending to project an organ into space, the objective is definite, constant, and fixed. For the

hand, we assume a definite form of fixed dimensions to the realization of which biological forces tend. This assumption is based upon observed facts. Experience has made it apparent that the space-values for the several organs of a group bear a fixed relation to each other; that is to say, as measured, the space-values of individual organs cluster around a median value in a constant relation. The additional observation has been made, that this relation is the same as that found in a combined result due to a large number of independent causes. The phenomena of chance as considered in mathematics present the same relations. If we take a bag of coins and throw them upon a table, we get a number of heads; if we make a thousand or more successive throws and record the number of heads for each, we obtain an array of values or frequencies that cluster around a median frequency. Mathematics is able to analyze this case, and determine the principle involved from which the result of this tossing of coins can be foretold.

Let  $n$  = the number of coins thrown at a time  
 $p$  = probability that a coin will fall head  
 $q$  = probability that a coin will fall tail  
 $p + q$  = probability that a coin will fall

Then

$$p + q = \left(\frac{1}{2} + \frac{1}{2}\right) = 1$$

$(p + q)$  = number and kind of possible combinations.

The coefficients of the expansion of this binomial will give us the expected frequencies for each possible combination of heads and tails. The average of these coefficients will be  $np$ , the maximum coefficient.

If we consider the coefficients as ordinates of a curve,  $np$  will be the maximum ordinate, and equal distances right and left upon the abscissa will locate equal ordinates. Thus a binomial expression of the above form may be defined by the value of the maximum ordinate and the units of the abscissa taken.

In morphological measurements it is observed, that if units of size be represented on the abscissa, and the frequencies of occurrence upon the ordinates, the relations between them are similar to those in the binomial expression. Yet we do not know the value of  $n$  or the number of causes that are involved in the production of the organ measured. Also size is continuous, and is represented by each point in the abscissa. Thus the recorded measurements of size are arbitrary units of the abscissa, and the frequencies for these units express the number of cases falling within their respective limits. To express such a relation, a different formula is needed,

which will be found in the literature of statistical measurements. For our purpose it is sufficient to state, that, whenever frequencies are found to agree with this formula, there is a constant relation between the frequencies and distances upon the abscissa, measured from the maximum ordinate. This constant is known as the standard variation, expressed in the following pages by  $\sigma$ . In the binomial formula,

$$\sigma = \sqrt{npq}$$

$\sigma$  is also the square root of the average of the squares of all the individual differences from the average. Thus it represents the variation of the organs measured from their average. We can now define the type of an organ by stating its average and its standard variation, or its  $A$  and its  $\sigma$ . Since  $\sigma$  is measured from the average, it is written as  $\pm \sigma$ : hence our expression becomes

$$A \pm \sigma$$

It is obvious that, since  $\sigma$  represents a constant in the abscissa of a fixed curve, all its calculated values will be relatively equal. Thus, by use of the same unit of measure for two groups of organs, we may compare the objective magnitudes of their variations.

In this work we have made use of certain principles of procedure well known in statistical methods.

(a) The range of variation is regarded as infinite, but practically restricted to  $A \pm 4.5 \sigma$ . Upon the same basis, the frequency for any multiple of  $\sigma$  can be determined by calculation.

(b) When groups of measurements are combined into one group, the  $\sigma$  for the whole will be the square root of the sum of the squares of the  $\sigma$ 's for the constituents; as

$$\sigma_g = \sqrt{\sigma_1^2 + \sigma_2^2 \dots + \sigma_n^2}$$

(c) When the number of observations is small, the average obtained will vary from the true average, or the type. This variation will be accidental, and conform to the laws of chance or the exponential formula. Thus the average will have a standard variation of its own, which we have expressed by  $\epsilon$ . It can be shown that

$$\epsilon = \sigma \frac{\sigma}{\sqrt{n}}$$

in which  $n$  represents the number of observations. This value is necessary to the comparison of averages, for, unless the difference between two averages is such that one falls with certainty outside the normal accidental range of the other, they must be regarded as belonging to the same type.

(d) Correlation. This is a method by which it is assumed that we can measure relation, or the dependence of one complex variable upon another. In physical measurements it is assumed that causes tending to produce size operate upon the several morphological organs, and that the causes that tend to make a man tall may be said to tend to make him heavy also. Yet other causes tend to vary his stature, and still others his weight. The consequence is, that his stature-weight dimension, or the proportion between the two, is a resultant of all the various forces involved. The method of correlation assumes to measure the degree to which the causes tending to realize a size-type function in a given case. The method is a geometric one, and expresses its results in like terms. It attempts to analyze a resultant of forces, and is in so far analogous to problems in physics. The justification of the method and the application must be sought in the literature of statistical methods.

The measurements upon which the following discussion is based were made with an apparatus devised by Professor Franz Boas for the anthropological laboratory of the American Museum of Natural History, New York City. The mechanical principles of the apparatus are simple. Movable points are so related as to be adjustable in three planes intersecting at right angles. When an object has been placed upon the table of the apparatus, and adjusted to one of its planes, readings may be taken for points in all three planes. Thus the cast of a palate may be placed upon a support of sculptor's clay, and adjusted by trial until the plane of the teeth coincides with the horizontal plane of the apparatus. Then, if we choose the two first molars as a base, the adjustment is easily made so that the line joining them will pass through the points of intersection for the three planes, and, with the molars as the point of departure, we may then define the location of other points on the cast. It was by virtue of this apparatus that we were able to make satisfactory measurements, and any comparison of our results with other measurements must take into account this fact; i.e., that the measurements here given were made in geometrical planes carefully determined, and not subject to the error resulting from measurements taken freehand with calipers.

In all measurements the question of accuracy is important. It is not so necessary that measurements should be absolutely accurate, for that is a relative term at best, as that the degree of accuracy should be known. In one case, errors will occur in the determination of the plane of the teeth, the reading of the dimensions upon the scales of the apparatus, and the location of the points from which the measurements are projected. The degree of such error can be estimated by repeating the whole measurement. To this end we made two independent measurements of the width at the molars in case

of adult males. Taking the first measurement as fixed, and taking the difference between it and the second measurement as positive or negative, as the case may be, we find an average difference of  $-0.7$  mm. Theoretically this should be 0. The standard deviation for the differences is  $\pm 0.9$  mm. Since this is the combined variability for the two measurements, neither of which is correct, the variability due to error should be apportioned between them. Let

$\sigma_1, \sigma_2$  = the respective variabilities of the error of measurement.

Then

$$0.9 = \sqrt{\sigma_1^2 + \sigma_2^2}$$

$$\sigma_1^2 = \sigma_2^2$$

$$\sigma = 0.6 \text{ mm.}$$

Assuming that

Hence the variability of the error becomes  $\pm 0.6$  mm. Then the chances that an error will exceed one millimetre are very small. As all of the measurements were made in the same way and by the same person, this error can be taken as constant, and ignored in the comparative results.

Since no extended studies by measurement have come to our notice, we have omitted a review of the general literature of the subject, on the ground that such a discussion would take us too far afield. As previously stated, our present purpose is to approach the problem from the anthropometric point of view. About three years ago we published a brief report on the work in "The American Journal of Insanity," Vol. LXI, No. 4, April, 1905.

*Type of Palate for the Normal-minded.*<sup>1</sup>—The preliminary problem is the determination of the points from which measurements are to be made.

If we look down upon the upturned cast of the hard palate and the teeth, several lines stand out clearly (Fig. 1). For one, we have the curve of the teeth  $A'A''$ . This curve follows the edge of the

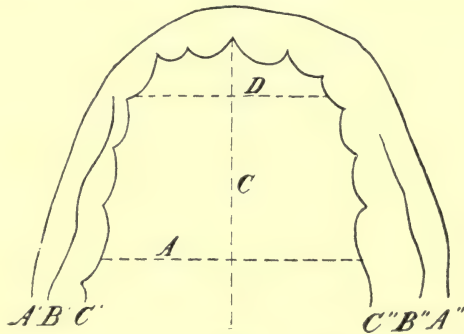


Fig. 1. Diagram of Palate.

<sup>1</sup> The junior author is responsible for the choice of this term. It seems best in this case, because the subjects were selected according to general mental condition; and while it is reasonable to assume that those not considered feeble-minded were physically normal, the use of the general term may imply that all palates among the normal-minded were normal. Thus a confusion of terms may lead to an entirely different interpretation of the results obtained.

incisors and the outer ridge of the bicuspids and molars. If we are concerned with the teeth alone, this is the most important point of regard. Disregarding the teeth and giving our attention to the form of the cavity, we find the curve  $C'C''$ . While in the diagram this curve seems more irregular than  $A'A''$ , it should be remembered that the outer curve is also broken in that it is defined by the points upon the successive teeth; whereas the inner curve is defined by the corresponding inner surfaces of the teeth. An examination of the skull will show that this curve is closely correlated with the curve of the maxillary process, or the contour of the hard palate. The surfaces of the molars and bicuspids have well-defined median lines that may prove more reliable points of regard than their outer edges. Should this line be taken, the curve will then turn from the apex of the outer incisor, across the canine, to the median line of the bicuspid,  $B'B''$ .

Now, any attempt to determine correlations between the form of the palate and other variations from the morphological type must find a means of stating the type of one of these curves, and, as these three curves are closely related geometrically, the choice must be determined by economy of methods of measurement and the end in view. These curves can be treated according to their length and their form. If the form is strictly symmetrical, the distance between corresponding points upon the teeth, as upon the first molars for example, will give twice the ordinate for a point upon the abscissa, or the median line of the palate. In the diagram,  $A$  represents the distance between the molars; and  $C$ , the distance from the alveolar point. The abscissa, or the median line of the palate, is not clearly defined in the casts, and, even in the case of the skeleton, variability makes the true determination of the median line difficult: hence the only practical thing to do is to measure the distances corresponding to  $A$  and the line  $C$ , as determined by  $A$  and the alveolar point. As we shall see later, the values of these lines will enable us to approximate the form and size of the curves.

In the first place we investigated the variability as measured from different points in the transverse plane of the first molars. The following values were obtained:—

	$n$	$A$	$\sigma$	$V$
		mm.	mm.	mm.
From outer edges . . . . .	96	54.7	3.75	0.27
From median line . . . . .	101	47.4	3.37	0.24
From inside . . . . .	126	34.7	3.35	0.21

Since  $v$  represents the accidental range of  $\sigma$ , it is clear that the degree of variability in the three measurements does not differ by an amount greater than the range of accident. It is also apparent that the variability in the width of the teeth is relatively small. If we assume the above variabilities

as fixed and absolute, the estimated combined variability for the inner halves of the molars is expressed by  $x$  in the following equation:—

$$3.37 = \sqrt{(3.35) + x^2}$$

$$x = \pm 0.36$$

By the same formula, the variability of one molar from its median plane would be about  $\pm 0.25$  mm.

From the above it seems that the standard deviation for the width of the entire molar will be about  $\pm 0.4$  mm.

These results make it probable that it is immaterial whether measurements are taken from the inside of the teeth, from the median line of the teeth, or from their outside edges. The small degree of absolute variability in the size of the teeth enables us to regard them as constants. Hence, in considering the size of the palate, the measurements may be taken without regard to the size of the teeth.

There are, however, other considerations in making a choice as to measurements. We have data for all ages, from six years to adult life; and this span includes two dentition periods,—the so-called second dentition and the eruption of the wisdom-teeth. Thus the loss of teeth and the maturity of the incoming teeth will modify the measurements in various ways. For these reasons it was decided to measure the palates according to the inner curve of the teeth at the gum-line. The justification of this choice will appear later.

Our preliminary problem is clear. We must first determine the type of the normal adult palate. For this purpose we took the casts of 126 adult males (chosen at random), and subjected them to a number of measurements. The inner widths for all the teeth, except the third molars, were found, as well as the outer widths, and in addition the length, or distance from the alveolar point as measured on the abscissa. The results are given in Table I.

TABLE I. MEASUREMENTS OF WIDTHS AND LENGTHS.

	INSIDE WIDTH.	INSIDE LENGTH.	OUTSIDE WIDTH.	OUTSIDE LENGTH.
	mm.	mm.	mm.	mm.
Outer incisors . . . . .	17.15 ± 2.10	4.33 ± 1.06	22.17 ± 2.20	4.06 ± 1.36
Canines . . . . .	22.92 ± 2.51	6.90 ± 1.50	34.19 ± 2.75	9.73 ± 2.00
First bicuspids . . . . .	26.26 ± 4.01	12.39 ± 1.91	41.79 ± 2.95	16.84 ± 2.36
Second bicuspids . . . . .	30.82 ± 3.28	19.06 ± 2.22	47.08 ± 3.10	23.23 ± 2.76
First molars . . . . .	34.75 ± 3.35	28.71 ± 2.58	54.71 ± 3.75	34.26 ± 3.30
Second molars . . . . .	38.96 ± 3.12	38.04 ± 2.98	58.72 ± 3.18	42.92 ± 3.94

In taking these measurements, the minimum distances between the bicuspids and the molars were taken. The mechanical conditions are such that this can be done with a fair degree of accuracy; yet the normal positions of the canines and the incisors are such that the measurements must be taken from the approximate middle points, or the transverse median planes of the teeth. As these points must be estimated by the eye, the variabilities of the measurements must be greater than in the preceding cases; but inspection of the dimensions involved indicates that, in locating the point, an error of one millimetre is extremely improbable. Furthermore, it will be observed that the calculated standard deviation for the measurements at the canines and the incisors does not differ from the other measurements by an appreciable relative amount.

While we have in this table the averages and their probable ranges for points on each tooth, it will be difficult to plot correctly the type of the palate. Thus if we take three points (the alveolar and the first molars),

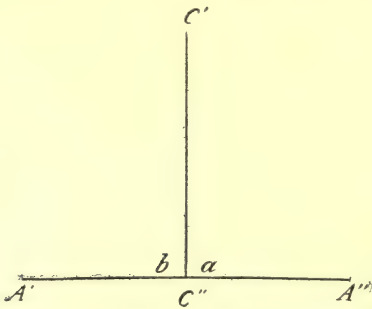


Fig. 2. Diagram of Measurements.

we have the abscissa and an ordinate for the curve of the palate (Fig. 2). We know the average length of  $A'A''$  and  $C'C''$  as perpendicular to  $A'A''$ . The points  $A'$ ,  $A''$ , and  $C'$ , cannot be taken as fixed, unless we assume the morphological development of the organ to proceed from one of these points as an origin. It is obvious that no such assumption is justifiable, for each point is a variable. That the organ does tend to realize a type

seems a reasonable assumption; and the biological point of view is, that the development of the body proceeds from its median plane. Thus it may be justifiable to consider the median plane as fixed. However, this does not solve our difficulty, since  $C'$  becomes a variable point in the median plane of the body, or in a straight line. If all the palates were balanced in a common median and a transverse plane, taking these at right angles to each other,  $C'$  would vary according to the size of the palate (let  $C'C''$  be the median plane, and  $A'A''$  a line in the horizontal plane); yet our measurements give us neither the location of  $C''$  nor the value of the angle  $\alpha$ , and our material is such that the median planes of the individual palates cannot be determined with reasonable accuracy. Hence the problem must be approached indirectly.

If we can assume that the palate is developed symmetrically around the median plane, the angle  $\alpha$  will on the average approximate a right angle,



and the line  $C'C''$  will bisect  $A'A''$ . It is also evident that, if the observed values  $A'C''$  and  $C''A''$  are equal on the average when  $C'C''$  is taken perpendicular to  $A'A''$ , the average measurement of the angle  $a$  is  $90^\circ$ . Hence, if we determine empirically the value of  $A'C''$  and  $C''A''$ , we shall have established a point in the typical palate.

For this purpose we measured fifty normal and fifty feeble-minded adult males for the values of  $A'C''$  and  $C''A''$ , the results of which are given in Table II.  $A'C''$  represents the half of the palate belonging to the right side of the body, and  $C''A''$  that belonging to the left. The entire data are given. The differences between the two halves of the palates of normal and feeble-minded males average approximately one millimetre. While this is almost twice the probable deviation of the difference, it cannot be taken as significant. The fact that the two groups of measurements vary in the same direction (the right side being the larger) may be given some weight.

TABLE II. MEASUREMENTS OF ASYMMETRY.

mm.	NORMAL-MINDED MALES.		FEEBLE-MINDED MALES.	
	$A'C''$	$C''A''$	$A'C''$	$C''A''$
7	-	-	-	1
8	-	-	-	0
9	-	1	-	0
10	-	-	-	1
11	1	2	1	0
12	0	3	1	3
13	0	2	1	1
14	5	1	2	3
15	4	3	4	6
16	2	4	5	6
17	5	10	6	5
18	11	10	10	10
19	10	6	9	7
20	5	3	5	5
21	4	2	5	2
22	1	1	1	-
23	1	1	-	-
24	1	1	-	-
<i>n</i>	50	50	50	50
Average . . .	17.98	17.02	17.68	16.68
$\sigma$ . . . . .	$\pm 2.37$	$\pm 2.82$	$\pm 2.37$	$\pm 2.81$
$\epsilon$ . . . . .	$\pm 0.34$	$\pm 0.39$	$\pm 0.34$	$\pm 0.39$
Certainty of difference . . .	$0.96 \pm 0.52$		$1.00 \pm 0.52$	

Before going on, it may not be out of place to consider the effect of small error in measurement upon the symmetry as obtained. Referring to Tables IV and V, we find the average widths at the molars to be 34.7 mm. for the normal adult males, and 33.8 mm. for the feeble-minded. By add-

ing the two averages in Table II, we have 35 mm. and 34.4 mm. respectively. The difference between these values contains not only the variation due to a smaller number of cases expressed by  $\varepsilon$ , but the error introduced by the readings in millimetres. Such error will be made when the line  $A'A''$  is expressed in an odd number of millimetres, and  $A'C'' = C''A''$ ; the result being recorded as  $A'C'' >$  or  $< C''A''$ . Though these differences should cancel each other in the long-run, they will, with so small a number of cases as we have at hand, still be a disturbing factor. We can form some estimate of the effect of this factor by referring to the standard variations. For feeble-minded adult males,  $\sigma = 3.61$  for  $A'A''$ . This should equal the square root of the sum of the squares of the  $\sigma$ 's for  $A'C''$  and  $C''A''$ . Let  $d$  be the amount of the disturbance. Then

$$3.61 = \sqrt{(2.37)^2 + (2.81)^2 + d}$$

$$\therefore d = -0.06 \text{ mm.}$$

For normal adult males the correspondence is not so close.

$$d = -0.32 \text{ mm.}$$

For a strict comparison we should take the standard variation ( $\sigma$ ) for the measurements of the same fifty casts; but the above serves to show that, while the differences are very small, they are in the same sign, and indicate, if anything, a slight increase in the range of values. Presumably this is due to the error of the part measurements as contrasted with the single measurements of the whole line. While  $d$  will not account for all the differences between the two halves of the palate, it demands a further reduction of what is already within the bounds of the accidental. Thus we have gained one point; viz., that the median plane as defined by the points  $A'$ ,  $A''$ ,  $C'$ , can be assumed to lie between, and approximately equidistant from,  $A'$  and  $A''$ .

As the first molar is firmly seated before the other permanent teeth appear, and as the canines come very late, we should expect crowding of the teeth to affect the canines most of all. While this would greatly increase the variability of the width at the canines, there is no reason for supposing that the displacement would be constantly greater on one side of the jaw than on the other. In this connection we made a few trial measurements, and found the tendency toward symmetry constant. From all this we feel justified in assuming the form of the palate as defined by the teeth to approximate symmetry.

Returning to the consideration of the type of the palate for normal adult males, and proceeding upon the assumption of a symmetrical type,

we have the data for plotting the curves. Taking  $C''$  as a fixed point, and supposing we superimposed the palates in such a way that the lines  $C'C''$  and  $A'A''$  coincide, the variable points become  $C'$ ,  $A'$ , and  $A''$  (Fig. 2). The variabilities of measurements on the line  $C'C''$  are already expressed in terms of  $C''$  as a fixed point, from which the ranges of the average, or the limits of the type, can be calculated by the formula

$$\epsilon = \frac{\sigma}{\sqrt{n}}$$

The standard variations for  $A'$  and  $A''$  can be estimated as previously stated.  $\sigma$  for  $A'A''$  is the combined variation for the two lines  $A'C''$ ,  $C''A''$ . Hence, expressing average by brackets,

$$[A'A''] = [A'C''] + [C''A'']$$

$$\sigma_{A'A''} = \sqrt{\sigma_{A'C''}^2 + \sigma_{C''A''}^2}$$

We have just shown that we are justified in assuming

$$[A'C''] = [C''A'']$$

$$\sigma_{A'C''} = \sigma_{C''A''}$$

Hence

$$\sigma_{A'A''} = \sqrt{2(\sigma_{C''A''})^2}$$

We have calculated the values of  $\sigma_{C''A''}$  and  $\epsilon_{C''A''}$  from Table I, and tabulated the results in Table III.

TABLE III. VARIABILITIES CALCULATED FOR ONE SIDE OF MEDIAN PLANE.

	INSIDE WIDTH.			OUTSIDE WIDTH.		
	$n$	$\sigma_{C''A''}$ mm.	$\epsilon_{C''A''}$ mm.	$n$	$\sigma_{C''A''}$ mm.	$\epsilon_{C''A''}$ mm.
Outer incisors . . . . .	105	1.48	$\pm 0.14$	115	1.55	$\pm 0.14$
Canines . . . . .	112	1.77	$\pm 0.17$	118	1.94	$\pm 0.18$
First bicuspid . . . . .	90	2.83	$\pm 0.30$	102	2.06	$\pm 0.20$
Second bicuspid . . . . .	98	2.32	$\pm 0.23$	103	2.19	$\pm 0.21$
First molars . . . . .	126	2.36	$\pm 0.23$	96	2.65	$\pm 0.27$
Second molars . . . . .	90	2.20	$\pm 0.24$	91	2.24	$\pm 0.32$

With the values obtained from this formula, taken with the lengths as measured on the line  $C'C''$ , we can plot these points in the typical palate.

The next point to consider is, how far we are justified in assuming

that measurements for the other teeth may be taken from  $C''$  as a fixed point. For example, the second molar has.

$$[C'C''] = 38.04 \text{ mm.}$$

The first molar has

$$[C'C''] = 28.71 \text{ mm.}$$

Can we assume that, if the palates are superimposed with respect to the first molars, the second molars will also be superimposed with a minimum difference? It is obvious that, if the type is symmetrical, the adjustment of

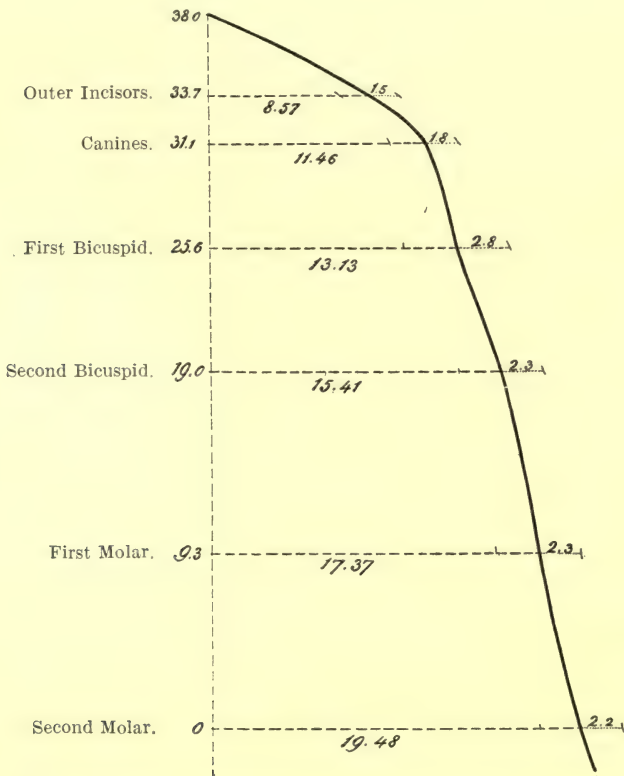


Fig. 3. Type of Palate as determined for the Normal-minded. Measurements given in millimetres.

one point must approximate all other points; but, since every known point is a variable, the selection of any one point as the initial point of regard is arbitrary, and can give approximate results only. Yet the measurements

of length ( $C'C''$ ) in the tables represent separate determinations of  $C''$  for each pair of teeth (points  $A', A''$ ); and the  $[C'C'']$ , or length, represents the location of  $C'$  with reference to  $C''$  as a fixed point. Since the type is symmetrical, all the points  $C''$  must fall in the same straight line, — the median axis of the palate. Thus the adjustments have been approximated in the measurements, and the projection of the plotted form from  $C''$  represents the approximate superimposed type.

This type can be plotted as in Fig. 3.  $C''$  for each tooth is given as located by the second molar. The irregular curved line represents the approximate form of the palate as defined by the teeth and the gum-line. The small numerals outside of this curve, and the corresponding marks on the ordinate, indicate the variability of the normal palate as expressed by  $\sigma$ , the limits within which about seventy per cent of all normal cases will fall. The range of the alveolar point may be determined from  $\sigma$  for lengths in Table I.

It may be noted that the indicated variability from the type-curve decreases as the alveolar point is approached; but this is more apparent than real. The geometric relations are such that, as  $C''$  approaches  $C'$ , the standard variation of  $C'C''$  decreases. The values of  $\sigma$  in Table I decrease constantly from 2.98 to 1.06. It will be observed that the same relation holds for  $\sigma$  of the points  $A''$ . This can be stated in general terms as a decrease in the absolute magnitude of the variation as we approach the alveolar point. For this reason we have not indicated graphically the range of the point  $C'$ , but it will be observed that it varies in about the same degree as the point  $A''$ .

The net result of our inquiry, so far, is the approximation of the type of the normal adult male palate as expressed by the curves of the teeth. The curve that will best express the limits as graphically represented is the type. While the number of cases upon which this determination is based is approximately a hundred, the magnitude of the largest probable error is little more than the minimum unit of measure. With four hundred cases at our disposal, the result would be twice as exact, an accuracy meaningless from the practical point of view.

*Type of Palate for the Feeble-minded.* — In the previous discussion we have shown that, in the measurements from the first molars, there are no significant differences in symmetry between the normal and feeble-minded adult males. We may now proceed to a direct comparison of measurements.

The inner widths for feeble-minded adult males are as follows: —

	<i>n</i>	<i>A</i> mm.	$\pm\sigma$ mm.	$\pm\epsilon$ mm.
Outer incisors . . . . .	—	—	—	—
Canines . . . . .	124	22.36	$\pm 2.61$	$\pm 0.23$
First bicuspid . . . . .	83	24.94	$\pm 3.10$	$\pm 0.36$
First molars . . . . .	125	33.77	$\pm 3.61$	$\pm 0.32$
Second molars . . . . .	71	38.80	$\pm 3.90$	$\pm 0.46$

For comparison let us take the measurements at the first molars. As previously stated, this measurement for adult normal males is as follows:—

	<i>n</i>	<i>A</i> mm.	$\pm\sigma$ mm.	$\pm\epsilon$ mm.
Normal-minded adult males . . .	126	34.75	$\pm 3.35$	$\pm 0.30$
Feeble-minded adult males . . .	125	33.77	$\pm 3.61$	$\pm 0.32$

The difference between the averages for the two classes of adult males is 0.98 mm. Then

$$(A_1 - A_2) = 0.98$$

$$\sqrt{\epsilon_1^2 + \epsilon_2^2} = \pm 0.44$$

Thus  $0.98 \pm 0.44$  mm. expresses the range of the difference that must be allowed for accident or normal variation.

At the canines the differences in widths are as follows:—

	<i>n</i>	<i>A</i> mm.	$\pm\sigma$ mm.	$\pm\epsilon$ mm.
Normal-minded adult males . . .	112	23.00	$\pm 2.24$	$\pm 0.21$
Feeble-minded adult males . . .	124	22.36	$\pm 2.61$	$\pm 0.23$

$$(A_1 - A_2) = 0.64$$

$$\sqrt{\epsilon_1^2 + \epsilon_2^2} = \pm 0.31$$

At the first bicuspid

$$(A_1 - A_2) = 1.32$$

$$\sqrt{\epsilon_1^2 + \epsilon_2^2} = \pm 0.55$$

At the second molar

$$(A_1 - A_2) = 0.16$$

$$\sqrt{\epsilon_1^2 + \epsilon_2^2} = \pm 0.57$$

In no case are the above differences as much as three times the magnitude of the variabilities of the average: hence they may be construed as accidental.

The fact that these differences tend in the same direction (i.e., smaller values for the feeble-minded males) may be indicative of a slight difference, but too small to warrant consideration.

The measurements for the length from first molar forward, as *C'C''*, are as follows:—

	<i>n</i>	<i>A</i> mm.	$\pm\sigma$ mm.	$\pm\epsilon$ mm.
Normal-minded adult males . . . . .	104	28.37	$\pm 2.39$	$\pm 0.23$
Feeble-minded adult males . . . . .	112	29.50	$\pm 4.27$	$\pm 0.40$

$$(A_2 - A_1) = 1.13$$

$$\sqrt{\epsilon_1^2 + \epsilon_2^2} = \pm 0.46$$

Difference

$$1.13 \pm 0.46$$

This is a result similar to the foregoing, except that the relations are reversed; the feeble-minded males having the longer palate. However, the whole can be accounted for as accidental.

In conclusion it seems reasonable to assume that, if the measurements upon the palates of feeble-minded individuals agree with the type in the normal-minded in several dimensions, they will agree in all, and that no real differences in the curve of the palate can be found.

*Height of the Palate.*—There is another direction in which measurements are necessary,—the height or depth of the cavity known as the “roof of the mouth.” In the foregoing measurements we adjusted the casts so that the points *A'*, *A''*, and *C'*, were in the same horizontal plane. For each value of *C'C''* a new adjustment was made. It is now in order to consider the question as to the coincidence of these planes. If it is true that the gum-line and masticatory surfaces of teeth, or both, tend to a horizontal plane, our method of procedure will be greatly simplified. That the masticatory surfaces of the teeth present an approximately horizontal plane can be demonstrated by applying the casts to a plane surface; but, since we have chosen to use the gum-line as the point of departure for measurements in the horizontal plane, the relation of the two planes must be defined. For clearness we have measured a normal adult male palate so as to give the data for constructing a cross-section in the median plane. The following are the ordinates as measured from the two planes:—

	Plane of Mastication. mm.	Gum-line. mm.	Differences. mm.
Outer incisors . . . . .	4	0	4
Canines . . . . .	6	1	5
First bicuspid . . . . .	10	5	5
Second bicuspid . . . . .	15	10	5
First molars . . . . .	18	13	5

These values with the position of the teeth in median plane give us the curve in Fig. 4.

Here we see that the gum-line and the masticatory surfaces are approximately parallel. Of course there is some variation, but it is so small that it cannot be measured unless we use more refined methods. As stated

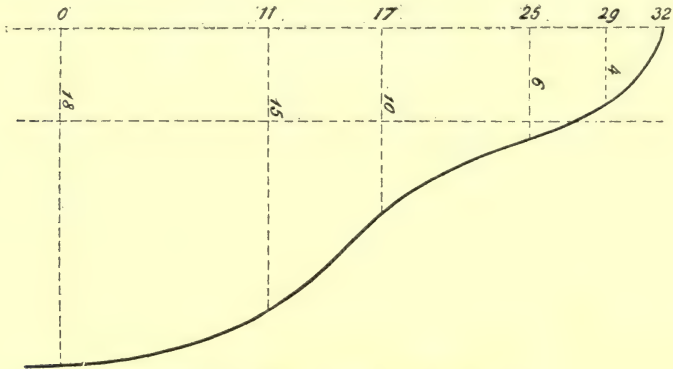


Fig. 4. Diagram for Heights of Palate.

previously, it was not practicable or necessary to measure in units less than one millimetre. Now we find that this measurement varies entirely within those limits, and may be taken as constant.

For a test-case we took ten casts, some of which had extreme irregularities of the gum-line, and measured the distance between the masticatory surface of the teeth and the gum-line at three points. The result was as follows:—

	Alveolar Point.	Canines.	First Molar.
	mm.	mm.	mm.
	5.0	5.5	4.5
	3.0	3.0	3.0
	5.5	6.0	4.0
	4.0	5.0	5.0
	4.0	4.0	4.0
	5.0	5.0	5.0
	2.0	4.0	6.0
	5.0	5.0	4.0
	5.0	5.0	5.0
	4.0	4.0	4.0
Total	42.5	46.5	44.5
Average	4.25	4.65	4.45

Considering that the above are in some ways unfavorable groups, we are safe in assuming that these two planes tend to be parallel, and that their



standard variability is very small indeed. If the cast is adjusted to the approximate plane of the teeth, we shall also have the plane of the gum-line. The apparatus used in this research enabled us to adjust the casts in this dimension with accuracy, as repeated trials have shown. Thus we can proceed to the height of the palate.

The measurements upon the palate given above may also be used in plotting longitudinal sections. For comparative purposes any ordinate of the longitudinal section might be selected as the index of the height. We tried the maximum ordinate in the median plane and the maximum ordinate for the entire area anterior to the first molars. We shall not trouble the reader with the figures, because the comparative differences were small. We find, however, that the latter, the maximum height of the palate, can be measured with greater accuracy than the others: hence all the measurements are the maximum height.

We shall not at this time take up the definition of the type-contour of the cavity of the palate in the detailed way in which we worked out that for the teeth and the maxillary process, but pass the whole matter on with a statement of the values of the maximum heights.

MAXIMUM HEIGHT OF THE PALATE.

	<i>n</i>	<i>A</i> mm.	± <i>σ</i> mm.	± <i>ε</i> mm.
Normal-minded adult males . . .	112	16.00	±2.31	±0.22
Feeble-minded adult males . . .	112	16.09	±2.63	±0.25

$$(A_2 - A_1) = 0.09$$

$$\sqrt{\epsilon_1^2 + \epsilon_2^2} = \pm 0.33$$

Difference

$$0.09 \pm 0.33.$$

*Tabulation of Measurements.* — We are now in a position to take up the question as to what measurements shall be selected for our comparison of palate-forms as to sex and physiological condition. The statement at the beginning, that there were no apparent differences in the results whether the size of the teeth was regarded or disregarded, must be taken with reference to the range of variability. Since the teeth are the only definite points for determining the palates of the living, they must form the point of departure in every case. For reasons previously stated, we have decided to use measurements from the inner surface of the teeth. Now we must decide upon the points taken for comparison. In the first place the first molar

recommends itself because of its early eruption and the definiteness of the lateral fissure as a point from which to measure. In the second place the canines deserve consideration. While they are not so clearly defined at the gum-line, they erupt late in life and are especially liable to displacement by abnormalities of the jaw or over-large teeth. Though this is simply an assumption, it seems advisable to make the choice upon it; for, if there is a retardation of the physical development of idiots as a class, greater variation in the widths at the canines should be in evidence. However, there is another consideration: reference to Table I indicates greater variability in the measurements for the bicuspids in inner widths as compared to outer widths; and finally, the canines, as according to the type (Fig. 3), are situated at the greatest turning-point in the curve. For these reasons we have decided to subject all the casts at our disposal to four measurements, — widths at the canines and the first molars, and the respective distances to the alveolar point. The methods of measurement have been stated. We give at this time complete tables of these measurements (Tables IV and V). Here the ages, sexes, number of individuals, average measurements, and standard deviations are given. More complete tables, in which the entire distribution of the individual measurements will be found, are added, that the data may be serviceable for comparative and general statistical work (Tables VI-IX).

TABLE IV. MEASUREMENTS FOR NORMAL-MINDED INDIVIDUALS.

Age	LENGTH OF PALATE.						WIDTH OF PALATE AT CANINES.					
	Male.			Female.			Male.			Female.		
	<i>n</i>	Av. mm.	$\sigma$ mm.	<i>n</i>	Av. mm.	$\sigma$ mm.	<i>n</i>	Av. mm.	$\sigma$ mm.	<i>n</i>	Av. mm.	$\sigma$ mm.
6	15	29.73	2.71	38	29.08	1-65	16	23.00	1.87	46	21.30	1.96
7	25	30.86	3.07	36	29.91	1.72	27	22.37	1.86	38	22.50	2.32
8	27	31.15	2.86	29	30.93	2.17	26	23.61	2.15	31	23.00	2.25
9	36	31.16	3.27	43	31.65	2.15	35	23.67	1.96	43	23.60	2.02
10	30	31.33	2.91	34	30.85	2.12	30	24.13	2.28	34	23.70	2.17
11	22	30.77	1.65	31	31.54	2.98	21	24.33	2.17	31	23.48	2.07
12	21	23.98	3.21	23	31.13	2.02	21	23.43	2.80	23	24.17	2.41
13	12	30.75	3.43	16	30.87	3.31	11	23.09	1.48	15	23.20	2.26
6-13	188	30.68	3.05	250	30.70	2.34	187	23.57	2.31	261	22.98	2.22
21+	104	28.37	2.39	48	29.09	2.55	112	23.00	2.24	50	22.14	1.65

TABLE IV (Concluded).

Age	WIDTH OF PALATE AT FIRST MOLAR.						HEIGHT OF PALATE.					
	Male.			Female.			Male.			Female.		
	<i>n</i>	Av. mm.	$\sigma$ mm.	<i>n</i>	Av. mm.	$\sigma$ mm.	<i>n</i>	Av. mm.	$\sigma$ mm.	<i>n</i>	Av. mm.	$\sigma$ mm.
6	16	32.00	2.33	39	32.28	2.13	16	12.50	1.32	39	11.33	1.60
7	25	32.84	1.75	36	32.36	2.65	26	12.80	1.61	35	11.88	1.65
8	29	32.88	2.54	31	32.54	2.43	26	11.88	1.51	29	12.41	1.47
9	37	33.03	2.60	43	33.14	2.28	34	12.35	1.96	43	12.97	1.83
10	31	32.80	2.32	33	32.27	2.48	31	11.48	1.66	34	12.02	1.58
11	26	33.69	2.27	31	33.35	2.13	22	12.04	1.76	31	12.51	2.07
12	16	31.87	2.81	23	33.47	2.28	21	12.42	1.93	23	12.39	2.32
13	12	33.33	3.18	16	33.93	1.87	12	11.50	1.82	16	13.12	2.08
6-13	192	32.92	2.28	252	32.81	2.35	188	12.14	1.75	250	12.31	1.96
21+	126	34.75	3.35	49	34.00	3.36	112	16.00	2.31			

TABLE V. MEASUREMENTS FOR FEEBLE-MINDED INDIVIDUALS.

Age	WIDTH OF PALATE AT FIRST MOLAR.						HEIGHT OF PALATE.					
	Male.			Female.			Male.			Female.		
	<i>n</i>	Av. mm.	$\sigma$ mm.	<i>n</i>	Av. mm.	$\sigma$ mm.	<i>n</i>	Av. mm.	$\sigma$ mm.	<i>n</i>	Av. mm.	$\sigma$ mm.
6	2	-	-	4	-	-	2	-	-	6	-	-
7	5	-	-	4	-	-	5	-	-	4	-	-
8	17	33.94	2.43	14	30.42	3.10	17	12.61	2.16	13	13.23	2.61
9	16	34.68	2.01	11	32.36	2.65	16	12.19	2.34	11	13.00	1.12
10	31	33.77	2.86	14	32.85	2.35	32	14.43	1.93	14	12.00	1.96
11	40	34.00	3.43	20	32.15	2.77	39	13.69	2.01	18	12.50	1.66
12	44	33.66	3.71	24	32.54	3.32	42	13.90	2.31	25	12.85	2.41
13	20	33.06	3.72	32	32.81	2.16	21	13.00	2.37	32	13.53	2.26
6-13	175	33.86	3.01	123	32.25	2.63	174	13.39	2.28	123	12.96	2.05
14	53	33.28	3.56	38	33.71	3.32	51	13.13	2.68	38	13.58	2.30
15	37	34.29	3.48	33	32.78	4.20	37	14.24	2.97	33	14.78	2.36
16	43	34.65	2.41	37	32.59	3.07	42	13.92	2.67	37	14.13	2.40
17	37	33.25	3.31	25	32.80	3.05	36	14.55	2.60	25	15.64	1.92
18	34	34.76	3.31	28	32.18	3.28	34	15.55	2.90	28	15.47	2.71
19	17	35.64	2.86	27	32.11	3.00	17	15.41	2.50	27	15.59	2.65
20	37	35.75	3.92	23	32.86	3.46	36	16.00	2.08	20	14.95	2.56
14-20	258	34.29	3.55	211	32.77	3.19	253	14.35	2-76	208	14.76	2.51
21+	125	33.77	3.61	115	33.28	3.08	112	16.09	2.63	115	14.87	2.66
Total	558	34.04		449	32.80							

TABLE V (Concluded).

Age	LENGTH OF PALATE.						WIDTH OF PALATE AT CANINES.					
	Males.			Females.			Males.			Females.		
	<i>n</i>	Av. mm.	$\sigma$ mm.	<i>n</i>	Av. mm.	$\sigma$ mm.	<i>n</i>	Av. mm.	$\sigma$ mm.	<i>n</i>	Av. mm.	$\sigma$ mm.
6	1	—	—	4	—	—	2	—	—	6	—	—
7	3	—	—	4	—	—	5	—	—	4	—	—
8	14	31.15	2.01	14	29.78	—	17	22.17	2.31	14	22.64	2.45
9	16	31.00	2.81	11	32.30	—	16	24.93	3.48	11	23.27	1.90
10	32	31.59	2.61	14	30.00	—	32	24.84	3.66	14	22.50	2.13
11	39	31.46	3.21	20	30.45	2.23	40	23.32	1.87	20	21.75	2.33
12	43	32.11	3.18	23	30.82	3.30	44	23.25	2.77	25	22.96	2.35
13	21	31.33	3.25	32	30.53	2.87	21	23.66	3.48	33	23.03	2.46
6-13	169	31.36	3.09	122	30.59	2.65	177	23.53	3.01	127	22.68	2.36
14	54	31.27	2.91	38	28.63	2.85	53	23.66	2.65	38	23.10	1.97
15	35	30.00	2.07	32	29.03	2.22	37	23.89	2.15	33	21.60	3.43
16	42	29.47	3.35	36	29.63	2.32	42	23.83	2.28	37	22.00	3.10
17	37	30.16	2.66	24	29.04	2.33	36	22.44	2.53	24	21.75	2.28
18	34	29.44	2.38	28	29.89	2.70	34	22.94	2.68	28	21.57	2.63
19	16	28.81	2.32	27	28.22	3.01	16	23.50	2.50	27	20.88	2.72
20	36	30.83	2.80	21	30.53	3.42	35	23.51	3.20	23	21.95	2.33
14-20	254	30.32	2.83	206	29.01	2.68	253	23.34	2.89	210	21.77	2.52
21+	112	29.50	4.27	102	28.67	3.05	124	22.36	2.61	115	21.67	2.89

TABLE VI. DISTRIBUTION OF CASES, WIDTH AT FIRST MOLARS.

Condi- tion.	FEEBLE-MINDED.						NORMAL-MINDED.			
	6-13		14-20		21+		6-13		21+	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
mm.										
22	—	—	2	—	—	—	—	—	—	—
23	—	—	1	3	—	—	—	1	—	—
24	1	—	0	3	—	—	—	—	—	—
25	1	3	1	1	1	1	2	0	—	—
26	2	1	0	3	4	2	1	1	—	1
27	2	1	4	7	1	2	2	2	—	1
28	1	5	6	4	5	3	5	4	1	0
29	5	6	7	12	6	6	3	16	6	2

TABLE VI (Concluded).

Condi- tion.	FEEBLE-MINDED.						NORMAL-MINDED.			
	6-13		14-20		21+		6-13		21+	
Age	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
mm.										
30	10	16	14	14	10	9	16	16	6	3
31	14	15	11	22	8	9	20	27	9	6
32	19	25	25	17	7	9	30	48	12	2
33	21	8	25	34	11	20	41	40	11	6
34	17	17	33	29	16	11	32	34	9	6
35	26	12	32	24	15	17	17	28	17	5
36	25	6	37	14	12	6	11	22	21	5
37	13	4	21	6	12	12	6	8	13	6
38	12	2	14	8	8	2	1	2	5	2
39	4	2	11	5	3	5	3	3	6	3
40	1	-	7	3	3	0	0	-	4	0
41	0	-	1	2	0	0	0	-	4	1
42	1	-	3	-	1	1	0	-	0	-
43	-	-	2	-	1	-	2	-	1	-
44	-	-	0	-	0	-	-	-	0	-
45	-	-	1	-	-	-	-	-	0	-
46	-	-	-	-	1	-	-	-	1	-
Total	175	123	258	211	125	115	192	252	126	49

TABLE VII. DISTRIBUTION OF CASES, HEIGHT OF PALATE.

Condi- tion.	FEEBLE-MINDED.						NORMAL-MINDED.		
	6-13		14-20		21+		6-13		21+
Age	M.	F.	M.	F.	M.	F.	M.	F.	M.
mm.									
4	-	-	-	-	-	-	-	1	-
5	-	-	1	-	-	-	-	0	-
6	1	-	3	1	-	-	-	0	-
7	0	-	0	0	1	1	-	0	-
8	3	2	1	2	1	1	-	2	-
9	4	6	3	4	0	1	7	11	-
10	9	6	7	7	0	2	30	28	1
11	18	18	20	11	3	8	33	48	1
12	29	25	23	7	8	11	44	52	4

TABLE VII (Concluded).

Condition.	FEEBLE-MINDED.						NORMAL-MINDED.		
	6-13		14-20		21+		6-13		21+
	M.	F.	M.	F.	M.	F.	M.	F.	M.
mm.									
13	28	23	32	30	5	11	35	47	11
14	28	18	36	29	8	18	19	23	13
15	24	9	37	36	18	14	15	25	16
16	13	7	29	33	17	16	3	8	18
17	9	5	28	16	18	9	1	3	19
18	2	3	18	16	14	15	1	0	12
19	5	1	10	9	9	3	-	1	10
20	0	-	2	4	3	3	-	0	5
21	1	-	1	3	5	1	-	1	1
22	-	-	1	-	1	0	-	-	0
23	-	-	0	-	0	0	-	-	0
24	-	-	0	-	1	1	-	-	1
25	-	-	1	-	-	-	-	-	-
Total	174	123	253	208	112	115	188	250	112

TABLE VIII. DISTRIBUTION OF CASES, LENGTH OF PALATE.

Condition.	FEEBLE-MINDED.						NORMAL-MINDED.			
	6-13		14-20		21+		6-13		21+	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
mm.										
18	-	-	-	-	1	-	-	-	-	-
19	-	-	-	-	0	-	-	-	-	-
20	-	-	-	-	2	-	-	-	-	-
21	1	-	1	-	2	1	1	-	-	-
22	1	1	1	-	0	0	0	-	2	1
23	2	0	1	2	4	2	1	1	1	0
24	0	1	4	4	4	4	1	1	2	2
25	0	2	11	12	5	8	6	1	3	3
26	8	6	7	16	8	11	4	6	11	4
27	4	7	11	24	10	13	15	9	18	6
28	11	8	24	23	15	9	17	18	18	9
29	15	12	33	32	12	12	21	44	15	9
30	25	17	45	29	8	15	24	41	8	6

TABLE VIII (Concluded).

Condi- tion.	FEEBLE-MINDED.						NORMAL-MINDED.			
	6-13		14-20		21 +		6-13		21 +	
Age	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
mm.										
31	20	24	40	24	8	8	23	39	12	1
32	25	16	18	17	9	9	21	36	5	3
33	18	13	19	7	3	5	19	26	6	2
34	12	7	22	9	6	2	16	14	3	1
35	13	4	9	4	5	2	10	19	-	1
36	3	2	3	1	1	1	4	2	-	-
37	3	1	2	2	3	-	3	1	-	-
38	6	1	0	-	2	-	2	1	-	-
39	2	-	1	-	3	-	-	1	-	-
40	-	-	2	-	0	-	-	-	-	-
41	-	-	-	-	1	-	-	-	-	-
Total	169	122	254	206	112	102	188	250	104	48

TABLE IX. DISTRIBUTION OF CASES, WIDTH AT CANINES.

Condi- tion.	FEEBLE-MINDED.						NORMAL-MINDED.			
	6-13		14-20		21 +		6-13		21 +	
Age	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
mm.										
9	-	-	-	-	-	-	-	-	1	-
10	-	-	-	-	-	1	-	-	0	-
11	-	-	-	-	-	1	-	-	0	-
12	-	-	-	1	-	0	-	-	0	-
13	-	-	1	2	-	0	-	-	0	-
14	1	-	0	0	-	0	-	-	0	-
15	1	1	2	1	1	2	-	-	0	1
16	1	0	2	5	2	2	-	1	0	0
17	3	1	4	4	1	4	1	2	2	0
18	5	6	3	7	4	3	0	2	2	1
19	6	3	3	16	9	8	5	10	4	1
20	7	9	16	17	14	10	10	25	8	4
21	13	17	22	31	11	25	18	26	10	7
22	23	22	37	33	21	17	25	37	18	16
23	30	20	32	30	19	10	35	56	22	7

TABLE IX (Concluded).

Condition.	FEEBLE-MINDED.						NORMAL-MINDED.				
	6-13		14-20		21+		6-13		21+		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
mm.											
24	25	19	50	31	15	13	39	40	19	10	
25	19	13	36	22	12	7	22	25	16	3	
26	20	11	24	4	9	7	17	15	5	-	
27	10	4	7	3	6	3	7	11	1	-	
28	2	1	7	2	-	2	2	7	0	-	
29	4	-	4	1	-	-	2	2	2	-	
30	3	-	2	0	-	-	0	1	0	-	
31	1	-	0	-	-	-	2	-	1	-	
32	2	-	0	-	-	-	0	-	1	-	
33	0	-	0	-	-	-	0	-	-	-	
34	1	-	1	-	-	-	1	-	-	-	
35	-	-	-	-	-	-	0	-	-	-	
36	-	-	-	-	-	-	1	-	-	-	
Total	177	127	253	210	124	115	187	260	112	50	

In order to make clear some of the more technical aspects of the foregoing data, we have selected palates of feeble-minded adult males from nineteen to twenty years of age, taken independently, for the respective measurements, so as to show the average dimensions, the two extremes, and  $A \pm \sigma$ . Bearing in mind that about seventy per cent of all cases will fall between  $-\sigma$  and  $+\sigma$ , the plates will give a fair idea of the relative appearances of the casts. The palates shown in Plate XIV were selected according to the width at the first molars; those in Plate XV, according to the height of palate; those in Plate XVI, according to the length of palate; and those in Plate XVII, according to the width at the canines. Finally three palates were selected that conform approximately to the average type in all the measurements made, and these are shown in Plate XVIII. The photographs were taken with approximately the same distance from the plates to the objects. We believe that these plates will show how difficult it is to judge the dimensions of the palate by the eye.

In viewing the plates, it may be well to note that they have the following respective values in reading order,—the minimum, the average less  $\sigma$ , the average, the average plus  $\sigma$ , and the maximum of the series as measured. In Plate XVIII the palates have the four dimensions approximating each, the averages less the  $\sigma$ 's, the averages, and the averages plus the  $\sigma$ 's.



*Growth of the Palate.*— The growth of the hard palate and the maxillary process must receive some attention; for upon *a priori* grounds an arrested or perverted development of a morphological unit must take its departure from some point in the formative process. Unfortunately the limitation of our material does not permit of our investigations during the period of infancy. We cannot take up the problem until the permanent teeth erupt. For the feeble-minded, we have no data for individuals before the age of eight years: indeed, the number of cases for all ages below ten years is so small, that our series must necessarily begin at that point. In the normal series we can begin with the seventh year. It will be observed that the number of cases for each age is small, — so small, that, taking each by itself, nothing could be determined. The fact that we have the successive ages enables us to use one as a check upon the other, since the variations due to accidental cases will tend to balance in the series of age-averages. Upon this basis it is possible to reach a satisfactory conclusion.

As we have previously determined the type for normal adult males, let us proceed to normal male children. Tables IV and V give us at once the averages and standard variations for each age in the four definitive measurements. Let us begin with the width at the first molars. Inspection makes it clear that no important difference will be found, since the minimum value occurs at the age of twelve and the maximum at eleven. If we choose the general average of the widths for all male children (32.92 mm.) as the median point for the series of age-averages, we get the following array of differences:—

Age.	Differences. mm.	Age.	Differences. mm.
6	— .92	10	— .12
7	— .08	11	+ .77
8	— .04	12	— .05
9	+ .11	13	+ .41

In two cases the difference is approximately zero, while the remaining are equally divided as to positive and negative. The maximum difference is about one millimetre. Taking the figures alone, it is apparent that we are not justified in assuming any appreciable increase in width between the ages of six and thirteen.

Normal female children may be used in this connection. The general average for all ages is 32.81 mm. The differences are:—

Age.	Differences. mm.	Age.	Differences. mm.
6	— 0.53	10	— 0.54
7	— 0.45	11	+ 0.54
8	— 0.27	12	+ 0.66
9	+ 0.33	13	+ 1.12

While the differences are small, they present a regularity of distribution as to positive and negative that resembles growth, because the values are uniformly lower at the beginning, and higher at the end. Yet the maximum difference for the whole series is but 1.66 mm. Thus the measurements of male and female children lead to the same conclusion; viz., that while there is evidence of growth in the width at the first molars, the increment is so small that it may be assumed inappreciable between the ages of six and thirteen.

When these results are compared with those for adult normal males, we find evidence of growth. Taking the average for adults (34.75 mm.) as the point of departure, we find the following differences for male children: —

Age.	Differences. mm.	Age.	Differences. mm.
6	-2.75	10	-1.95
7	-1.91	11	-1.06
8	-1.87	12	-2.88
9	-1.72	13	-1.42

To this there is but one interpretation, — the widths at the first molars are greater for adults than for children under twelve years of age. The average of all children as opposed to adults has a probability as follows: —

$$(A_1 - A_2) = 1.83 \text{ mm.}$$

$$\sqrt{\epsilon_1^2 + \epsilon_2^2} = \pm 0.33 \text{ mm.}$$

The difference  $1.83 \pm 0.33$  mm. is about  $5.6\sigma$ , or a certain difference. However, the absolute increment is so small that we must give this point further consideration.

We have no casts for normal children over thirteen years of age, the period during which there is an apparent growth; but we have casts for these years in the feeble-minded series. By introducing the whole feeble-minded series we may be able to reach a satisfactory result. We have plotted the successive average for all ages on a magnified scale, as shown in Fig. 5. Here we see a tendency for the curves for normal children to rise, but they fail to reach the adult level. The curves for feeble-minded children are less regular, but the number of cases for eight and nine years is small. The extreme values for feeble-minded males at nineteen and twenty years cannot be accounted for at this time. When the average for adult feeble-minded males is considered, it appears that the male children approximate this level, since the variations are about equally numerous in either direction. The female children present an extreme variation at the eighth year, but in other respects approximate the adult level. We have previously shown

that the differences between normal and feeble-minded male adults can be accounted for as accidental; and, applying the same scale to our graphic form, we can safely assume that, for feeble-minded children over nine years of age, there is approximately no growth in the width of the palate at the

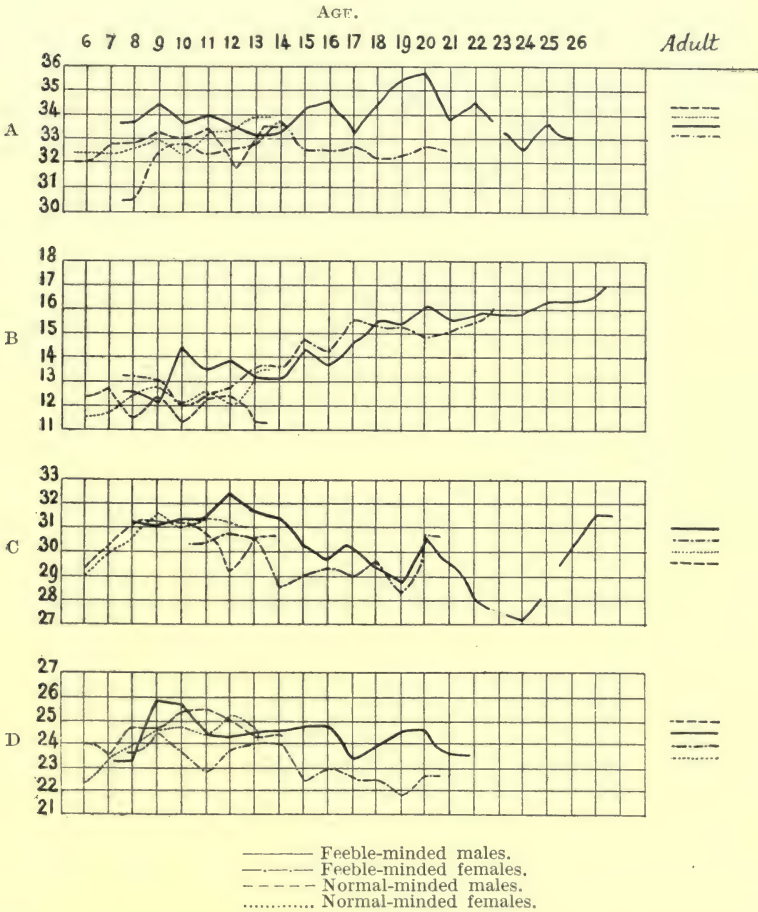


Fig. 5. Diagram showing Measurements for Various Ages. A, molar width; B, height of palate; C, length of palate; D, canine width.

first molar. For normal children some growth is evident; but the annual increments are too small to be measured satisfactorily.

The width at the canines also deserves our attention. It is apparent that there is a close agreement between the averages for children and adults. For normal children we find the following differences from their general average:—

Age.	Male Differences. mm.	Female Differences. mm.	Age.	Male Differences. mm.	Female Differences. mm.
6	-0.57	-1.60	10	+0.56	+0.72
7	-1.20	-0.48	11	+0.76	+0.50
8	+0.04	+0.02	12	-0.14	+1.19
9	+0.10	+0.62	13	-0.48	+0.22

There is an apparent tendency toward higher averages at from nine to eleven years of age. For feeble-minded females the differences from the total average of 22.30 mm. are as follows: —

Age.	Differences. mm.	Age.	Differences. mm.
8	+0.34	15	-0.70
9	+0.97	16	-0.30
10	+0.20	17	-0.55
11	-0.55	18	-0.73
12	+0.66	19	-1.42
13	+0.73	20	-0.45
14	+0.80	21+	-0.63

This series brings out emphatically the peculiar increase in width to the fourteenth year and the subsequent decline toward maturity. From the curves (Fig. 5) it is obvious that all tend to do the same. If, however, we take the average for females thirteen years of age, we find it differing from the average for adult females as follows: —

$$(A_1 - A_2) = 1.36 \text{ mm.}$$

$$\sqrt{\epsilon_1^2 + \epsilon_2^2} = \pm 0.51 \text{ mm.}$$

This is within the limits of accident. The same can be said of the other differences, so that this apparent tendency must receive its validity from the uniformity of the results alone.

Thus our general conclusion is, that there is no evidence of growth in the width of the palate at the canines after the eighth year of life.

The length of the palate as measured from the first molars presents a series of changes similar to those for the canine widths. The curves suggest a decrease in the measurement with increasing age. For normal male children and adults the differences are: —

$$(A_1 - A_2) = 2.31 \text{ mm.}$$

$$\sqrt{\epsilon_1^2 + \epsilon_2^2} = \pm 0.32 \text{ mm.}$$

A difference of  $2.31 \pm 0.32$  is a certain difference. For feeble-minded males (children and adults) the difference is  $1.86 \pm 0.46$ , also approximately certain. On the other hand, the difference between normal and feeble-minded male children is within the range of accident. When females

are examined, the differences as to age are in the same direction, but of less magnitude.

Taking the adult feeble-minded as the point of departure, we then have the following differences:—

Age.	Male Differences. mm.	Female Differences. mm.	Age.	Male Differences. mm.	Female Differences. mm.
8	+1.65	+1.11	15	+0.50	+0.36
9	+1.50	+3.63	16	-0.03	+0.96
10	+2.09	+1.33	17	+0.66	+0.37
11	+1.96	+1.78	18	-0.06	+1.22
12	+2.61	+2.15	19	-0.69	-0.45
13	+1.83	+1.86	20	+1.33	+1.86
14	+1.77	-0.04	21+	0.00	0.00

While the decrease of measurement in the width of the canines could be explained by accident, the changes in the above series cannot be so interpreted. The maximum length seems to occur at from twelve to thirteen years of age. Thus we have a change of measurement concomitant with age. Since this change is in the reverse order of growth, it demands explanation. This we shall consider later.

The height of the palate as measured shows decided increase with age. The difference between normal male children and adults is  $3.86 \pm 0.27$  mm., or fourteen times the range for accident. On the other hand, there is no good evidence for growth between the ages of six and thirteen. From the curves (Fig. 5) the increase seems to set in at the twelfth year. The curves for all sexes and conditions seem to hold the same level from six to twelve years of age. While a general increase is apparent, the annual increment is so small and the number of cases so limited, that the annual differences are not uniformly positive, as they should be in normal growth, as may be seen from the following:—

Age-Interval.	Males. mm.	Females. mm.	Age-Interval.	Males. mm.	Females. mm.
8-9	-0.42	-0.23	15-16	-0.32	-0.65
9-10	+2.24	-1.00	16-17	+0.63	+1.51
10-11	-0.74	+0.50	17-18	+1.00	-0.17
11-12	+0.21	+0.35	18-19	-0.14	+0.12
12-13	-0.90	+0.68	19-20	+0.59	-0.64
13-14	+0.13	+0.03	20-21+	+0.09	+0.11
14-15	+1.11	+1.20			

If two-year intervals are taken, the differences become positive after the thirteenth year: hence there is a positive annual increase. The point of interest is, that the change in the height of palate occurs after the twelfth or thirteenth year.

To sum up, we find no increase in the width at the canines after the

eighth year, and probably not after the eruption of the first permanent molars. The width at the first molars for feeble-minded children is practically fixed at the age of nine: for normal children, the limits may be reached a little later, though the differences are very small. The height of the palate increases about one-fourth between the ages of twelve and twenty-one. The length of the palate as measured shows a marked decrease from twelve years to maturity. It remains to discuss these results.

*Dentition.* — One of the chief objections to the foregoing conclusions will be that we have disregarded the effects of dentition. That changes in the teeth will modify measurements seems probable. Whether the permanent teeth change the form of the alveolar process and also the palate is a matter concerning which there seem to be no available data. Indeed, data of any kind as to dentition are scarcely to be had. All of the books treating the subject contain general statements as to the probable time of the eruption of the teeth, but no detailed observations as to the variability in time. In a recent publication,<sup>1</sup> we brought together what data were available, and found them so meagre that the casts used in this research were drawn upon (Table X).

TABLE X. NUMBER OF CHILDREN HAVING PERMANENT TEETH.

Age.	Boys.							GIRLS.						
	Cases.	Inner Incisors.	Outer Incisors.	Canines.	Bicuspid.	First Molars.	Second Molars.	Cases.	Inner Incisors.	Outer Incisors.	Canines.	Bicuspid.	First Molars.	Second Molars.
6	23	7	1	—	—	15	—	46	18	4	3	7	38	1
7	30	12	2	1	1	25	—	39	31	11	1	16	36	—
8	27	22	7	—	5	27	—	31	26	15	3	14	29	2
9	40	39	27	—	12	40	3	42	42	25	4	19	42	1
10	33	33	21	11	22	33	1	34	32	28	5	25	34	3
11	21	21	20	13	21	21	2	30	29	29	22	25	30	6
12	21	21	21	18	21	21	8	22	22	22	19	22	22	7
13	12	12	12	11	12	12	8	16	16	14	14	16	16	11
14	12	12	12	12	12	12	9	9	9	8	8	9	9	8
15	—	—	—	—	—	—	—	7	7	7	7	7	7	7

For comparison we have tabulated the presence of the permanent canines and the second molars as shown by the casts for the feeble-minded.

<sup>1</sup> Statistics of Growth (Report of Commissioner of Education, 1904, p. 34).

TABLE XI. NUMBER OF OBSERVED CANINE AND MOLAR TEETH AMONG THE FEEBLE-MINDED.

Age.	MALES.			FEMALES.		
	Cases.	Canines.	Second Molars.	Cases.	Canines.	Second Molars.
8	17	1	1	14	5	0
9	16	3	5	11	1	1
10	32	13	6	14	10	4
11	40	20	15	20	9	4
12	43	37	19	25	18	6
13	21	18	14	34	32	28
14	53	43	41	38	31	36
15	37	32	35	33	32	32
16	43	39	38	35	34	35
17	37	35	36	24	24	24
18	34	34	32	-	-	-
19	12	12	12	-	-	-

As the tables stand, it is scarcely possible to compare them, since they do not give us the number of teeth erupted in a given year. To be intelligible we must translate the results into terms of a definite group of growing children. This is the same problem that confronts one in vital statistics when he wishes to know the distribution of deaths in a group of, say, a thousand persons. A fair approximation of this can be made by the use of the formula

$$l_2 = l - d \frac{l_1 + l_2}{2}$$

in which  $l$  represents the number living;  $d$ , the death-rate for the period;  $l_2$  the number of survivals at the end of the period.<sup>1</sup> In our problem let  $l_1$  = the number not having erupted teeth;  $d$ , the rate of eruption for the year;  $l_2$ , the number remaining without teeth at the end of the year. Taking a thousand feeble-minded children at seven years, we get the values in

<sup>1</sup> E. Dormay, *Theorie mathematique des assurances sur la vie.*

Table XII. These give us series expressing the variability in the eruption of the teeth. Unfortunately there are no data for the ages preceding eight, for the character of the distribution is such that cases are to be expected for six and seven years. Yet the number of such cases must be small, and their effect upon the average unimportant. Taking the series as they stand, we find the average ages to be:—

	MALES.		FEMALES.	
	Average years	$\sigma$ years	Average years	$\sigma$ years
Canines . . . . .	10.7	$\pm 1.4$	10.0	$\pm 1.7$
Second molars . . . . .	10.9	$\pm 1.9$	11.8	$\pm 0.9$

We may compare these averages with the corresponding values in the following table of average ages for the eruption of teeth among the normal-minded.<sup>1</sup>

	BOYS.		GIRLS.	
	Average years	$\sigma$ years	Average years	$\sigma$ years
Inner incisors . . . . .	7.5	1.4	7.0	1.6
Outer incisors . . . . .	9.5	2.1	8.9	2.1
Bicuspid . . . . .	9.8	1.6	9.0	2.8
Canines . . . . .	11.2	1.4	11.3	1.0
Second molars . . . . .	13.2	2.0	12.8	1.6

These averages and variabilities were calculated by a different method from that employed by us, but should be approximately equivalent to results obtained from our calculations. It will be observed that the average ages for the eruption of the teeth are higher among normal children. For the canines, the differences are 0.5 and 1.3 years; for the second molars, 2.3 and 1.0 years. The method by which the averages were obtained makes it difficult to estimate the importance of these differences. The number of cases for the successive ages varies to such a degree that it would be advisable to weight them accordingly. We have not done this, because we regard the nature of the material such that more than a tentative conclusion cannot be expected, and for the further reason that the differences found in the above are not great enough in themselves to warrant the assumption that they are significant, and not due to accident. With the casts there is some difficulty in distinguishing between temporary and permanent canines, and errors doubtless occurred in this way. This does not apply to the results for the

<sup>1</sup> Statistics of Growth (Report of the Commissioner of Education, 1904, p. 35).



TABLE XII. ESTIMATED ERUPTIONS OF CANINE AND MOLAR TEETH AMONG 1000 CHILDREN.

Age.	CANINES.		SECOND MOLARS.	
	Males.	Females.	Males.	Females.
7	0	0	0	0
8	60	350	60	0
9	163	8	244	90
10	252	335	130	232
11	251	113	177	123
12	162	92	141	120
13	65	66	126	257
14	23	20	69	113
15	17	10	35	44
16	4	4	12	16
17	2	2	5	5
18	1	0	1	0
19	0	0	0	0
	1000	1000	1000	1000

second molars, for their presence can be definitely determined. If we consider the preceding tables, we have some reason for assuming that the feeble-minded erupt their permanent teeth sooner than normal children. The idea that they mature sooner than normal individuals is current, though supported by little statistical evidence. From what data we have, there is the suggestion that the feeble-minded show tendencies to retain their temporary teeth indefinitely, because it seems probable that, if an individual retains his first canines to the age of nineteen years, he will not erupt permanent canines. Yet we do not regard this as more than a suggestion. A systematic record of the dentition of the inmates of schools for the feeble-minded would add materially to our knowledge of the subject. Unfortunately no one has seen the importance of it.

To return to our problem. If there is a difference in the time of eruption, the same relation should appear in the series for the third molars. This is another case in which satisfactory data are wanting. From the casts we obtained the estimated eruptions in Table XIII.

TABLE XIII. ESTIMATED ERUPTIONS OF THIRD MOLARS AMONG 1000 PERSONS.

Age.	NORMAL-MINDED MALES.		FEEBLE-MINDED MALES.		
	Cases.	Third Molars.	Cases.	Third Molars.	Eruptions.
14	12	0	53	1	2
15	6	0	37	0	0
16	2	0	43	2	48
17	1	0	37	1	28
18	2	1	34	4	104
19	12	6	12	4	232
20	10	3	19	1	29
21	11	6	30	7	115
22	12	6	31	14	205
23	6	3	4	1	54
24	17	12	12	3	41
25	11	5	15	5	50
26	9	2	8	4	38
27	5	2	4	3	35
28	3	1	4	3	11
29	7	4	2	1	4
30	1	0	5	3	3
31	2	2	1	0	0
32	3	3	2	1	1
33	1	0	0	0	0
34	3	3	0	0	0
35	3	1	0	0	0
36+	14	10	0	0	0
Total	153	70	353	58	1000

The average age for the eruption of the third molars with the feeble-minded is  $21.0 \pm 2.9$ . It will be observed that the number of cases is insufficient for a comparison of the normal and feeble-minded series. We have but a few casts for normal males between the ages of fourteen and nineteen, and the number for the succeeding ages is so small that a restoration of the series by interpolation is scarcely worth while. It is interesting to observe that a considerable number of individuals seem to have failed to erupt their third molars.

The result of this comparison seems to be the indication of retarded dentition on the part of the feeble-minded, but the data are very unsatisfactory.

In the discussions of the changes in the width at the canines, it appeared that the maximum measurements occurred during childhood. From nine to ten years seems to be the maximum age for feeble-minded children, and we have just shown that the average age for the eruption of these teeth is from ten to eleven years. Other things being equal, the measurements would be greater for palate widths when the permanent teeth were erupting, because of the narrowness of their bases. For normal children, the maximum measurement occurs a year later; and the average age for the eruption of the canines is from eleven to twelve years. Thus we feel justified in assuming that this is the cause of the peculiar variation previously observed in the measurements for canine widths. In the same way, the eruption of the incisors may affect the measurements of length. As previously noted, the lengths are slightly greater in early life: for normal children, the maximum is reached at about the ninth year; for feeble-minded children, at about the twelfth. The number of young feeble-minded children is too small for us to calculate the average time for the eruption of the inner incisors; but the average for normal children is from seven to eight years. This agrees well with the maximum measurement at from eight to nine years. However, it is not clear that this is the cause of the variation, since there is a gradual decrease in the measurement with age. If there is an increase in the width at the first molar, even though slight, it may tend to compensate by shortening the length as measured in the approximate median plane. The fact is, however, that all these differences are exceedingly small; and that the phenomenon of eruption of the permanent teeth does not seriously modify the type in respect to the dimensions we have examined. We gave special consideration to the canines, because they are the last of the anterior teeth to erupt, and present the phenomenon of crowding in the extreme. If the typical width of the palate at the canines is not affected appreciably by this eruption, it seems reasonable to assume that the effect of eruption upon the form of the alveolar process and the dimensions of the hard palate can be disregarded.

That there is little or no growth in the anterior alveolar process after the seventh or eighth year of life is suggested by other data. A tabulation of head-measurements ranging from early childhood to maturity indicates very little growth in the size of the head as compared with the body.<sup>1</sup> Further, it has been generally assumed that the growth of the alveolar process is from behind. "In the young subject the alveolar arch describes almost the segment of a circle, but in the adult the curve is semi-elliptical. The increase which takes place in the length of the jaw arises from a growth

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<sup>1</sup> Statistics of Growth (Report of Commissioner of Education, 1904, p. 26).

behind the position of the milk-teeth, so as to provide room for the three additional teeth on each side belonging to the permanent set."<sup>1</sup>

The casts for adults look larger than those for children, because of the greater number of teeth, the greater total length of the alveolar process, and the greater size of the permanent teeth. The temporary teeth are seldom crowded, often standing far apart, which makes room for the later and larger teeth. The temporary molar is usually larger than the bicuspid replacing it. This adjustment enables the permanent teeth to occupy approximately the same space as their predecessors. We have not gone into this problem in detail, because it would take us too far away from the point of view. On general principles, it is obvious that the permanent teeth might, by crowding, slant outward so as to increase the outer anterior dimensions; but this would contribute little to the variability in position of the bases of the teeth. Our object has been to establish an age-limit to growth, so that we could group individuals for comparison. We have shown that, so far as the anterior dimensions of the alveolar arch are concerned, they may be considered fixed at the age of from eight to ten years. The growth in the height of the palate seems to continue to an advanced age. If it can be assumed that the eruption of the wisdom-teeth depends upon the growth of the posterior alveolar process, this growth may continue beyond the twenty-fifth year of life. The height of the palate seems to be correlated with this growth. In the series for the feeble-minded, we have evidence of an increase up to the age of twenty-one and the suggestion of its continuation beyond the twenty-fifth year. The unfortunate thing is, that neither in the normal nor in the feeble-minded series have we a sufficient number of cases to reach a conclusion upon this point.

A hasty inspection of the casts leads to the view that the greater irregularities of the teeth may be found among the feeble-minded. It has been asserted by practitioners, that crowding of the teeth was common because of arrested development of the jaw. Now, crowding of the teeth should push them out of line, and the directions in which they are displaced will be governed by accident: hence all such disturbances will conform to the law of chance. Thus the averages will remain constant, and a comparison upon that basis alone would show no differences. The canines appear to be the greatest sufferers: sometimes they are on the outside, sometimes on the inside, and frequently they are set crosswise between their fellows; yet the averages seem to indicate that they are as often found one way as the other. While we could grade all the casts according to the degree of the crowding

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<sup>1</sup> Quain's Anatomy, 1896, Vol. III, Part IV, p. 52.

of the teeth, and thus answer our problem directly, it is unnecessary, for we have the data for its solution in the previous calculations.

In the first place let us compare the degrees of variability as measured by the value of  $\sigma$ . For normal and feeble-minded children we have the following:—

	NORMAL-MINDED CHILDREN.		FEEBLE-MINDED CHILDREN.	
	$\sigma$ for Males.	$\sigma$ for Females.	$\sigma$ for Males.	$\sigma$ for Females.
Molar width . . .	mm. 2.28	mm. 2.35	mm. 3.01	mm. 2.63
Canine width . . .	2.31	2.22	3.01	2.36
Length . . . .	3.05	2.34	3.09	2.65
Height . . . .	1.75	1.96	2.28	2.05

Thus, without exception, the variability is greater for feeble-minded children. For normal and feeble-minded adults the variabilities are as follows:—

	NORMAL-MINDED ADULTS.		FEEBLE-MINDED ADULTS.	
	$\sigma$ for Males.	$\sigma$ for Females.	$\sigma$ for Males.	$\sigma$ for Females.
Molar width . . .	mm. 3.35	mm. 3.36	mm. 3.61	mm. 3.08
Canine width . . .	2.24	1.65	2.61	2.89
Length . . . .	2.39	2.55	4.27	3.05
Height . . . .	2.31	—	2.63	2.66

Again, the feeble-minded are more variable, there being but one case in which the  $\sigma$  for the normal-minded is the greater. The fact that there is such uniformity emphasizes the certainty of the result, even though the differences are small.

The range of values for  $\sigma$  may be estimated by

$$\frac{\sigma}{\sqrt{2n}}$$

Thus for the width at the canines, the difference between the values of  $\sigma$  for normal and for feeble-minded males is expressed as  $0.37 \pm 0.22$  mm. This is by no means a certain difference; and the other differences are of about the same magnitude, except in case of length, where they become positive. As just stated, it is the uniformity of the differences, rather than their magnitude, that indicates a real difference.

Taking the tables as a whole, there seems to be a tendency toward increased variability with age. This is quite pronounced in the width at the first molar and in the height.

Though we have shown that the degree of variation is probably greater in feeble-minded than in normal individuals, it is by no means easy to demonstrate that such is due entirely to the crowding of the teeth, for it will be observed that the height of the palate varies in the same way. Hence, as the case stands, we should expect larger and smaller palates among the feeble-minded than among normal individuals. This, however, is based upon theoretical considerations as to the character of the series, assuming it to be approximately symmetrical.

*Character of the Distributions.*— In all work of this kind it is desirable that the character of the distribution of cases be inspected. On theoretical grounds it is assumed that the measurements will be equally distributed around the average value. All calculations are made on such an approximate distribution. For purposes of comparison, it is desirable to reduce all distributions of cases to a common denominator of a thousand, or greater. We have given the actual distributions in Tables VI–IX, from which such a reduction can be made by a simple calculation. However, an inspection of the distributions as given will give a general idea of the degree of asymmetry in each case. Thus the widths at the canines (Table IX) are obviously symmetrical in their distribution; the heights and lengths of the palates (Tables VII and VIII) are apparently the same, but in a less degree; while the widths at the molars (Table VI) present some irregularities. Now the best way to test the symmetrical tendency is by calculating the theoretical frequencies for the actual points in the series. The results for such a calculation are given in Table XIV. For normal-minded children it will be observed that the two series agree closely, and that the actual series cannot be said to vary from the theoretical more in one direction than in another. If this variation is due to accident, we should expect the differences to equalize each other, and approximate zero. We have calculated these in the table, and find small residuals. Thus it is evident that we are justified in assuming the variability in this group to be of a symmetrical type conforming to the exponential law, and all conclusions based upon that law will be valid.

Now we must turn to the series for feeble-minded children. As previously shown, the age-differences for this group are too small to be considered significant, so that all male children may be combined. It is apparent from Table VI that all the distributions are of the same type. Thus we have a total of 558 cases with an average width at the molars of 34.04 mm. and a standard variation of 3.4 mm. (Table V). Proceeding as before, we have the results given in Table XIV.

TABLE XIV. DISTRIBUTION OF CASES FOR MOLAR WIDTH.

Width in mm.	NORMAL-MINDED CHILDREN.				FEEBLE-MINDED CHILDREN.			
	Actual Distribution.	Cases per 1000.	Theoretical Distribution.	Differences.	Actual Distribution.	Cases per 1000.	Theoretical Distribution.	Differences.
22	0	0	0	0	2	3	0	+ 3
23	0	0	0	0	1	1	1	0
24	1	2	0	+ 2	1	2	2	0
25	2	5	1	+ 4	3	5	4	+ 1
26	2	5	2	+ 3	6	11	8	+ 3
27	4	10	8	+ 2	7	12	15	- 3
28	9	20	20	0	12	21	25	- 4
29	19	42	45	- 3	18	32	40	- 8
30	32	72	82	-10	34	61	59	+ 2
31	47	106	126	-20	33	59	79	-20
32	78	175	156	+19	51	92	97	- 5
33	81	182	162	+20	57	103	110	- 7
34	66	149	152	- 3	66	119	120	0
35	45	101	114	-13	73	131	110	+21
36	33	74	71	+ 3	74	133	97	+36
37	14	32	37	- 5	46	83	79	+ 4
38	3	7	16	- 9	34	61	59	+ 2
39	6	13	6	+ 7	18	32	40	- 8
40	0	0	2	- 2	11	20	25	- 5
41	0	0	0	0	1	2	15	-13
42	0	0	0	0	5	9	8	+ 1
43	2	5	0	+ 5	3	5	4	+ 1
44	0	0	0	0	0	0	2	- 2
45	0	0	0	0	1	2	1	+ 1
46	0	0	0	0	1	1	0	+ 1
	444	1000	1000	0	558	1000	1000	+ 1

We have not introduced the series for normal adult males, because the number of cases is much smaller and the average and value of  $\sigma$  are almost the same as for the feeble-minded series.

We may now compare the actual series for the feeble-minded and normal males. Both series of measurements agree in that they reach their greatest frequencies at the same absolute point. In the group of normal males this is probably accidental, since there is a drop at 34 mm. and an acceleration at 36 mm. This is doubtless a disturbance chiefly due to errors in taking the measurements. Whenever fractions of a unit are read to the nearest whole unit, there is a tendency to favor every fifth unit. This would make the frequency for 34 mm. too low, and that for 35 mm. too high. The same disturbance is apparent at 30 mm. and 40 mm. Yet this in itself will not account for all the differences observed, since the value of 36 mm. would tend to be too low. However, when we calculate the differences, as in the preceding case, we have a very small residual for the feeble-minded series. Further, the series for feeble-minded females does not show the same tendency. Hence we may assume again that the distribution is of the symmetrical type.

TABLE XV. DISTRIBUTION OF CASES FOR HEIGHT OF PALATE.

mm.	NORMAL-MINDED ADULT MALES.			FEEBLE-MINDED ADULT MALES.		
	Cases per 1000.	Theoretical Distribution.	Differences.	Cases per 1000.	Theoretical Distribution.	Differences.
7	0	0	0	8	1	+ 7
8	0	1	- 1	8	2	+ 6
9	0	2	- 2	0	5	- 5
10	9	6	+ 3	0	12	-12
1	9	16	- 7	26	25	+ 1
2	36	39	- 3	71	48	+23
3	98	75	+23	44	79	-35
4	116	120	- 4	72	113	-41
5	143	158	-15	163	140	+23
6	161	166	- 5	154	151	+ 3
7	170	158	+12	163	140	+23
8	107	120	-13	125	113	+12
9	89	75	+14	80	79	+ 1
20	44	39	+ 5	26	48	-22
1	9	16	- 7	44	25	+19
2	0	6	- 6	8	12	- 4
3	0	2	- 2	0	5	- 5
4	9	1	+ 8	8	2	+ 6
	1000	1000	0	1000	1000	+ 2

The general statement of the case seems to be that the distribution of



cases in all the groups for the widths at the first molars approximates the symmetrical type, and conforms to the exponential law. Since we have based all our comparisons upon the applications of this law, we need offer no further justification.

The distribution for the height of the palate cannot be treated so satisfactorily, because of the differences due to growth, which make the combination of children and adults doubtful. We have calculated the distribution for adult males as indicated in Table XV. These calculations show clearly that the two groups approximate the symmetrical type. The calculated differences show small residuals. We have not considered it necessary to apply this test to all the age-groups, but conclude at once that we have again an approximation of the exponential law.

We may now return to the discussion of differences in variability. As we have found a close approximation of the exponential law in all measurements, we can assert that variation is not appreciably greater in one direction than in the other; that is to say, the difference in the value of  $\sigma$ , or the standard variation, is not due to a greater number of cases on one side of the average. The greater variability in width at the first molar, of the feeble-minded for example (if a real difference), would imply that wide as well as narrow palates should be found among the feeble-minded; but an examination of the preceding series will show that large differences of this kind are extremely improbable. An examination of the extreme values in Tables VI-IX will give a general idea of what may be expected in the long-run. Yet it must be noted that such a method of comparison will not adequately reveal small tendencies to increased variability, because of the uncertainty of the frequencies of extreme cases. The tendency in the irregularity of distribution may be concealed in such a way that an objective comparison of the series will be misleading. In the discussion of dentition it was shown that certain disturbances could be accounted for by the eruption of the teeth, and later it was noted that differences in variability between the normal and feeble-minded might be due to disorders of dentition. We are now in a position to make this more probable. Greater irregularity in the position of the teeth will introduce a second variable into our measurements, and this will tend to increase the magnitude of the deviation from the symmetrical type of the distribution of cases. For the width at the canines we have for normal males

$$\sigma = 2.2 \text{ mm.}$$

for feeble-minded males

$$\sigma = 2.6 \text{ mm.}$$

Upon this assumption we have

$$2.6 = \sqrt{(2.2)^2 + x^2}$$

in which  $x$  represents the difference in the variability of the position of the canine teeth. By calculation we find

$$x = 1.4$$

In the same way, for the widths at the first molars

$$x = 1.4$$

for the heights of the palate

$$x = 1.2$$

For the females we get similar results. The peculiar fact is, that the values of  $x$  tend to be constant. This indicates a constant disturbance affecting all the dimensions. The cause can only be conjectured at this time, but may be the observed effect of malformation of the teeth, tissues, and alveolar process.

From the standpoint of the method we have a result of interest. We have shown by statistical methods the presence of a cause acting upon the morphology of the feeble-minded in an appreciable excess. At the same time the normal type is conserved to such a degree that no other essential difference can be established.

*Comparison by Correlation.*—So far we have considered the form and size of the palate with reference to isolated measurements. It is obvious that two palates may agree with respect to one dimension, but differ in all others. In Fig. 6 let  $A_1 A_2$  represent a definite width at the canines. Then two palates in which  $A_1$  and  $A_2$  coincide may differ greatly in the position of  $C_1$  and  $C_2$ . The same is true for all other points. Thus it appears that the number of ways in which palates may differ as a whole is many times greater than the ways in which they may differ with respect to one

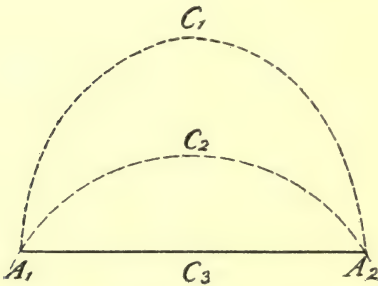


Fig. 6. Diagram demonstrating Relative Dimensions.

dimension. On the other hand, it is probable that variations in one dimension limit those in another dimension; for example, the stature of an individual tends to limit the length of his arm, his weight, etc. In the case of the palate, it seems probable that a great width at one point will necessitate a great width at others: in fact, if the type is as indicated in the foregoing section, this must be the case. Under such conditions it may be that the palate-forms of the feeble-minded differ from those of normal persons in the relative dependence of one dimension upon another; i.e., there may be greater possibilities of combination in one case, leading to greater variety of form.

The investigation of such relation or correlation has become an important problem in the treatment of biological variation. Methods of treating statistics to bring out such relations have been devised and put in practice so that our way is plain. Let us proceed with a definite part of our task. We have tabulated the normal female children with respect to the measurements at the canines and the first molars in such manner that the place of each case can be seen in each dimension (Table XVI). There are sixteen cases of a molar width of 30 mm., and the array of these under canine measurements give us at once their relation in that dimension. It will be seen that each column, or array, is a variable series, but that its range is less than that of the total series. The Pearson formula for estimating the amount of such limitation in range is the usual method of treating such data. We cannot take the space to demonstrate the method. The formula expresses the degree of correlation in a scale of zero to unity, or from no relation whatever to a perfect correspondence. Yet it should be noted that the interpretation of the whole method of correlation is in terms of the restriction of variation due to an equality in another relation.

TABLE XVI. CORRELATION TABLE FOR NORMAL-MINDED FEMALES, 6-13 YEARS.

Width of Molars in mm.	WIDTH OF CANINES IN MILLIMETRES.														Totals.	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29		30
24	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
26	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
27	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	2
28	-	1	-	-	2	1	-	-	-	-	-	-	-	-	-	4
29	-	-	-	4	2	4	-	1	5	-	-	-	-	-	-	16
30	-	1	-	2	3	1	3	2	3	1	-	-	-	-	-	16
31	1	-	1	1	5	5	5	5	3	-	1	-	-	-	-	27
32	-	-	-	3	7	6	6	16	3	3	3	2	-	-	-	49
33	-	-	-	-	2	5	8	9	5	4	4	2	2	-	-	41
34	-	-	-	-	3	1	6	8	8	6	1	1	-	-	-	34
35	-	-	-	-	-	1	2	10	7	3	-	2	3	-	-	28
36	-	-	-	-	-	2	1	3	1	7	2	3	2	1	-	22
37	-	-	-	-	-	-	-	-	2	1	4	-	-	1	-	8
38	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	2
39	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	3
Totals	1	2	2	10	24	27	33	55	39	25	15	11	7	2	1	254

Let  $r$  be the degree or coefficient of correlation. Then

$$r = \frac{[xy]}{\sigma_1 \sigma_2}$$

In the table,  $x$  represents the deviation of a case in canine width from its average, and  $y$  the same deviation of its molar width;  $\sigma_1$ , the standard variation for the canines;  $\sigma_2$ , the same for the molars. Calculating, we find

$$r = 0.67$$

It is also true theoretically that

$$v_2 = \sigma_2 \sqrt{1-r^2}$$

in which  $v_2$  represents the variability of the vertical arrays in Table XVI, or the standard variation in the molar widths of each array.

$$v_2 = 2.38 \sqrt{1-(0.67)^2}$$

$$v_2 = 1.76$$

This means that, if we select individuals with the same widths at the canines, the widths at their molars will be reduced in variability from 2.38 mm. to 1.76 mm. For comparative purposes we may use the value of  $r$  as calculated above.

We have calculated the correlations in Table XVII.

TABLE XVII. COEFFICIENTS OF CORRELATION.

		MALES.				
Condition.		Normal-minded.		Feeble-minded.		
Age.		6-13	Adult.	6-13	14-20	21+
Canine and molar width . .		+0.44	+0.52	+0.31	+0.30	+0.38
Canine width and height . .		+0.06	-0.27	-0.02	-0.06	-0.11
Molar width and height . .		+0.00	-0.13	+0.09	+0.16	-0.17
Canine width and length . .		+0.11	+0.05	+0.28	+0.19	+0.07
Molar width and length . .		+0.13	+0.03	+0.20	+0.08	+0.03
Height and length . . . .		+0.06	-0.02	+0.09	+0.02	+0.11
		FEMALES.				
Condition.		Normal-minded.		Feeble-minded.		
Age.		6-13	Adult.	6-13	14-40	21+
Canine and molar width . .		+0.67	+0.35	+0.42	+0.74	+0.48
Canine width and height . .		+0.15	-	-0.05	-0.15	-0.03
Molar width and height . .		+0.25	-	+0.30	-0.07	-0.06
Canine width and length . .		+0.42	+0.18	+0.23	+0.24	+0.20
Molar width and length . .		+0.33	-0.13	+0.08	+0.08	+0.18
Height and length . . . .		+0.30	-	+0.19	+0.15	+0.16

The coefficients of correlation given here are somewhat irregular. The relation between the canine and molar widths, for example, ranges from 0.74 to 0.35. Yet certain tendencies appear. The correlations for females all show a tendency to decrease with age, but this relation is not so clear with the males. Some such difference is to be expected, as it has been shown elsewhere, that, during the growing period, correlations are higher than at any other time.<sup>1</sup> On the other hand we must show what must be allowed for accidental modifications of the degree of correlation.

For females, our series is not quite complete. While marked by one large difference, there is nothing in the general range of values to indicate that this variation is significant of a real difference.

For adults we find the following differences in correlation between normal and feeble-minded males:—

$$\begin{array}{rcl} + 0.14 & & - 0.02 \\ - 0.16 & & - 0.00 \\ + 0.04 & & - 0.13 \end{array}$$

The probability of these differences can be estimated by the formula

$$p = \frac{1-r^2}{\sqrt{n(1+r^2)}}$$

For the first difference, 0.14, we have the following:—

$$\begin{array}{l} 0.52 \pm p = 0.52 \pm 0.05 \\ 0.38 \pm p = 0.38 \pm 0.06 \\ \therefore 0.14 \pm \sqrt{(0.05)^2 + (0.06)^2} = 0.14 \pm 0.08 \end{array}$$

from which it follows that this cannot be assumed as a certain difference.

For the second difference above:—

$$\begin{array}{l} - 0.27 \pm p = - 0.27 \pm 0.08 \\ - 0.11 \pm p = - 0.11 \pm 0.09 \\ \therefore - 0.16 \pm \sqrt{(0.08)^2 + (0.09)^2} = - 0.16 \pm 0.12 \end{array}$$

Again the difference is within the limits of the accidental, and, since these are the maximum differences, it appears that the differences in the degrees of correlation between the two groups are insignificant.

So far we have treated the widths of the palate without considering the lengths. On general principles it may be assumed that a wide palate will be long; i.e., large in totality. The table of correlations shows that this is not true, except to a very slight degree. For adults there is practically no relation between length and either of the two widths. The coefficients are,

<sup>1</sup> Statistics of Growth (Report of Commissioner of Education, 1904, pp. 25-49).

however, positive, which implies a tendency to a slight relation; but the degree is so small that it counts for nothing in our present data. There is a suggestion that this relation is closer in childhood than in later life.

It may not be legitimate to correlate width at the canines with length forward from the molars: hence we have calculated the coefficients for the length as measured from the canines forward.

NORMAL MALE ADULTS.

Width at canines and length forward . . . . .	+0.08
Width at canines and length from canine to first molar . . . . .	+0.04
The two parts of the length in the above . . . . .	+0.04

From this it appears that the length is not related to the width, and that one part of the length is not related to the other. We have not deemed it worth our while to carry the calculations further, since they seem decisive. The general result seems to be, that whether palates are long or short is of no consequence with respect to their width.

The height of the palate must be considered next. The cavity of the roof of the mouth may be regarded as a solid, of which the height is one of the dimensions. The widths and the lengths are dimensions of its base. The correlation table indicates a tendency for adults toward negative coefficients. The degree of such correlation is small, but implies that a narrow base is often found with an increased height. When we consider the irregular character of this solid and the inadequate way in which the height represents its altitude, it may be assumed that the tendency in this direction is much greater than appears in the calculation. We made several attempts to estimate the area of the palate. We took the product of the length and width at the first molar as an approximation of the area, and obtained a correlation of +0.02. Then we took half of the sum of the canine and molar widths, and multiplied it by the length: the correlation was -0.18. Since the space forward of the canines is taken up mostly by the alveolar processes, the cavity may be more truly represented by the width at the canine ( $a$ ), the width at the molar ( $d$ ), and the perpendicular distance between them ( $c$ ). Then

$$\frac{a+d}{2} = \text{the average width}$$

$$\frac{(a+d)}{2} c = \text{the area}$$

If we take the square root of this, we shall have the side of an equivalent square, which reduces our series to smaller units.

$$\text{Av. } \left[ \sqrt{\frac{(a+d)}{2} c} \right] = 25.1 \pm 1.7 \text{ mm.}$$

Correlating this value with height gives  $-0.15$ . Thus the general result has not been modified by these calculations. The interpretation of these results is, that the relation between the height of the palate and the other dimensions is one of compensation; i.e., that when the jaws are narrow the roof is high. It may be objected that the capacity of the palate cavity should have been measured. The attempt was made in various ways. The average capacity from the first molar forward for normal males was

$$6.9 \pm 0.8 \text{ grms.}$$

and this, correlated with the height  $\pm 0.15$ .

This result is not necessarily contradictory to our previous conclusion, because the height is now a factor of the capacity, and the same relation holds as with the canine and molar widths discussed above. A great capacity will necessitate a like tendency in height, but there may be compensatory relations between the height and the other dimensions involved. Yet the reader should keep strictly in mind that we are dealing with very small differences, and that the tendencies of relation here may prove accidental.

By way of interest we have calculated the correlation for capacity and the following:—

Molar width . . . . .	112	+0.47
Canine width . . . . .	113	+0.15
Length . . . . .	111	+0.33

It seems that the width at the first molar is the best index of the size of the cavity of the palate. This is one of the reasons that led to the selection of this measurement for our comparative study.

We also measured the length of the curve of the teeth with a wheel, and found an average, for seventy-one cases, of  $76.4 \pm 5.6$  mm. The correlations for this were—

Height . . . . .	+0.05
Canine width . . . . .	+0.49

In general we found the height rather independent of dimensions in the horizontal plane. Where tendencies appear, they are in the direction of a compensation; i.e., the cavity of the palate tends to reach a certain size, and resistance in one direction leads to expansion in another.

When the coefficients of correlation for children and adults are compared, we find a few large differences. For normal female canine and molar width the difference is considerable; but the cases are so few for adults that it cannot be regarded seriously. The other large difference is found in the correlation between the molar width and the height of the palate for feeble-

mind females, a difference of  $0.36 \pm 0.12$ . This alone will not bear much weight, as such differences are to be expected occasionally. The same is true of the large differences for the group 14–20 and adults.

The general comparative statement is, that we have failed to establish a relative difference between the measures of the palates of normal and feeble-minded individuals.

In a preceding section we considered the relative importance of the various possible measurements, and we now find ourselves in a position to consider it further. We have measured a series of normal palates in a great many ways, and these data may be correlated so as to bring out differences of relation. We shall take the horizontal plane first. The inside width of the outer incisors as correlated with the other widths is as follows:—

	<i>n</i>	<i>r</i>
Outer incisors and canines . . . . .	105	+0.69
Outer incisors and first bicuspid . . . . .	87	+0.71
Outer incisors and second bicuspid . . . . .	90	+0.67
Outer incisors and first molar . . . . .	105	+0.52
Outer incisors and second molar . . . . .	87	+0.38

The canine width:—

First bicuspid . . . . .	91	+0.73
Second bicuspid . . . . .	--	--
First molar . . . . .	125	+0.52
Second molar . . . . .	90	+0.31
Second bicuspid and second molar . . . . .	83	+0.60

As these coefficients stand, they imply that the nearer the points at which widths are taken, the greater the agreement between them. This is another way of stating a previous assumption, that the form of the palate is such that an almost endless variety of forms can result from a combination of the points enclosed by the limits as defined in Fig. 3. A palate very narrow at the canines would not place a great limit upon the width at the second molar; for by the formula

$$v = 3.0\sqrt{1 - (0.31)^2}$$

$$v = 2.8$$

So we may find opposite extremes in width at these points, giving us an extreme V-shaped palate; but this would not constitute a type. A very common error is to take the normal variant in a type as a new type.

At this point we must enter into a consideration of the method of correlation as applied to data of this kind. Assuming the palate to be a distinct organ, it will be observed that the width at the canine, as measured, is con-



tained in the width at the first molar. In correlating we take the product of  $x$  and  $y$ , the respective deviations of  $A$  and  $C$  from their averages (Fig. 7). Hence we see that  $x$  is contained in  $y$ , since  $A$  is contained in  $C$ . Hence  $A$  and  $C$  will be correlated by virtue of what they have in common. If there were no variations in the relative values of  $C-A$ , the correlation between  $A$  and  $C$  would be perfect, or a coefficient of 1.00. Since we obtained a different result, we must examine the case critically.

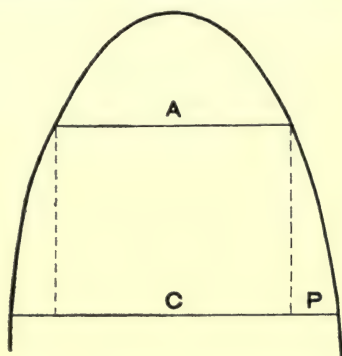


Fig. 7. Diagram demonstrating the Correlation of Identical Parts.

We may assume that OM represents any type-curve (Fig. 8). Let  $A$  and  $C$  be ordinates of the same. Indicate average by brackets.

Then let

$$[C] - [A] = [P]$$

and  $\sigma_a, \sigma_c, \sigma_p$  = the respective variabilities of these averages.

$x$  = the deviations of  $A$  from  $[A]$

$y$  = the deviations of  $C$  from  $[C]$

$y = x + p$ .

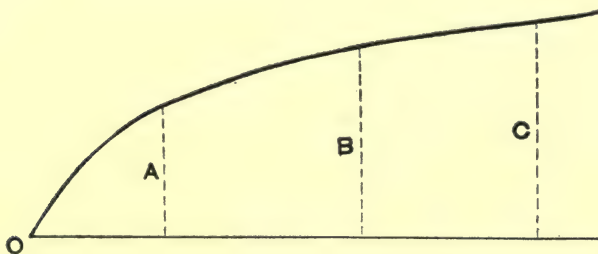


Fig. 8. Type-Curve.

Then  $(x + p)$  is a variable agreeing with a variable  $y$ ;  $p$  is the deviation of  $[P]$ .

$$[xy] = [x^2] + [xp]$$

$$[y^2] = [x^2] + 2[xp] + [p^2]$$

Also

$$[y^2] = \sigma_c^2$$

$$\sigma_c^2 = \sigma_a^2 + \sigma_p^2$$

$$[y^2] = [x^2] + [p^2]$$

Hence  $[xp]$  should be zero; but this can occur only when there is no correlation between A and P.

The value of  $p$  may be expressed as

$$[p^2] = [y^2] - 2[xy] + [x^2].$$

Now the various terms of these equations can be calculated from the data for the correlation of A and C.

$[xp]$  corresponds to the  $[xy]$  in the correlation formula, or is the value from which  $r_{xp}$  can be calculated when  $\sigma_p$  is known. Taking A and C as the widths at the canines and molars respectively for normal adult males, we find the following:—

$$\begin{aligned} r &= + 0.52 \\ [xy] &= + 4.21 \\ \sigma_a &= 2.50 \\ \sigma_c &= 3.35 \end{aligned}$$

Substituting in the preceding equation, we find

$$\sigma_p = 3.00$$

and

$$[xp] = - 2.04$$

Then

$$r_{xp} = - 0.27$$

Thus, while the direct correlation between the two widths is + 0.52, the correlation between the smaller and their differences is - 0.27. This implies that, if a palate is wide at the canines, the spread of the jaw at the first molar will tend to be less than the average, and the reverse.

This result is such, that we must give these correlations detailed consideration. In the first place we have calculated for direct comparison the actual values as obtained by measurement, and find:—

$$\begin{aligned} [xp] &= - 2.06 \\ \sigma_p &= 2.80 \\ r_{xp} &= - 0.29 \end{aligned}$$

The agreement is close. While the correspondence may not be so close in every case, there is no reason why the actual values should not approximate the values of the formula.

From our correlation tables we have calculated these values for the outer incisors as follows:—

	$[xy]$	$[xp]$	$\sigma_p$	$r_{xp}$	$r_{xy}$
Incisors and canines . . . .	+3.04	- 1.37	±2.14	- 0.30	+0.69
Incisors and first bicuspid . . .	+6.08	+ 1.67	±2.88	+ 0.28	+0.71
Incisors and second bicuspid . .	+5.03	+ 0.62	±2.25	+ 0.13	+0.67
Incisors and first molar . . . .	+3.91	- 0.50	±2.79	- 0.09	+0.52
Incisors and second molar . . .	+2.70	- 1.71	±2.95	- 0.27	+0.38

For the canines as the point of departure:—

Canines and first bicuspid . . . . .	+6.78	+1.94	±2.96	+0.26	+0.73
Canines and second bicuspid . . . . .	—	—	—	—	—
Canines and first molar . . . . .	+4.21	— 2.04	±3.00	— 0.27	+0.52
Canines and second molar . . . . .	+2.37	— 2.47	±3.20	— 0.30	+0.31
Second bicuspid and second molar . . . . .	+5.94	— 4.81	±2.93	— 0.50	+0.60

We find in general that the correlations are very much reduced, and tending toward a change of sign, when the common element has been eliminated. With this element included, the correlations decrease inversely with the distance between the correlated dimensions. By the calculations we have shown that, when the element in common is removed, there is a tendency to reverse correlation.<sup>1</sup>

We may now consider our problem as that of a curve tending to approximate a certain form (Fig. 8). Let *O* be the point of origin, and *A*, *B*, *C*, any of the successive ordinates. Accidental causes operate to change the direction of the curve, and thus vary *A*; but, as the tendency of the organ is to reach a definite type as to magnitude as well as to form, the curve will approach *B* and *C*. Thus extreme variation in the length of any ordinate will be accompanied by less variation in the others. Thus our correlation as calculated should be negative in tendencies, because a high value in one is associated with a lower value in the other. On the other hand, the nearer the ordinates correlated, the higher the degree of direct or positive correlation, because, if *A* is correlated with itself, the coefficient will be 1.00. We have shown that, in the method of estimating correlation, allowance must be made for this common factor in the product of the moments. By a corresponding reduction we may find a point upon the curve where there is no correlation. This point has a geometrical relation to positive and negative correlation, and a functional relation analogous to the no-correlation point for growth-measurements as determined by Boas.<sup>2</sup> The general point is, that the organ tends to fill a definite space in a definite way, and that excess in one portion is met by adjustment in the other.

In the foregoing we have noted that the measurements at the canines were not correlated with those of the incisors, as with the other teeth, which is probably another phase of the peculiar position of these teeth and the phenomena of crowding as an abnormality of dentition. The variabilities

<sup>1</sup> For an analogous result see Professor Franz Boas, the Cephalic Index (*American Anthropologist*, N.S., Vol. I, 1899); see also Dr. Clark Wissler, the Spearman Correlation Formula (*Science*, Sept. 8, 1905).

<sup>2</sup> *Statistics of Growth* (Report of Commissioner of Education, 1904, p. 31).

for  $P$  as expressed by  $p$  are greater for the canines than for the incisors and the second bicuspid.

We have the data for different measurements at the canines and the first molars.

Correlation of inside widths at the canines and molars . . . . .	+ 0.52
Correlation of outside widths at the canines and molars . . . . .	+ 0.53
Correlation of the above widths measured from the median lines of the teeth . . . . .	+ 0.54
Correlation between the width at the median line of the molar and inside width . . . . .	+ 0.87

Hence, as before stated, it makes little difference what points on the teeth you select for measuring, since they all give approximately the same relative values.

Before closing the discussion it may not be out of place to try multiple correlation. Designating length of palate by  $C$ , width at first molar by  $A$ , at the canines by  $D$ , and the height by  $B$ , we may calculate from our previous data correlations after the following:—

$$r_{AC(B)} = \frac{r_{AC} - r_{BC}r_{BA}}{1 - r_{BC}^2}$$

$$r_{AB(C)} = \frac{r_{AB} - \dots}{1 - \dots}, \text{ etc.}$$

We find

$$r_{AC(B)} = + 0.03$$

$$r_{AB(C)} = - 0.13$$

$$r_{BD(A)} = - 0.28$$

$$r_{AB(D)} = + 0.01$$

$$r_{AD(B)} = + 0.68$$

With two exceptions, the coefficients approximate zero. The height of the palate as affected by the related widths shows a marked correlation, while the height and canine width against the molar width give a negative coefficient. However, the preceding discussion has revealed the disturbing factors in such correlations.

The general import of this examination of the correlation of dimensions seems to be that there cannot be a strict type-difference between the interior dimensions of the palates of the feeble-minded and those of normal individuals. If such differences held, there should be emphatic differences in the degrees of correlation for the two groups. As it stands, extreme abnormalities of the palate are about as frequent among individuals of one group as among those of the other.

*Head-Measurements and the Palate.*—The physical measurements of

feeble-minded individuals afford opportunities for correlating the palate and other organs. For adult males, the following correlations were calculated:—

	<i>n</i>	<i>mm.</i>
Width at molars and width of face . . . . .	111	+ 0.36
Height of palate and width of face . . . . .	100	+ 0.14
Width of molars and stature . . . . .	114	+ 0.09

The only case that seems to promise a relation is that of the molar width and the width of face; yet it will be observed that the others tend to positive correlation, or toward general size-relation.

*Summary.*—This comparison has shown that, so far as our data go, the general type of the palate as defined by the measurements taken is the same for feeble-minded as for normal individuals.

We have shown that the general type of palate as defined by the average measurements is the same for feeble-minded as for normal individuals. The method of correlation was found to give no reliable result as to differences in relative size. The only case in which a probable difference appears is in the degree of variability; but, as we have shown, the excess in favor of the feeble-minded is not a matter of great certainty. Granting that this should be true, it may be maintained that there is a palate peculiar to the feeble-minded, since their palates will sometimes be longer and again smaller than those of the normal-minded; but this would be an error, because we have failed to find a degree of correlation between the measurements that would lead us to expect palates to show corresponding differences at all points. A greater variability for the measurements as taken would mean greater irregularity of points corresponding to the teeth.

This would be accidental variation from the normal type, that is, in no one direction. The many minor results of the foregoing studies need not be repeated here.

#### COMPARISON BY QUALITATIVE GRADATIONS.

In another part of this paper we have pointed out that the tendency was for the palate-form to approximate the type, and that an extreme variation at one point would be compensated at another. Then, if the variability is truly greater for the feeble-minded, we should expect greater irregularity for them, though the averages and the type should be the same as for the normal-minded. The correlation between the respective dimensions will not necessarily differ in either case, since the degree of correlation is in a measure due to geometrical relations common to both classes, as we have

shown. Thus the correlation method will not solve our problem directly. We proceeded upon the assumption that it would. On the other hand, it seems reasonable to assume that the observed difference in variability between the two classes indicates a condition of greater irregularity in contour. As we have seen, direct measurements fail to reveal any other evidence of difference.

We must now consider the method of grading by eye. Previous research in relation to this problem contented itself with a general estimate of the form and degree of the irregularities of the palate, but usually the form received the chief consideration. At one time Dr. Channing classified by inspection our material under five heads, as follows:—

1. V-shaped.
2. Partial V-shaped.
3. Semi V-shaped.
4. Saddle-shaped.
5. Normal or U-shaped.

The result was as follows:—

TABLE I.

## Classifications of Palates of 1000 Idiots.

V-shaped . . . . .	19.0	} 48.1
Partial V-shaped . . . . .	24.8	
Semi V-shaped . . . . .	4.3	
Saddle-shaped . . . . .	11.0	
Normal or U-shaped . . . . .	40.9	

“From this table it may be seen that about forty-one per cent of idiots have palates which are of fairly good shape, and cannot be regarded as falling into any classification of pathological palates, if shape is to be the criterion.

“The difficulty of making correct inferences from statistics can be graphically shown by the next two tables I present, which are arranged after the method of Talbot:—

TABLE II.

Showing Varieties of Palates in Presumable Normal Individuals. Collection of Drs. Sheppard and Cooke of Casts taken before Correction of Irregularities of the Teeth.

No.	Normal.	Large Jaw.	High Vault.	V-shaped Arch.	Partial V-shaped Arch.	Saddle-shaped Arch.	Small Teeth.
212	22.1	5	5	16.5	42	19.3	0

TABLE III.

Showing Varieties of Palates in Presumably Normal School Children over Twelve Years of Age. Not from Casts. (Dr. Talbot.)

No. 1000	Normal.	Large Jaw.	High Vault.	V-shaped Arch.	Partial V-shaped Arch.	Saddle- shaped Arch.	Small Teeth.
	78	1.9	5.6	1.1	6.1	3.3	3

"In Table II it will be seen there was an enormous percentage of deformities, far in excess of that in Table III, and nearly 30 per cent in excess of that figured in Table I, of idiots' palates. Table II shows 42 per cent partial V-shaped arches, which Table III gives as only 6.1 per cent, and Table I, 24.8 per cent.

"From these statistics it would appear that one class of the general community not only has more deformities than another, but actually more than obtained among idiots. The statistics in Table II were made from casts by myself, at leisure and with care. Those in Table III were not made from casts, and therefore, though no doubt carefully compiled, were more liable to error."<sup>1</sup>

The contradictory result in these tables is characteristic of the method, because of the difference between observers and their standards, and we deem it unwise to give further attention to the mere grading by eye.

However, it is our experience that irregularities of the teeth give one a wrong impression as to the form of the palate. Since we have disposed of form and size by measurement, we may be able to grade the irregularities of contour in the horizontal plane, if the teeth are eliminated. To this end we traced in natural scale the inner curve of the teeth, using a form of pantograph. A few of these tracings are shown in Plates XIX-XXII. These were selected at random, and may be taken as a chance series such as might be secured from an equal number of individuals taken in the same manner. The numerals below the graphs refer to the records of individuals furnishing data for this research.

We have attempted to grade the whole collection of tracings by regularity of outline, regardless of palate-forms. In the preceding pages we have suggested that the observed difference in variability between the palates of feeble-minded and normal individuals was due to greater crowding of the teeth in the feeble-minded. If this were true, the outlines of the teeth as traced with a pantograph should be more irregular for this class. To test this we compared tracings for adult normal males with an equal number

<sup>1</sup> The Significance of Palatal Deformities in Idiots (Journal of Mental Science, January, 1897).

for adult feeble-minded males, pasted upon separate cards. The two lots were thoroughly shuffled. Five were drawn from each lot, and arranged according to rank in regularity. The following is one of the series, in which *n* and *f* represent normal and feeble-minded respectively; the first numeral the highest rank:—

1	2	3	4	5	6	7	8	9	10
<i>f</i>	<i>n</i>	<i>n</i>	<i>f</i>	<i>f</i>	<i>n</i>	<i>f</i>	<i>n</i>	<i>f</i>	<i>n</i>

The resulting series for eighteen such drawings gave the following totals:

Rank	1	2	3	4	5	6	7	8	9	10
Normal-minded . . .	11	8	5	7	9	12	10	9	10	6
Feeble-minded . . .	7	10	13	11	9	6	8	9	8	12

If there were no differences in irregularity, there should be an equal number of palates in each half of the above table. Taking the middle points, we have:—

Normal-minded . . . . .	40-47
Feeble-minded . . . . .	50-43

While there is here the suggestion of a difference in favor of the feeble-minded, it is too small to be considered. Another trial of two tracings of each class gave the following:—

Rank	1	2	3	4
Normal-minded . . . . .	17	14	10	5
Feeble-minded . . . . .	6	9	13	18

This table seems to indicate a difference in regularity in favor of the normal. With extended series of fifty of each class, taking two at a time, we found the number of cases taking first rank to be:—

	Normal-minded.	Feeble-minded.
First series . . . . .	27	23
Second series . . . . .	31	19
Third series . . . . .	25	25
Fourth series . . . . .	26	24
Fifth series . . . . .	30	20
Sixth series . . . . .	32	18
Average ratio	14-11	

Again the indication is that the teeth of the feeble-minded are more irregular than those of the normal-minded.



These gradations must be taken as indicating, on the whole, somewhat greater irregularity among the feeble-minded. It is evident, however, that the variation in this respect is not very great, and we fail to see that this result differs in any way from that obtained by measurement, except that it is far less definite and certain. We have shown clearly that the calculated variability was slightly greater for the feeble-minded.

TABLE XVIII. PALATE-MEASUREMENTS FOR ESKIMO SKULLS.

	Width at First Molar.	Height of Palate.	Width at Canines.	Length of Palate.	Height of Palate from Alveolar Process.
	mm.	mm.	mm.	mm.	mm.
	37	13	23	26	6
	38	15	23	28	13
	43	17	24	23	9
	40	19	31	24	7
	36	—	—	26	—
	41	18	25	26	12
	45	22	25	26	17
	41	16	28	27	10
	42	18	26	23	11
	33	15	23	25	11
	43	16	22	26	11
	43	14	23	30	10
	43	26	25	26	21
	35	14	23	23	11
	40	13	21	28	9
	40	13	25	26	6
Average	40.0	16.6	24.5	25.1	11.1

## TEST-MEASUREMENTS ON SKELETAL MATERIAL.

Since objections may be made to the use of casts and even to measurements upon the living, it became desirable to measure skulls. We have not had access to the skulls of feeble-minded or normal-minded white persons, but to a respectable series for other races. One of the first points considered was the comparison of measurements for the height of palate. On the casts we measured this from the gum-line; on skulls the measurements may be taken from the alveolar border or from the masticatory plane

of the teeth. A series of sixteen Eskimo skulls examined by us still retained the mark of the gun-line, all being from recent burials. Accordingly we measured these skulls by the same method as that used for casts, adding the height as measured from the alveolar border. The results are given in Table XVIII. We also measured the height from a series of Chinook skulls with the following result:—

	<i>n</i>	Alveolar Border.	Masticatory Plane.
Males . . . . .	26	16.5 ± 1.9	21.4 ± 1.7
Females . . . . .	40	14.5 ± 2.6	19.4 ± 2.5

This indicates that, in so far as variability is concerned, measurements on skulls are no more constant than those upon casts. Though these are skulls of another race, we can compare the two measurements above with the corresponding two on casts (p. 302). The value of  $\sigma$  is approximately the same, and there is the same quite constant difference of 5 mm. between the two planes. Therefore we are of the opinion that measurements made upon the living, or upon casts from the living, are about as useful as those made upon skulls.

As a matter of general comparative anthropological interest we have made other measurements on skulls, the averages for which are given in Table XIX. We have also a series of modern Mexican Indian skulls with the following:—

	<i>n</i>	Av. mm.	$\sigma$ mm.
Width at first molar . . . . .	58	35.4	2.5
Length from first molar . . . . .	62	27.3	1.9
Height from alveolar border . . . . .	90	14.7	3.0

Treating the measurements in Table XIX as in the discussion of normal-minded palates of the white race, we could indicate the Chinook type; but this would take us too far afield. It may be noted, however, that all the measurements here given indicate that the palates of aboriginal American races are broader and shorter than those of white Americans. The height of palate, however, seems about the same for all, though there is reason to believe that measurements of height will be of greater magnitude for skulls than for casts from the living.

While engaged in the preceding skull-measurements, Dr. R. H. Lowie made some observations upon the transverse palatine suture, his statement being as follows:—

TABLE XIX. PALATE-MEASUREMENTS FOR SKULLS.

Measurements.	CHINOOK INDIAN.						KWAKIUTL INDIAN.					
	Male.			Female.			Male.			Female.		
	n.	Av.	$\sigma$	n.	Av.	$\sigma$	n.	Av.	$\sigma$	n.	Av.	$\sigma$
		mm.	mm.		mm.	mm.		mm.	mm.		mm.	mm.
Inside width at												
1st bicuspid .	6	-	-	13	27.4	2.5	-	-	-	-	-	-
2d bicuspid .	3	-	-	11	32.0	2.5	-	-	-	-	-	-
1st molar .	19	36.3	2.7	34	34.9	2.9	6	35.4	-	14	33.8	2.8
2d molar .	16	41.2	2.8	27	39.5	2.5	-	-	-	-	-	-
3d molar .	11	43.4	2.5	9	42.4	3.1	-	-	-	-	-	-
Length from												
1st bicuspid .	16	11.4	1.7	25	11.0	1.4	1	27.0	-	4	24.0	-
2d bicuspid .	15	17.6	2.4	22	17.0	1.9	-	-	-	-	-	-
1st molar .	23	25.6	2.2	39	25.6	2.2	6	25.8	-	16	25.8	1.9
2d molar .	19	34.4	3.0	36	33.9	3.1	-	-	-	-	-	-
3d molar .	19	41.7	3.2	16	41.3	3.1	-	-	-	-	-	-
Maximum height												
from												
masticatory												
plane	25	21.4	1.7	40	19.4	2.5	6	23.6	-	16	20.2	2.6
alveolar border	26	16.5	1.9	20	14.5	2.6	10	16.6	2.0	17	14.2	2.1

While Stieda,<sup>1</sup> Killermann,<sup>2</sup> and Bauer<sup>3</sup> have investigated the form of the transverse palatine suture in different peoples, the American skulls at their disposal were hardly numerous enough to warrant any definite conclusions on the character of the suture in the American race. Stieda gives the results for 103 "Rassenschadel" without further specification;<sup>4</sup> Killermann examined only twenty American skulls;<sup>5</sup> and Bauer finds his percentage for different types in the Indian race on five Boto-cudos and five Fuegians.<sup>6</sup> Accordingly, it seemed worth while, when taking the preceding palatal measurements, to take note of the sutural types in a fair number of cases, and check the figures given by Bauer and Killermann.

Following Stieda's classification, both the later investigators distinguish three fundamentally distinct types, — the straight, the projecting, and the receding suture. Stieda and Bauer recognize in addition a class of irregular forms. By these, Bauer understands transitional forms;<sup>7</sup> and Stieda defines them as combinations of different types on the right and left side, including, however, those cases where the suture is straight on both sides, but on a different level. The principal difference in counting forms is due to the classing by Killermann of sutures that are straight on one side and receding on the other with the receding type, and to his disregard of the super-

<sup>1</sup> Arch. f. Anthrop. 1894, Vol. XX, pp. 1-11.

<sup>2</sup> Arch. f. Anthrop., 1894, Vol. XX, pp. 393-424.

<sup>3</sup> Ach. fr. Anthrop., 1904, N. F. Band II, pp. 178-180.

<sup>4</sup> l. c., p. 9.

<sup>5</sup> l. c., p. 398.

<sup>6</sup> l. c., p. 179.

<sup>7</sup> l. c., pp. 178, 179.

numerary class of transitional irregular forms (p. 395). The results obtained by the three investigators for skulls in general are as follows:—

	Projecting. per cent.	Straight. per cent.	Receding. per cent.	Irregular. per cent.
Stieda . . . . .	64.54	20.98	9.53	4.92
Bauer . . . . .	17.4-30.8	30.8-53.4	4.3-10	20-39.1
Killermann . . . . .	67.65	15.63	16.72	—

Stieda's and Killermann's results are in tolerable agreement, the slight discrepancies being fairly accounted for by the difference in classification. Killermann and Bauer agree in finding the straight type predominant in the American race (55 and 50 per cent): this would simply agree with Bauer's average for all races, but marks the greatest racial deviation recorded by Killermann (p. 398). For the projecting suture they give the percentages 30 and 20 respectively. Though Killermann distinctly deprecates the notion that the form of the suture could be utilized as a racial characteristic (p. 404), the marked difference in the distribution of sutural types found by him in the American race, as distinguished from others, could not be considered wholly insignificant if corroborated by more extended observations. I have therefore examined a considerable number of skulls from several Indian tribes, classifying sutures according to Stieda's and Killermann's divisions as follows:—

	STIEDA.							
	Projecting.		Straight.		Irregular.		Receding.	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Mexican . . . . .	68	59.13	12	10.43	29	25.22	6	5.22
Chinook . . . . .	49	63.63	9	11.68	15	19.48	4	5.19
Kwakiutl . . . . .	18	66.67	2	7.41	3	11.11	4	14.82
Bolivia . . . . .	66	60.00	12	10.91	20	18.18	12	10.91
S. E. Utah . . . . .	15	45.45	2	6.06	9	27.27	7	21.21
Nootka . . . . .	10	71.43	0	0.00	2	14.18	2	14.28
British Columbia . . . . .	14	56.00	2	8.00	6	24.00	3	12.00
Eskimo . . . . .	26	45.17	3	6.25	9	18.75	10	20.83

	KILLERMANN.							
	Projecting.		Straight.		Irregular.		Receding.	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Mexican . . . . .	78	67.83	20	17.39	3	2.61	14	12.17
Chinook . . . . .	53	68.83	15	19.48	3	3.89	6	7.79
Kwakiutl . . . . .	18	66.67	3	11.11	3	11.11	3	11.11
Bolivia . . . . .	77	70.00	13	11.82	1	0.91	19	17.27
S. E. Utah . . . . .	19	57.57	2	6.06	5	15.15	7	21.21
Nootka . . . . .	10	71.43	0	0.00	2	14.28	2	14.28
British Columbia . . . . .	15	62.50	2	8.33	1	4.17	6	25.00
Eskimo . . . . .	28	58.33	6	12.50	2	4.17	12	25.00

## GENERAL DISCUSSION OF RESULTS.

At the outset we stated our intention of directing the major part of our efforts to the application of anthropometric methods to the comparative study of the hard palate among feeble-minded and normal-minded individuals. As every one must know, there are two time-honored methods of procedure in comparative morphology, — a qualitative visual one and one of quantitative estimation according to some unit of measure. In the preceding pages we have given the latter a fair though not an exhaustive trial, bringing into play most of the known anthropometric and statistical methods. While it is true that these methods are in large measure based upon assumptions, we have kept as close as practicable to empirical methods of treatment. In work of this kind we are confronted with the necessity of distinguishing between differences due to real and to accidental variation, — a task by no means simple, since in observation the two always coalesce. It is chiefly here that theoretical aid must be sought. We have considered all differences as accidental, unless they exceeded the theoretical limits of accidental variation. Now, while some of these rejected differences may be real, it must not be overlooked that such differences will in any case be exceedingly small, and therefore minor factors in the general variability. It seems certain that few positive quantitative differences can escape detection by comparative measurements. Hence the general result of this part of our work must receive due consideration.

Every one should bear in mind that while anthropometric methods detect differences, these methods are in themselves impotent in interpretation. We have in the main contented ourselves with a statement of differences found and not found, though, in case of dentition and growth, we have by analysis given certain interpretations of observed differences. On the other hand, we do not offer an interpretation of the small though seemingly constant difference in variability between the normal and feeble-minded. While there are reasons for considering as phenomena of dentition among the feeble-minded the want of positive difference in the size of the palate as measured, the apparent qualitative difference of greater irregularity in the alignment of the teeth, and the greater variability as shown by the size-measurements (all appearing to be different expressions of the same morphological relation), it is not quite clear how these could be without positive differences in the teeth themselves. The suggestion from the data on dentition, to the effect that the permanent teeth tend to erupt earlier among the feeble-minded, appears as a possible explanation of crowding; yet more

data will be needed to establish this apparent difference in the dentition-periods, before such an explanation can be seriously considered. Aside from any such interpretation, the fact remains that our method reveals evidences of a slight difference in the degree, but not in the kind, of variability between the normal and feeble-minded. Our rather detailed determination of the type both as to coincident and correlated points shows that the palates of all form an apparently homogeneous group, or are identical in type as determined by the average. What difference there is shows apparently a slightly greater variability for the feeble-minded. This difference, however, is distributed with approximate equality among the minimum and maximum values, thus failing to substantiate the assumption that the palates of the feeble-minded are relatively narrow. Finally, all the differences we have discovered in size are too small to be detected by the eye, and hence are of no practical clinical value.

While the same general fact might have been discovered by a qualitative gradation of irregularity as previously demonstrated, such a method could not have brought out the many points of importance suggested by the anthropometric method. This gradation method could not, for example, discover the presence of an apparent constant invariability affecting equally all of the palate-measurements in horizontal plane as calculated from our data. We have had neither the time nor the necessary data to compare in this way the variabilities for other organs. This would be an interesting problem in itself. The results suggest that the differences in variability shown for the feeble-minded are due to a general retardation effect during the first few years of life, which is in keeping with an assumption made by Dr. Channing in one of his earlier papers. The results of our study of the growth of the palate suggest, that, since the parts anterior to the molars take form early in life and the greatest change in height occurs during adolescence, the greatest differences may be expected in the latter. A return to the measurements, however, shows that this expectation has not been realized. As to the parts posterior to the first molars, it need only be recalled that the measurements at the second molars show even less difference than elsewhere.

Incidentally we have given the method by correlation a fair test both theoretically and actually. The method certainly has great limitations, for, as we have shown, certain mere geometric relations may enter into the result, giving a greater or less degree of correlation, as the case may be. This objection may not, however, hold for correlations between measurements in different planes, or between measurements of different organs, as legs and arms. On the other hand, it cannot be said that the method failed even in our case, though the result is less satisfactory than it would have been under other conditions. The peculiar range of correlation values

from positive to negative seems accounted for by the compensatory nature of growth, by which a marked deviation in one part of an organ is equalized by deviations in other parts. In correlations between distinct organs, this factor would tend to disappear.

In some respects the most important of the new data we offer is that pertaining to growth and dentition, which may be considered independently of the problem at hand. There are good reasons for expecting no growth in the anterior horizontal plane of the palate after the ninth or tenth year, in so far as many of the permanent teeth are by that time in place. The surprise at the result, if such there be, is doubtless due to an error in observation, since the eruption of the second and third molars gives the curve of the teeth a more extended appearance. The subject of growth in general is an important matter to many theoretical sciences, and it is in this field that anthropometric methods seem most fruitful.

In this study we have not considered the condition of the gums and other soft tissues, but have confined our efforts to the search for differences in the conformation of the osseous structures forming the hard palate. Naturally the teeth were taken as points of departure. That casts introduce errors of measurement is probable; but our critics should not be led astray by forgetting that such errors are either constant or accidental. If they are constant, they affect all individuals alike, — a condition of no consequence in a comparative study. If they are accidental, they will not change the average measurement, and, while the variability will thereby be increased, this increase should be constant when casts are used throughout.

In conclusion we wish to express our obligations to Professor Franz Boas for valuable criticism and guidance in many phases of the work at its inception. We are also indebted to Viola Gebhart Wissler for many of the calculations, and to Dr. R. H. Lowie for assistance in anatomical measurements.

#### TABULATED DATA.

The writers of this paper have prepared and placed on file in the American Museum of Natural History complete tables of all measurements collected by them, copies of which can be supplied to investigators at trifling expense. These tables contain the age, stature, and weight of the subjects furnishing us palate-casts. For the feeble-minded we have added head-measurements. The casts themselves may be examined upon application at the Department of Anthropology.









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IROQUOIS SILVERWORK,

BY

M. R. HARRINGTON, A.M.

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## IROQUOIS SILVERWORK.

The art of the silversmith among the Iroquois seems to have had its birth along toward the end of the seventeenth century, when, according to Beauchamp,<sup>1</sup> historical records show that silver ornaments of Indian make were first noticed by Europeans. These ornaments had apparently displaced in part those of copper and brass, which, although quite different in character, had been popular among the people. The brooches, rings, and bands of silver, Beauchamp continues, remained in vogue until the latter half of the nineteenth century, when they gradually gave way to the cheap jewelry of the whites. To-day it is rare to see native ornaments used even in the Long House ceremonies of the so-called Pagan Iroquois.

Morgan<sup>2</sup> and Beauchamp<sup>3</sup> devote but very few lines to the manufacture of silver ornaments, and merely mention some of the tools used. Knowing this, I have always been on the lookout, during my visits among the Indians, for a surviving Iroquois silversmith; but it was not until January, 1907, that my search was successful. At that time I was engaged in collecting ethnological material, on the Six Nations Reserve in Ontario, Canada, for the American Museum of Natural History. Repeated inquiries for silversmiths and their outfits of tools led at last, after several failures, and many investigations of false reports, to the discovery of an ex-silversmith in the person of Chief Levi Joe (an Onondaga), and of a nearly complete outfit of tools, once the property of his grandfather. Chief Joe is not an old man; but his vision has become defective, and he has been obliged to give up his calling. After several interviews I succeeded in buying the box of tools and in obtaining the Indian names of each piece, besides observing several of the processes, and taking a few photographs. Later the chief explained to me as much as occurred to him concerning the details of silversmithing, and made working models of several articles once belonging to the outfit, but now lost. As all his old patterns were missing, he made some new but rather poor ones, and at my request prepared for me two unfinished brooches to illustrate stages in the process of manufacture. Some months later a second visit was made, and more specimens and information were secured.

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<sup>1</sup> Beauchamp, *Metallic Ornaments of the New York Indians*, p. 10.

<sup>2</sup> Morgan, *League of the Iroquois*, new edition, Vol. II, p. 50.

<sup>3</sup> Beauchamp, *Metallic Ornaments of the New York Indians*, p. 36.

Before taking up in detail the description of Chief Joe's outfit and method of work, I will endeavor to discuss briefly the principal classes of native-made silver ornaments still found among the Iroquois. As a number of writers, including Mrs. Converse<sup>1</sup> and Beauchamp,<sup>2</sup> have given us careful descriptions of their many varying forms, it will only be necessary here to set forth a few representative types.

Most numerous of all are the brooches which may still be found occasionally in the hands of the Indians. Those, as may be seen in the figure, are flat silver disks of different sizes, ranging from about a fourth of an inch to six inches in diameter, cut into many artistic forms, and often engraved, stamped, and embossed as well. Each has a central opening, crossed by a tongue (like that of a buckle) pivoted at one end, which serves to attach it to the fabric. Six principal patterns may be recognized, which I have called: 1. Simple disk; 2. Ornate disk; 3. Star; 4. Heart; 5. Square; and 6. Masonic.

The first is merely a simple, very narrow circle of silver, usually convex above and concave beneath, with a large central opening (Plate XXIII, Fig. 1). Sometimes the narrow circle is solid instead of hollow, in which case it is sometimes decorated (Plate XXIII, Fig. 2).

The ornate disk is quite distinct from this, as the central opening is as small as possible, and the resulting broad surface of the silver, or field, is highly decorated with engraving, embossing, and openwork (Plate XXIII, Figs. 7, 8, 9). The star is similar to the ornate disk in having a small central opening; but in this case the silver field is cut into rays of varying number, forming a star-shaped figure. Each ray is tipped with a circular boss, which lends a pleasing and characteristic effect to the whole (Plate XXIII, Figs. 13, 14). The heart-shaped brooches are among the commonest forms. They generally consist of two overlapping heart-shaped figures surmounted by a device which sometimes resembles a crown, and sometimes an owl's head. The hearts are outlined by a narrow band of silver, the tongue passing across the resulting central opening; while the broader surface of the crown affords a field for engraving and openwork. A variant of this pattern represents a single heart only, with or without the characteristic crown or owl's head above (Plate XXIII, Figs. 3, 4, 5). The term "square" is rather a misnomer for the fifth type of brooch; for the two concentric figures which make the characteristic form are squares only by virtue of having four equidistant corners, the four equal sides being concave instead of straight (Plate XXIII, Fig. 10). The corners even are so blunt, as a rule, that the type might be called "octagonal." Like the heart-type, the squares are outlined with

<sup>1</sup> Converse, H. M., *The Iroquois Silver Brooches* (54th Report New York State Museum).

<sup>2</sup> Beauchamp, *Metallic Ornaments of the New York Indians*, pp. 74-94.



narrow strips of silver just wide enough to bear a little engraving, and consequently they have a broad central opening across which the tongue passes from corner to corner. Single squares occur (Plate XXIII, Fig. 11), and these like the majority of the simple disk-type, are sometimes concave beneath.

The Masonic type is merely the familiar square and compasses, sometimes conventionalized and ornamented (like the specimen shown in Plate XXIII, Fig. 15), almost beyond recognition. I may say here that most Indians do not recognize the significance of this pattern, but use it simply as an ornament.

Specimens of all the principal types of brooches are figured in this paper; but, as the many variations and aberrant forms are carefully discussed in the works above referred to, it is not necessary to take them up in detail. It is sufficient to say that the variations are effected by the different forms and sizes of the apertures and notches cut into the metal, by bosses raised at various places (notably at the ends of the rays of the star-form and around the circumference of the disks), and by the different varieties of engraving. I have seen dots, straight lines, curved lines, fine zigzags, tiny triangles, and other figures in many combinations. Life forms are very rare.

Chief Joe had names for a number of the patterns. The simple disks he called *o-ga'-hä*, which signifies "eye." The ornate-disk and star types he grouped together under the name *de-yo-dë<sup>n</sup>-hai'ë<sup>n</sup>-da'*, interpreted as "sunshine." The crowned heart brooches, double and single, were similarly grouped as *o-gō'-ji-a*, meaning "ornamental head-dress or crown;" while the single heart-form was known as *a-wë'-ya-'sa'* or "heart." The double-square type he named *de-yo-ä<sup>n</sup>-wa-g'is'-ho<sup>n</sup>*, translated as "double brooch;" the single-square form being *jo-ä<sup>n</sup>-wa-das'-ho<sup>n</sup>* (*de-yo-ä<sup>n</sup>-wa-das-ho<sup>n</sup>?*) or "single brooch." When shown a Masonic brooch of pure type, the chief told me he knew no name for that variety; but the more common conventionalized Masonic design (the kind shown in Plate XXIII, Fig. 15) he readily recognized under the name *ga-ya'-sa<sup>a</sup>*, "cross" or "crucifix," so called, he said, on account of the fact that it usually bears from two to five engraved conventional crosses. This type originated with Christian Indians, he informed me.

The only trace of true symbolism was found when the chief was questioned concerning the heart-type of brooches. He stated that the intertwined hearts surmounted by a crown represent the Iroquois nations united in friendship, and that these brooches were formerly considered a sort of badge or emblem identifying the wearer, man or woman, as an Iroquois. Chief John A. Gibson told me practically the same thing. The only outside evidence to support this idea lies in the fact that brooches of the crowned

double-heart variety are rarely, so far as I know, found outside of the Iroquois Six Nations. Mrs. Converse,<sup>1</sup> offers interpretations for many forms, and I refer the reader to her pamphlet. As there is usually a great deal of variation in statements by Indians concerning symbolism, more data should be collected; for, notwithstanding all these differences, some underlying concepts may be discoverable.

Brooches were employed for many decorative purposes, as the ornamentation of women's dresses, where they were sometimes used in great profusion, and for decorating the ribbons, head-bands, and sashes used by both sexes. I have seen them fastened also upon the wide band of broadcloth used to wrap about the infant on the cradle-board. It will be noticed that all these uses require attachment to some fabric, which was effected as follows, — a portion of the cloth was bunched together and forced up through the central opening of the brooch far enough for the tongue to be pushed through it, then, when the fabric was pulled flat again, the ornament was firmly attached. The process is shown in Fig. 1.

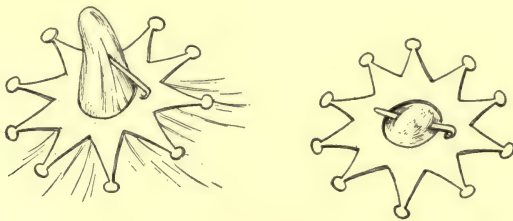


Fig. 1. Method of fastening Brooches.

Brooches are generally called *ən-yü''-skä'* in Seneca, and *dě<sup>n</sup>-ha-nīs-ta'* or *a-da-ha-nīs'-ta'* in Onondaga. Beauchamp gives *ah-ten-ha-ne-sah* as an Onondaga name for them, but this probably is a variation of the above. The Cayugas often call them *an-ya'-ska*; the Oneida, *a'-nyu'-ska-list*; and the Mohawk, *an-yü''-ska-re*. It must be understood that in all these languages there are probably several words that can be applied to each article.

Next in point of numbers to the brooches are the ear-rings, formerly widely used by both sexes, but now usually confined to a few women. The men, when wearing ear-rings at all, now generally prefer the small, plain gold hoops made by the whites. Ear-rings of native manufacture may be divided into two classes. The first type and the commonest form (Plate XXIII, Figs. 18, 19) consists of a drop, or body to the flat back of which is soldered the hinged wire passing through the ear, as shown in Fig. 2. This

<sup>1</sup> Converse, H. M., *The Iroquois Silver Brooches* (54th Report New York State Museum).

drop may be a small hemisphere, called "chestnut" by the Indians (Plate XXIII, Fig. 19), or may be large, flat, and decorated with openwork and engraving like a brooch. Sometimes it is cut into the form of a spread eagle, hawk, or other bird (Plate XXIII, Fig. 16), and sometimes has a setting of colored glass (Plate XXIII, Fig. 18). Removable pendants often hang from these drops attached to the ear-loop, usually pear-shaped, but occasionally of other forms. Now and then they are also set with colored glass, and sometimes strings of hollow silver beads are used as pendants. Another form is shown in Plate XXIII, Fig. 20. The second type embraces the plain silver hoops (Plate XXIII, Fig. 21), which are rare, and the flattened hoops or crescents, which I have heard called "half-sun" ear-rings. Common words for ear-rings are a'-wüs'-hä in Seneca, ga'-was'-ha in Cayuga, ka-wa'-sa in Onondaga, ka-was'-ha in Oneida, and de-a-ga-wa'-sa-re in Mohawk. This last word, I suspect, means a "pair of ear-rings," as the prefix "de-" often expresses duality in Iroquois languages.

Finger-rings were also of silver, either plain, or decorated with hearts or other devices engraved upon a part of the circlet made broader for the purpose, or upon a separate piece soldered upon the band, the whole having a sealing effect (Plate XXIII, Figs. 23, 24, 25, 26). In Cayuga, rings are called e<sup>n</sup>-n'ia'-ha-shra'; by the Oneida, ha-ni-sno<sup>n</sup>-so-lok'-ta; and by the Mohawk, a-nis-nu<sup>n</sup>'-sa-wi.

Bracelets and armlets were broad bands of silver, usually quite thin and pliable, with holes in the end for fastening with cords. The pair in the Museum, however, are rather thick and stiff, like the Navajo bracelets, and consequently need no holes (Plate XXIV). They are also engraved, while the usual Iroquois bracelet is fluted. They are worn with ceremonial dress.

Of similar character, although larger and more ornate, are the head-bands or crowns of silver, often about two inches wide, which frequently show elaborate and tasteful combinations of fluting, engraving, embossing, and openwork. These are now very rare, but are still occasionally used as part of the ceremonial head-dress, as shown in Plate XXIV. Morgan<sup>1</sup> illustrates globular silver beads used with wampum as a necklace, and I have sometimes heard of double and foliated silver crosses made by the Indian silversmiths, and used as ornaments. Chief Joe, without any suggestion on my part, made for me a tin pattern for a double cross to go with

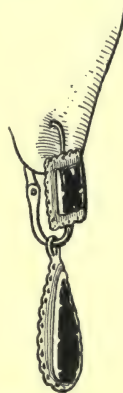


Fig. 2. Method of fastening Ear-Rings.

<sup>1</sup> Morgan, *The League of the Iroquois*, new edition, Vol. I, p. 254.

the rest of his outfit of tools. There is also a variety of silver ornament which I have never seen described, the silver nose-ring. The only specimens of this that I have seen were in the possession of King Tandy Jimerson, a Seneca of the Alleghany Reservation in western New York. There were two, I believe, of crescent-shape, the tips of the crescent approaching each other in such a way that the ornament could be pinched fast upon the septum of the nose. At least one of the specimens seemed old, but I doubt if the style was widely distributed.

We will now turn to a description of the tools with which these things were made, so far as they are represented by the contents of the battered tin box which Chief Joe found for me in the loft of his little cabin on the banks of the Grand River. The Indian names here given for the tools, as mentioned before, are probably not the only ones that could be applied to them, and it is possible that errors have crept in through imperfect interpretation. It is unfortunate that time would not permit my working out the literal meaning of the names themselves. The outfit as a whole is called *Ē-wis-ta-no-wě<sup>n</sup>-tsě<sup>n</sup>-nia''-ta'*, and consisted of the following:—

Anvil, *De-ye-da-gwě<sup>n</sup>-dě<sup>n</sup>-da''-kwa'* (Plate XXVI, Fig. 4). This is naturally one of the most important articles of the outfit. It is a rectangular block of cast-iron, four inches and a half long, two inches wide on the top where the hammering was done, and three inches high. A perforation and some figures on the broadest sides seem to show that it was evidently made by the whites for use as a scale-weight; but the battered top, scarred with the marks of the silversmith's chisel, tells the story of its Indian use.

Hammers, *Ga-jī'-kwa'* (Museum Nos. 50-6692, 50-6796). A large hammer, used to flatten out the silver to proper thickness, is shown in Plate XXVI, Fig. 1. Another specimen, a small one, is for fine cutting and stamping. It consists of a rude head of iron attached to a thin wooden handle, the whole being but little over six inches in length. This is figured in Plate XXV, Fig. 15.

File, *Ha-de-ge<sup>n</sup>-tsä'-niē* (Museum No. 50-6694). This is an ordinary three-cornered file bought at some store. The only interest attaching to it is in the fact that the end is worked down to a triangular point, which would do excellent service as a drill or reamer for perforating thin silver (Plate XXV, Fig. 14).

Pincers, *Do-was-jī-ē-ta'* (Museum No. 50-6693). The pincers or pliers, rather rude yet serviceable, are of iron, made apparently by some county blacksmith. The rounded jaws were very useful in bending finger-rings and ear-ring loops (Plate XXV, Fig. 10).

Chisels for curves, *Ē-iák'-ta'* (Museum Nos. 50-6698, 50-6699). At first there were in the collection only two chisels for cutting along curved lines;

but two more were afterwards found. The first two are made of old jack-knife blades (Plate xxv, Figs. 20, 21). The truncated end of the larger one is filed to an edge like that of a gouge, in the form of a curve. The point of the second is very narrow, but is straight, the curve being produced by a succession of short cuts which were afterwards joined, and the resulting ragged edge filed smooth. Of the second pair found, one is a store-bought gouge, while the other is made of an old carving-fork handle.

Chisels for straight cuts, *Dē-ē-ia-k'-ta'* (Museum Nos. 50-6695-6697). There are in the collection, three chisels for cutting along straight lines, the most important of which is also made from an old jack-knife blade, whose battered base tells of long use. Its edge is five-sixteenths of an inch wide. With a longer edge (three-fourths of an inch) is another chisel, originally a cutter for a blacksmith's anvil. The third specimen (a small one, with an edge three-sixteenths of an inch) was actually made for a cold-chisel; but the Indian silversmith has purposely dulled, even squared, its edge, for use in fluting bracelets, head-bands, etc. (Plate xxv, Figs. 8, 9, 19).

Awls, *Ē-hak-ta''-so-a* (Museum Nos. 50-6703-6706). Three true awls and an ear-piercing implement were classed together under this name by Chief Joe. The largest is part of an old knife-blade filed down to the form of an awl, whose cross-section would be almost exactly square. Although the blade is hardly three-fourths of an inch long, the hardwood handle is fully four inches and a half long, and nearly three fourths of an inch thick. The second awl is similar in section, but is made of a broken drill-blade, and set in a smaller handle; while the third is a large broken needle similarly mounted, whose end has been sharpened by filing to an angular point (Plate xxv, Figs. 23, 24, 25). The ear-piercing awl is an ordinary needle mounted in a wooden handle like the rest (Plate xxv, Fig. 22).

Gravers, *Ē-ia-na'-da'-kwa'* (Museum Nos. 50-6700-6702). There are three gravers, all similarly mounted in crude home-made wooden handles. The largest is more like a chisel, having its edge bevelled from one side only, but seems nevertheless to be made of an old knife-blade. The other two have the bevel from both sides, like a drill; but the use of all three is similar, according to their former owner (Plate xxv, Figs. 11, 12, 13).

Die-plates and stamps, *E-ji-ni-u-gú<sup>n</sup>-nia-ta'* (Museum Nos. 50-6805 A-B). The die-plate, used mainly for embossing, is a little block of iron about two inches long by an inch wide and a little less than a fourth of an inch thick. On its top surface are four hemispherical concavities of varying size, which served as dies. The largest, for working ear-drops, three-eighths of an inch across; and from this the dies for embossing range down to less than an eighth of an inch in diameter. The edge of the plate is roughly

bevelled. For each die there is an appropriate stamp or punch whose convex end fits into the concavity. Little can be said of these punches, except that they show evidences of long use, and, like the die-plate, seem to have been made especially for this purpose by some blacksmith, or perhaps some Indian with a smattering of iron-working knowledge (Plate xxv, Figs. 3, 4, 5, 6, 7). There is also a punch or stamp, the end of which has been filed into a pear-shape to form the pendant cone often used with ear-rings; but the die belonging to it is missing from the set (Plate xxv, Fig. 17). For making hollow simple-disk brooches is the lead die-plate (Plate xxv, Fig. 1) secured on the second trip. This bears a smooth circular groove the size of the future brooch, into which the thin metal is pressed with the aid of the punch (Plate xxv, Fig. 2). This outfit bears the special name O-ga-hē' gwa'-ē'-sā<sup>n</sup>-nia-ta'.

Cutter, O-ga-hē-gwa'-ē-yak'-tha (Museum No. 50-6801). This is a piece of iron bent into pipe-form and the edge of one end sharpened all around. It is made for cutting out disks of silver for brooches (Plate xxv, Fig. 16).

Spreader, De-ie-da-gwai-da'-kwa' (Museum No. 50-6707). This is a chisel-like implement used especially to spread the split in the wire to make the hinge in the loops of ear-rings. If it were not for its straight chisel-like lines and home-made handle, one might take it for a screw-driver (Plate xxv, Fig. 18).

Lamp, Ē-jīs'-to-da-kwa' (Museum No. 50-6723 A-B). This is merely an old rectangular sardine-can with lid removed and edges rounded. The wick is a twisted bit of rag, which when in use protrudes above the edge at one corner. Almost any inflammable oil or grease seems to have been used. The wick of the present specimen shows traces of having been used with sperm-oil, which of course is modern (Plate xxvi, Fig. 5).

Patterns, De-yo<sup>n</sup>-de'-ni-ē<sup>n</sup>-dē<sup>n</sup>s'-ta'-kwa' (Museum Nos. 50-6714, 6716). All the old patterns belonging to this collection are unfortunately lost; but Chief Joe made two new objects out of tin; one a crude representation of the star brooch, the other a very fair double cross (Plate xxiii, Figs. 22, 27). Mrs. Converse, in her "Iroquois Silver Brooches," mentions the fact that one silversmith had a collection of patterns made from the zinc back of an old washboard.

Box, Ga-hū<sup>n</sup>-sā (Museum No. 50-6690). This little tool-chest, resembling a trunk in form, is made of tin, and is provided with a handle and hasp. It is evidently of white man's make. The dimensions are eight inches and a half by five inches and a half by four inches and a half. All the smaller tools, patterns, etc., were kept in this.

Moulds, Ē-jī-sta'-hā-kwa' (Museum Nos. 50-6719-6721). There are

three moulds in the collection, one of which, the smallest, has been used. The others are merely models. The term "furnace" might well be applied to them also, for they are used for both melting and casting. The old specimen is made of a rather irregular block of hardwood some five inches square and three inches and a half thick. In one of its broad faces is cut a rectangular hole with converging sides about three inches wide and a little less than an inch deep, leaving a flat area in the middle. In the centre of this the mould proper was neatly cut, about an inch and a half long by half an inch wide and a fourth of an inch deep. Into this melted silver flows. The whole specimen shows the effect of long use, being heavily weathered and charred. The new moulds are larger and not so deep, the larger casting an ingot ten inches long by an inch wide, the smaller about seven inches long (Plate xxvi, Figs. 3, 6).

Blowpipe, U<sup>n</sup>-wè<sup>n</sup>-da'-sta' (Museum No. 50-6722). This is a model, and is made of a hollow sumach-stick some fourteen inches long and an inch and a fourth thick, with one end cut to form a rude mouthpiece, but without a nozzle (Plate xxvi, Fig. 2).

Poker, Tē-yē-jī-sta-wè<sup>n</sup>-yē'-da'-kwa' (Museum No. 50-6723). This is a wire at the end of, and inserted into, a wooden handle. It was used for raking up the coals on the mould-furnace above described.

Chief Joe mentioned a number of articles as being missing from the collection, of which the most important are the patterns, of which he furnished only two, both models, and poor at that. There should be patterns for every type of brooch and for the different parts of finger-rings and ear-rings. There are also missing the die-plate belonging with the stamp used for making pear-shaped ear-pendants, and probably other articles.

For the sake of comparison and to fill up these gaps, if possible, it was thought best to examine another Iroquois silversmith's outfit. The only other one<sup>1</sup> known to the writer is in the collection of the Montgomery County (New York) Historical Society, who kindly loaned the set to the Museum for study. This outfit, also of Onondaga origin, is very rich in small tools, and contains besides a number of old patterns. Glancing over the collection, one is struck at once with the fact that most of the cutting-tools are made of old files, in contrast to those bought of Chief Joe, which were mainly made of old knife-blades. The only gravers are files sharpened down at one end to a narrow chisel-like blade. Awls are represented by one specimen only. Still the general character of both collections is very similar. The die-plates are of lead, with holes for both round and pear-shaped stamps,

<sup>1</sup> Since writing the above, I collected a similar outfit from the Oneidas, which is now in the E. T. Tefft Collection in New York.

of different sizes (Plate xxvii, Fig. 11). It will be remembered that Chief Joe's plate to fit the pear-shaped stamp was missing. These stamps differ from those of Chief Joe in having provision for stamping out the halves of the pendants and the loops, for attaching them in the same operation, instead of making the loop of wire and soldering it on afterward as he would have done. All the die-plate holes have been made by hammering the stamps into the soft lead. Two pairs of pincers are of the ordinary commercial variety, although the jaws of one (Plate xxvii, Fig. 12) have been filed small and round for convenience in bending. But the third (Plate xxvii, Fig. 7) has been very ingeniously made of heavy wire, the natural spring of which holds the jaws firmly together. There are also two stamps for making tiny decorative circles on the faces of silver ornaments (Plate xxvii, Fig. 2), an implement also missing at first from Chief Joe's outfit, although obtained on a second visit. To make these, file-fragments have been worked down to a round point, which is truncated, and drilled out so as to produce the required circle when struck against the face of the silver. Another similar implement has simply a small rounded point for making the dots so often seen in the decorations on Iroquois silverwork.

Another unusual article is part of an old file with the end cut into a symmetrical crown-shaped stamp, the imprints of which could be combined in attractive patterns on the larger silver ornaments (Plate xxvii, Fig. 1). Still another implement (Plate xxvii, Fig. 4), resembling a curved chisel with purposely blunted and rounded edges, seems to have been used for rendering convex the narrow band of the single-disk brooch and for similar purposes. One of this kind was later obtained from Chief Joe (Plate xxv, Fig. 2), together with its die. The blowpipe belonging to this set is the regulation form, of iron, and is evidently of white man's make. There are quite a number of broken implements which may be accounted for by the hard and brittle quality of the steel in the files which furnished the material of which so many of the tools were made.

Several implements occur in the Historical Society's collection whose use is a puzzle to me. One is a very old piece of wood in the form of a thick paddle. There are also two stamps made of old files, with triangular stamping-faces which resemble in a certain way the rounded one used for embossing and making hollow ear-pendants (Plate xxvii, Fig. 3); but I have never seen an ornament made with this form of stamp, nor is there a die-plate to fit them in the collection.

There are five patterns, — three of the ornate-disk type, one of the masonic, and one of the typical double-heart form. (Plate xxvii, Figs. 13-17). The last is apparently a silver brooch used as a pattern on account of a crack, which put an end to its value as an ornament. The others are



made of zinc, especially for patterns, and show careful workmanship. In appearance they differ from a brooch in having no tongue and in the comparative roughness of some of them. Both curved (Plate xxvii, Figs. 5, 6) and straight chisels are especially well represented in the Society's collection. Besides larger tools already mentioned, there are many odds and ends which the Museum's outfit lacks, such as specimens showing the making of hollow beads, etc., with the die-plate and stamp (Plate xxvii, Fig. 9), a bit of colored glass for setting in an ear-ornament (Plate xxvii, Fig. 8), some rosin for soldering, etc.

The description of the manufacture of silver ornaments presented here was derived from actual observation of some processes, and from descriptions of others furnished by the chief himself. It is not claimed that these are the only methods used by Iroquois silversmiths; but Chief Joe assures me that they were commonly employed by him and by his grandfather before him.

Brooches were usually made out of coins. A coin of proper size having been secured (in this case a Canadian dime), the chief laid it upon the anvil and carefully beat it with a heavy hammer (in this instance a common claw-hammer, because the original was mislaid) until its diameter was increased nearly an inch and its thickness reduced to little more than that desired for the finished brooch. During the process, he took care to keep the pounding evenly distributed and the blank of uniform thickness. The metal was pounded cold, without even annealing. To illustrate this process, I secured a coin pounded out to the proper thickness (Plate xxiii, Fig. 6) for a brooch, and two pieces of a silver spoon thinned out by hammering, to be cut into wires for brooch-tongues and ear-ring loops. The pounding finished, the next task was to smooth the face of the blank with a file, and lay it off along the lines of the future brooch. Chief Joe had planned for a star brooch in this instance, and to this end had made a tin pattern (Plate xxiii, Fig. 27) of approximately the shape and size that he wished for the completed ornament. "We always cut patterns of tin or something cheap," he said, "for all the different kinds of brooches and crosses we want to make." Laying this pattern where he could see it, he perforated the centre of the blank with one of the awls. Then using the pincers as dividers, holding their jaws apart with one of the chisels, he laid off a circle to mark out the central opening of the brooch, the tip of the pincers making distinct scratches. The coin before mentioned, in the Museum collection, has a circle laid off by this means. The points about the periphery, where the rays of the star were to terminate in bosses, were then marked out and the arms themselves indicated. When a good pattern was available, the procedure was somewhat different. Instead of laboriously drawing circles with pincers, and

outlining other features freehand, the pattern was laid directly upon the blank, and its outline followed and marked into the silver with an awl or other pointed instrument. The next process was to make the bosses. This was done by laying the edge of the blank over the smallest hole on the die-plate, and forcing the metal into it with the appropriate stamp driven home by a sharp blow of the hammer. (Plates xxviii and xxix). This made neat and uniform bosses. The lines made in laying out the brooch were then followed with curved and straight chisels, and the surplus metal cut away, leaving the star brooch nearly completed. During the whole cutting-process, the blank lay upon the anvil. The next step was to smooth and trim the edges with a file, then to decorate the surface of the brooch. The second unfinished brooch in the collection illustrates this stage (Plate xxiii, Fig. 12). The so-called engraving was done more by stamping than by cutting, although no regular form of stamp was used. The straight chisel, lightly tapped, made a fairly long straight line. Round and triangular dots were formed by implements whose points had been filed into shape for the purpose. Curved lines and ovals were made by combining the imprints of curved-edge chisels; while short straight lines were the imprints of the chisel-like gravers. Two or more such graver-strokes made crosses. The most important use of the gravers, however, lay in making the zigzag lines, frequently of extreme delicacy and fineness, which form some of the most striking and artistic patterns found on the Iroquois ornaments. In this case the graver is not struck with the hammer, but is pressed firmly against the silver, and pushed forward with a strutting motion; the hand holding the graver moving from side to side the while. It is remarkable to note the skill with which this instrument is guided. As might be expected, the small zigzags are produced with a fine graver, the larger with a graver of broader edge.

When the brooch had been engraved, the next step was to perforate (with an awl) a small hole near the edge of the central opening to receive the hinge-end of the tongue. To make the tongue, a slender strip or wire was cut with the straight chisel from a larger piece of silver, as is shown by the hammered spoon-handle mentioned before, and this was filed and bent into proper shape, and put into place. The brooch was then completed.

As before intimated, the convex hollow circle of the simple-disk brooch was made by driving the edge of a flat disk of silver into the circular groove of the specially made die-plate by repeated strokes of a suitable punch (Plate xxv, Figs. 1, 2), thus forming an embossed circle. The metal within the circle was then cut out and the edges trimmed, when the ornament needed only polishing and a tongue to be complete. An unfinished brooch of this kind is shown in Plate xxiii, Fig. 17.

Making ear-ornaments was more difficult, because these often required hollow drops and pendants, and sometimes settings of colored glass, as well as a hinged wire loop to go through the ear. Of course, in the plain hoop ear-rings these difficulties did not appear. The silver was hammered out, marked off, and cut in approximately the same way as for brooches. For the hemispherical or chestnut ear-drops (the most common shape), two circular pieces of silver were cut out, one larger than the other. The latter was laid over the largest hole in the die-plate, and driven in with the proper punch and a hammer until it formed a hollow hemisphere. When the edge had been filed, the opening was closed with the flat circular disk, and the two soldered together. This was effected by placing between them a few bits of lead, and holding them over the flame of the lamp by means of the pincers, turning them as the lead melted. The pear-shaped pendants were also hollow, and prepared in two parts (equal this time), and pressed into form in a pear-shaped die (missing from our set) with the pear-shaped stamp. Most of the hollow ear-drops exhibit decorative engraved patterns, while the pendants show designs formed by grooves in the metal. When I asked Chief Joe how these were made, his answer, as nearly as I could understand it, was to the effect that the decoration on the drops was made with a file and small punch after the pressing was done, but that, with regard to the pendants, the dies and stamps were themselves engraved with the patterns beforehand, which were thus consequently communicated to the silver. The part concerning the ear-drops is evidently true; but, on thinking it over, I have come to the conclusion, that as all the dies and stamps I have seen have been plain, and all the hollow ear-pendants decorated, he must have meant that the patterns were stamped into the silver before the metal was pressed into form. The setting of ear-drops and pendants with pieces of colored glass was effected by first cutting a long flat strip of silver with a series of equal projecting points along one side; then this was bent into the form of the setting, and soldered fast, on edge, upon the face of the ear-drop; the points, of course, being upward. When the glass had been inserted, the points were bent down, holding it firmly. Sometimes an embossed sheet of silver, cut to proper form, was placed beneath the glass, so that the patterns would show through. The glass was shaped with a file. The wires intended to pass through the ear-lobes were, like the tongues of the brooches, first cut with a straight chisel from a large piece of hammered silver; and there were four pieces in all, two for each ear. The ends of two of these short wires were split with the straight chisel, and spread with the spreader before mentioned. The ends of the other two were then filed into tongues, fitted into the splits, and riveted fast, forming hinges. There were now two wires, which were filed round and smooth, then bent carefully

and slowly with the aid of the pincers into a C-shape, one end of which was soldered upon the lower edge of the back of the ear-drop, the other fitted into a little hole or socket near the upper edge, as shown in Fig. 2. This held the ornament secure when in use.

Head-bands and armlets required another process, casting, which was accomplished in a simple and, to my mind, ingenious way by means of the hardwood moulds previously described. When in use, the trough of the mould was filled with glowing hardwood coals upon which were distributed bits of silver in sufficient quantity to fill the mould when melted. Then the wooden blowpipe came into play; and the coals, by steady blowing, glowed with so much heat that the silver melted, and ran down into the mould below. Sometimes, in order to get the metal into such shape that it would be evenly distributed, it was necessary to cast a number of small bars in the small mould, and then cut them up to be laid upon the coals of one of the large ones. The bar, once cast, was carefully hammered thin, growing larger and broader with every stroke until the proper dimensions were reached. It was then filed smooth, laid off, fluted, cut, and engraved in much the same manner as a brooch. Frequently the head-bands show the art of the Iroquois silversmith at its best. Everything is dainty, symmetrical, artistically planned, practically perfect. The fluting was done with a wide chisel whose edge had been purposely blunted and rounded.

Chief Joe did not mention finger-rings; but these were apparently often made in two pieces, which we may call the band and the seal. These were soldered together after being cut out, decorated, and bent by processes before described. As before mentioned, some rings were plain bands. Others had no seals attached separately; but the band was broadened and decorated at some one point, producing the same effect.

Before concluding, a few words concerning the origin of the art of silver-smithing among the Iroquois may not be out of place. Of course, such a discussion must necessarily be almost entirely theoretical. Taking the brooches first, it seems possible that we may look for their ultimate origin in the ornaments of copper, mica, and other materials thought to have been sewed or tied upon garments as ornaments by many tribes of the precolonial period. As Beauchamp says, "Apparently the brooch was an evolution from the gorget, for some (early) ornaments of this kind were tied on, not buckled." He mentions and figures such a crude brooch-like ornament of copper found on an Onondaga site of 1677.<sup>1</sup> It is difficult to surmise how the buckle-tongue fastening originated, or, if borrowed, whence it came.

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<sup>1</sup> Beauchamp, *Metallic Ornaments of the New York Indians*, p. 77. Moore found brooch-like gorgets of copper in prehistoric Alabama mounds (Moore, *Certain Aboriginal Remains of the Black Warrior River*, pp. 198, 219).

Perhaps the idea was in some way derived from the old-fashioned shoe or belt buckles of the colonists. Examining the patterns, the Masonic type speaks for itself, as being clearly of European origin; but the other forms are not so easily traced. The heart-type, surmounted by an apparent crown, looks suspiciously European also; but we cannot prove that the heart, which occurs so often in all kinds of Iroquois carving and beadwork, is not a pattern native to the people. The crown-shaped ornament above possibly represents a feathered head-dress, or sometimes an owl's head.

As for the star-form, we can find similar many-rayed designs on the painted robes of the Plains Indians. Squier<sup>1</sup> reports an ornament in the shape of a four-pointed star, made of copper and shell wrapped in thin beaten silver, found in a prehistoric mound at Mound City, O. It is not even necessary to suppose that the silver head-bands of the Iroquois were copies of the royal crowns of England or France. Granted that the Indians could invent a star-shaped brooch whose rays terminate in bosses, they would very naturally cut the top of the silver head-band into similar ornamental rays. Still the resemblance to a crown is at least a remarkable coincidence.

In form and especially detail, the ear-ornaments show considerable originality; but in the hinged wire loops for attachment to the ear we see a European invention. Italian women on the streets of New York to-day wear ear-rings fastened in the same identical fashion. The custom of wearing metallic ear-ornaments is, however, of by no means recent origin in North America. The so-called "mound-builders" wore spool-shaped ear-plugs of copper, often coated with thin hammered silver. Squier quotes an account of the Virginia Indians of the sixteenth century,<sup>2</sup> in which an explorer reports that he saw "two small pieces of silver grossly beaten, hanging from the ears of a Wiroance." Turning to the decoration, we see that one ear-ring pattern, the spread eagle with scroll and shield, is plainly derived from that stamped on United States coins; yet I have seen hawk and other bird patterns that were not necessarily borrowed. The finger-ring is probably a relic of Jesuit influence, as are the silver crosses occasionally seen. Arm-bands are probably of ancient origin, at least in idea.

As for the art as a whole, its origin is not made clearer by what can be learned from observations on different ornaments themselves and their possible beginnings. We know that several prehistoric Indian peoples in the eastern part of North America were experts at hammering copper, embossing, engraving, and excising the metal much as the Iroquois do silver; and it is reported that they sometimes used silver also. Some of their products will bear favorable comparison with the best works of Iroquois silver-

<sup>1</sup> Squier, *Antiquities of the State of New York*, p. 291.

<sup>2</sup> *Heriots Voyages*, 1586, in Pinkerton, Vol. XII, p. 574.

smiths, with all the latter's modern tools. There are even spread-eagle and brooch-like patterns found on copper plates in the mounds<sup>1</sup> in such widely separated localities as Georgia and Illinois. Thomas, however, thinks these copper ornaments were probably made with European tools or by Europeans, simply on the ground that they are too good to be the work of a stone-age people. But other authorities, such as Putnam and Saville, disagree with him; and the inimitable Cushing<sup>2</sup> clinched the matter by reproducing the ornaments, with all their embossing and open-work, from a nugget of copper with stone and bone implements only. The simple and ingenious methods by which these results were obtained he learned from the Zuñi Indians.

I think I have made it clear that it is, then, not necessary to look outside of America for the mother of the Iroquois art of silversmithing. It is also plain that European influence was very powerful both at its birth and during its development. In fact, if we call the ancient American hammering of metal the mother of this art, we can say that its father came from across the ocean. Nevertheless, it has acquired a character all its own, and bears the impress, not only of the adaptability of the Iroquois, but of his originality. In this light we may consider it worthy of study.

In conclusion, a partial list suggesting the wide distribution of silver ornaments among the Indians may prove of interest. No attempt has been made at completeness, the data being only such as have come to my notice. To my personal knowledge, silver ornaments have been made by the following tribes: Oneida, Onondaga, Cayuga, Seneca, Delaware, eastern Ojibwa, Seminole of Florida, Chotaw of Mississippi, and Koasati of Louisiana. The silversmith's art of the Navajo and some tribes of the northwest coast is, of course, well known. Among the other tribes from whom silver ornaments have been reported are the Tuscarora, Mohawk, Cherokee, Mohegan, Penobscot, Micmac, Sac and Fox, Dakota, Pawnee, Osage, Acoma, Apache, Yuchi, Creek (other than Koasati), and Chitimacha.<sup>3</sup> It is not certain whether all of these tribes manufacture such articles, but the probabilities are that many of them do so. Most tribes addicted to silver ornaments use some of white man's make, and some obtained from other tribes in addition to those of home manufacture.

Further investigation of the distribution and character of Indian silversmithing might lead to interesting results regarding the origin and dissemination of that art. I suspect that the southeast might furnish the connecting

<sup>1</sup> Thomas, *Mound Explorations* (12th Annual Report of the Bureau of Ethnology), Plate XVII, and Fig. 192.

<sup>2</sup> Cushing, *Primitive Copper Working* (*American Anthropologist*, January, 1894).

<sup>3</sup> The Museum collections contain silver ornaments from the Dakota, Pawnee, Fox, Ojibwa, and Delaware Indians in addition to those of Iroquois origin. For Dakota designs on silver, see this publication, Vol. I, Part II, pp. 44, 52.

link between the metal-working of historic and prehistoric times; for many of the silver brooches and pendants of the Seminole and other Muskogean peoples present a strong similarity to the prehistoric ornaments of copper found by Moore in the mounds of the region formerly their home.





## ACKNOWLEDGMENTS.

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The publication of scientific papers by the Museum may be said to have begun with the establishment of the annual Bulletin now in its twenty-fourth volume. In 1893, a series of memoirs was established of which a number of volumes have been assigned to anthropology. These volumes have been issued in two series; the Memoirs of the Jesup North Pacific Expedition to comprise twelve volumes, and a series of general anthropological memoirs of unlimited extent of which five volumes have been completed. Previous to 1907, the minor anthropological articles appeared in the annual Bulletin; but since even minor anthropological articles are necessarily of considerable length and require a great number of illustrations, they are ill adapted to publication in a bulletin. In consequence the Trustees authorized a new series of publications under the caption, Anthropological Papers of the American Museum of Natural History. In closing the first volume of this series, the Editor wishes to express his great obligation to Dr. J. A. Allen, Editor of the Bulletin and Memoirs, for guidance and expert advice in the formative stages of the work. He also feels indebted to Miss M. L. Taylor for technical advice, the revision of manuscript and proof-reading.

THE EDITOR.



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FEATHER PONCHO.





FEATHER PONCHO.







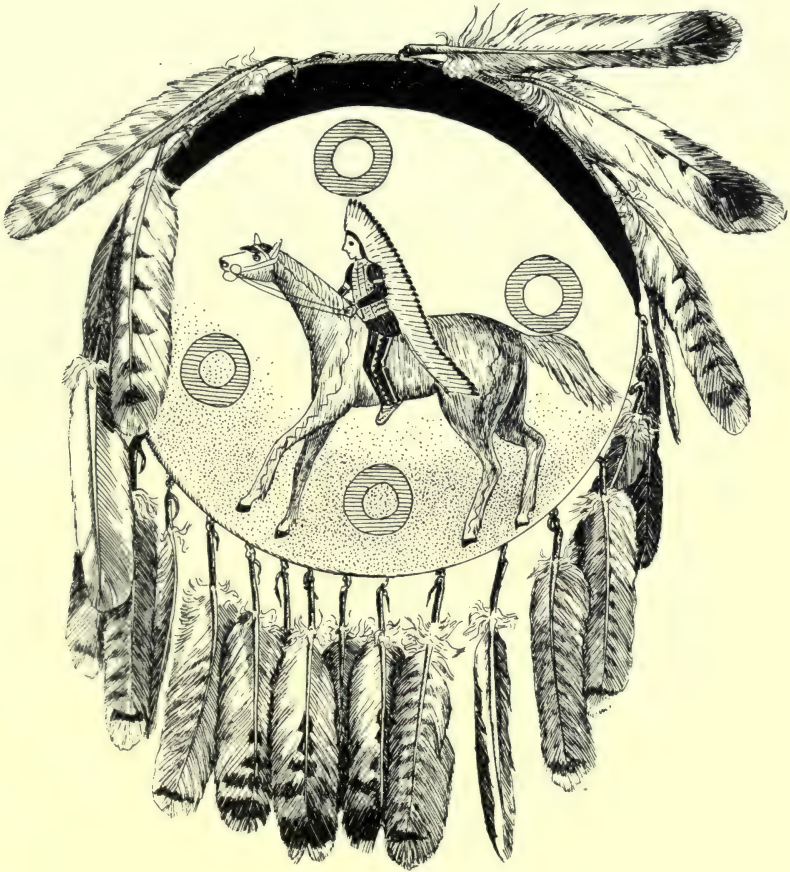
FEATHER HEAD-DRESS.





KARAJA FEATHER WANDS.





MODEL OF A SHIELD.





SHIELD-DESIGN ON A CAPE.





MODEL OF A SHIELD.

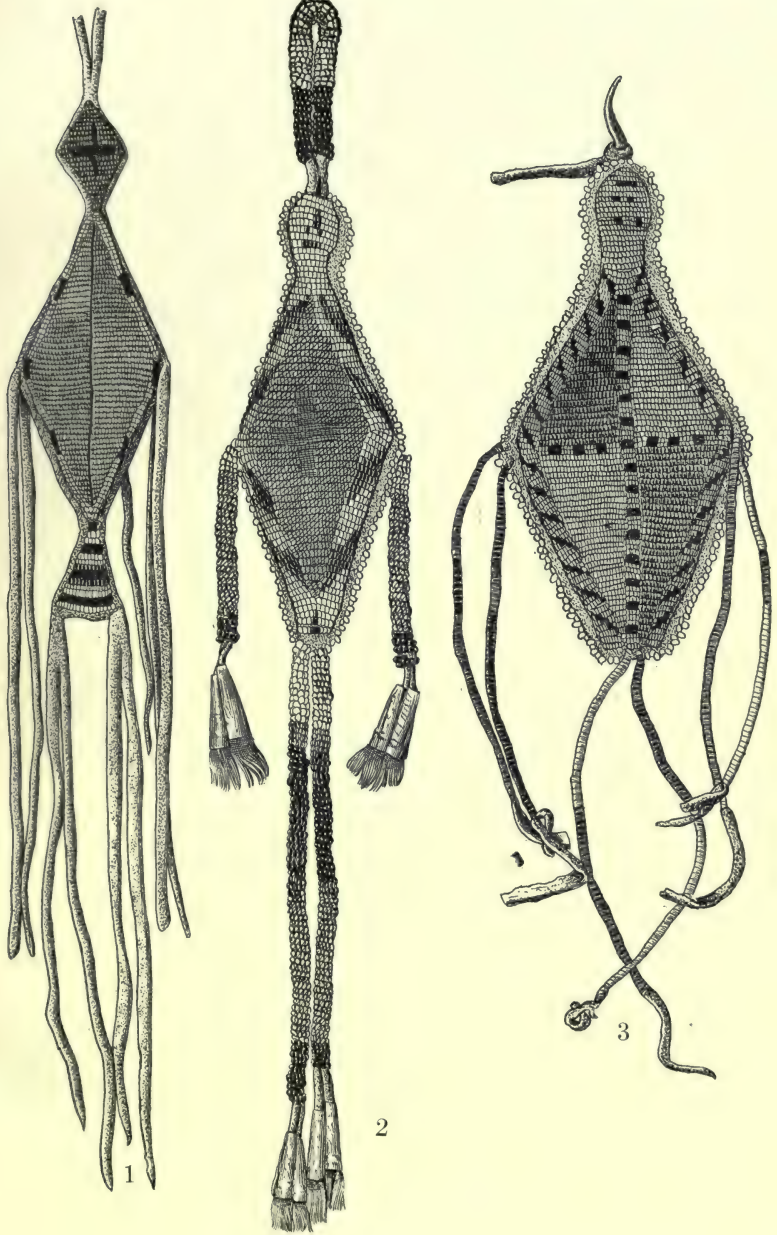






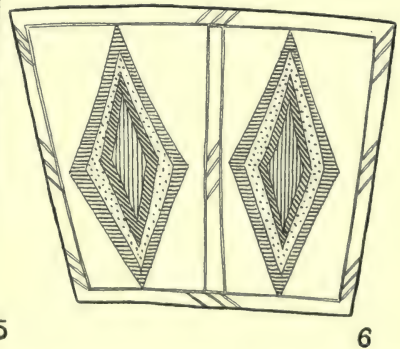
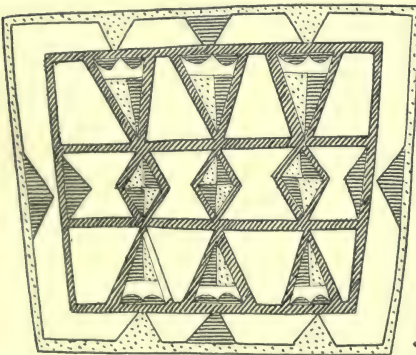
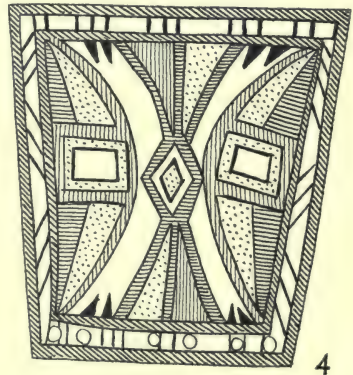
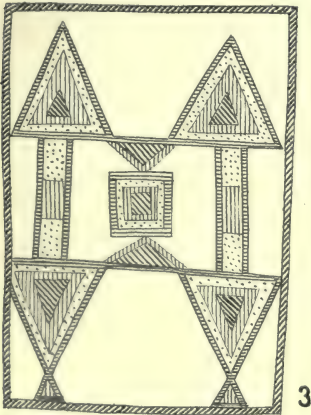
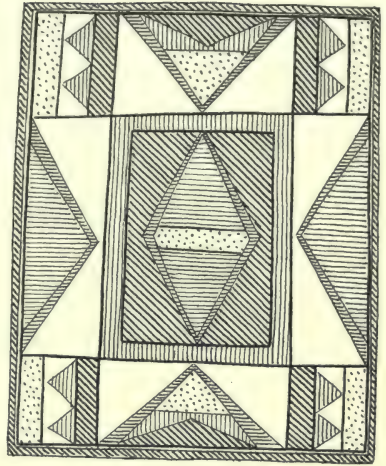
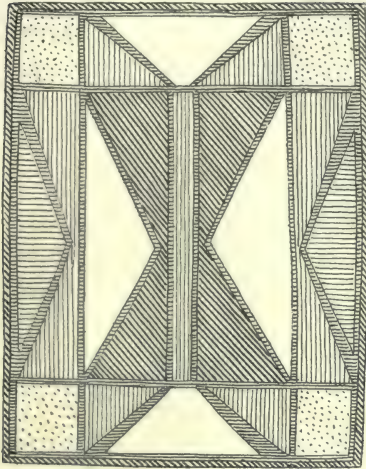
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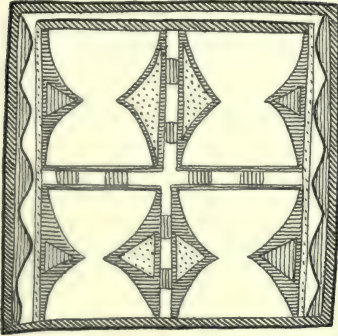


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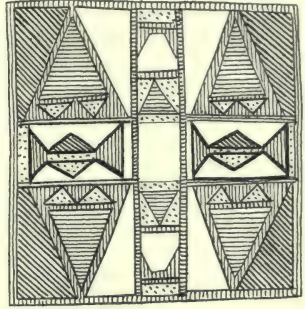




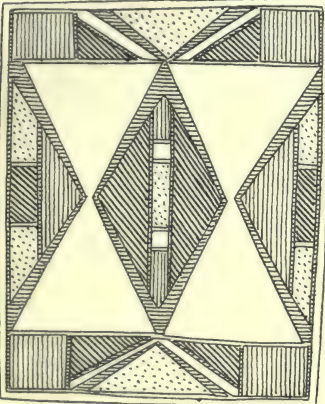




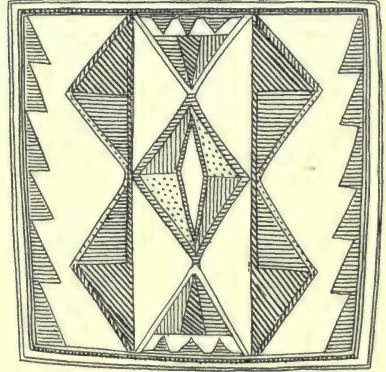
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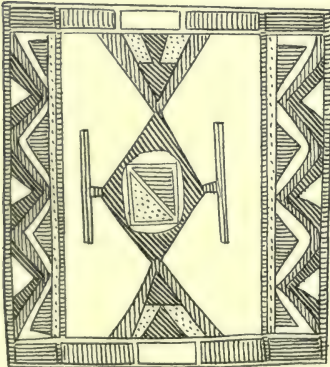
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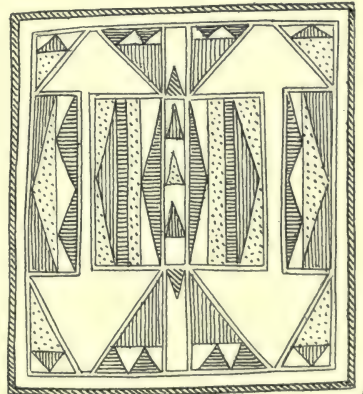
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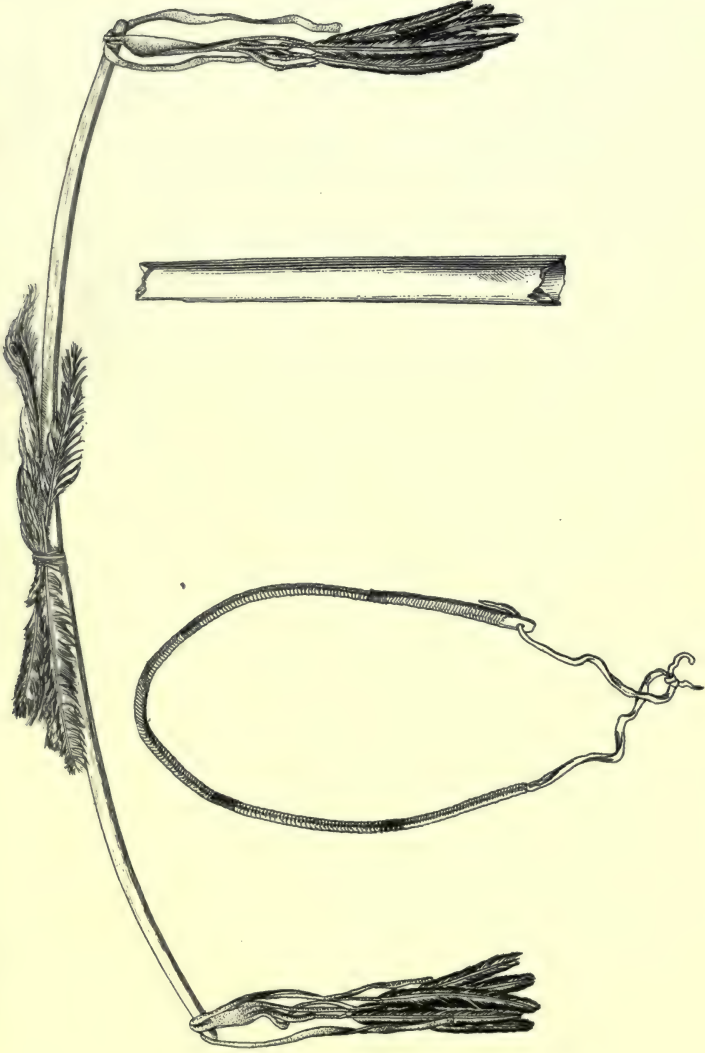
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6







CRAZY-DANCE BOW AND PARAPHERNALIA.





HEAD-DRESS FOR THE DOG-DANCE.





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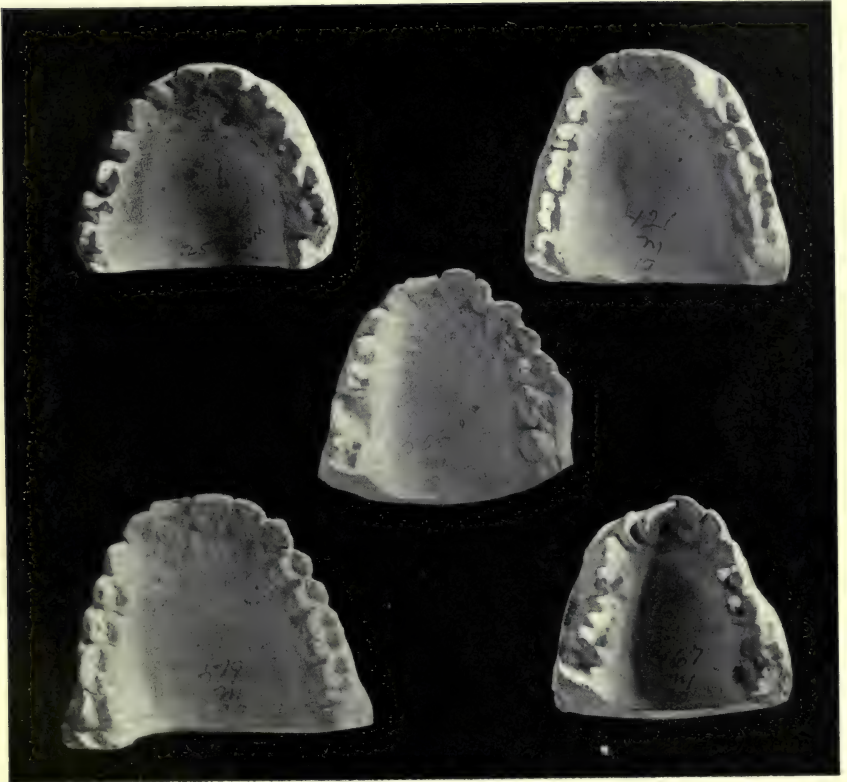




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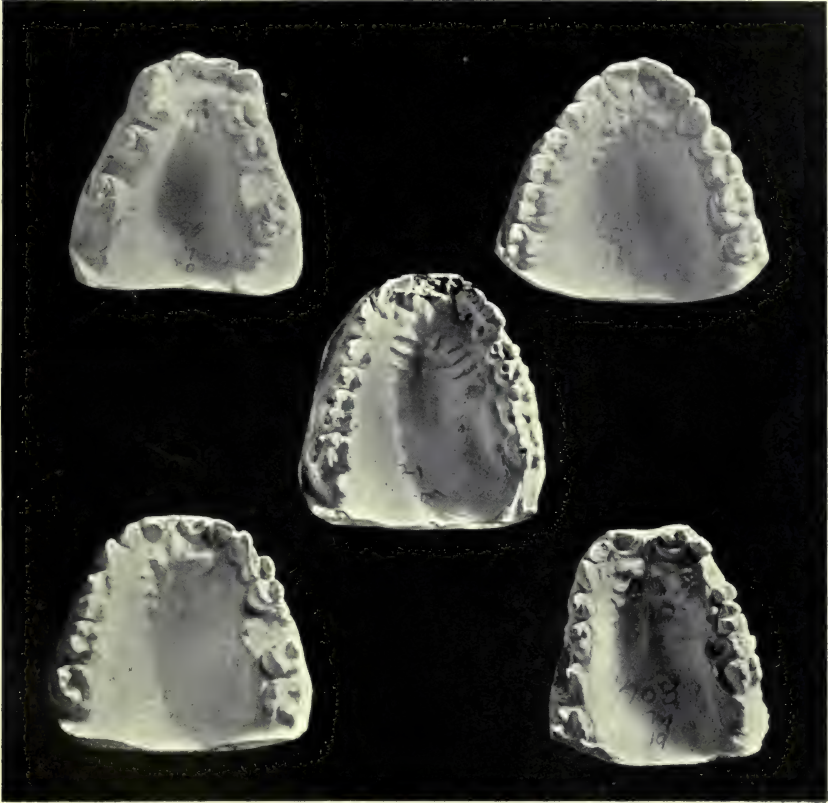






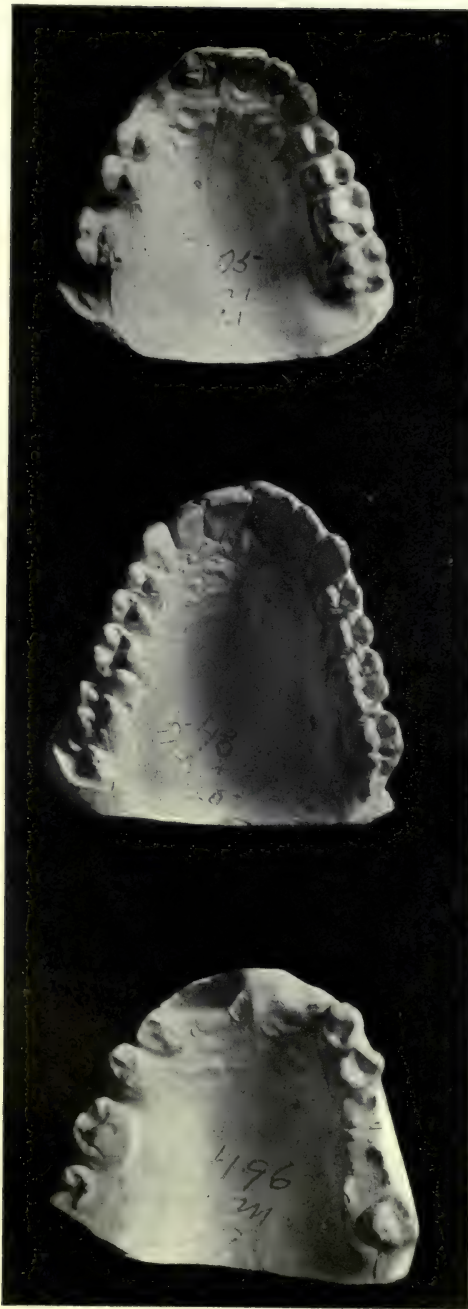
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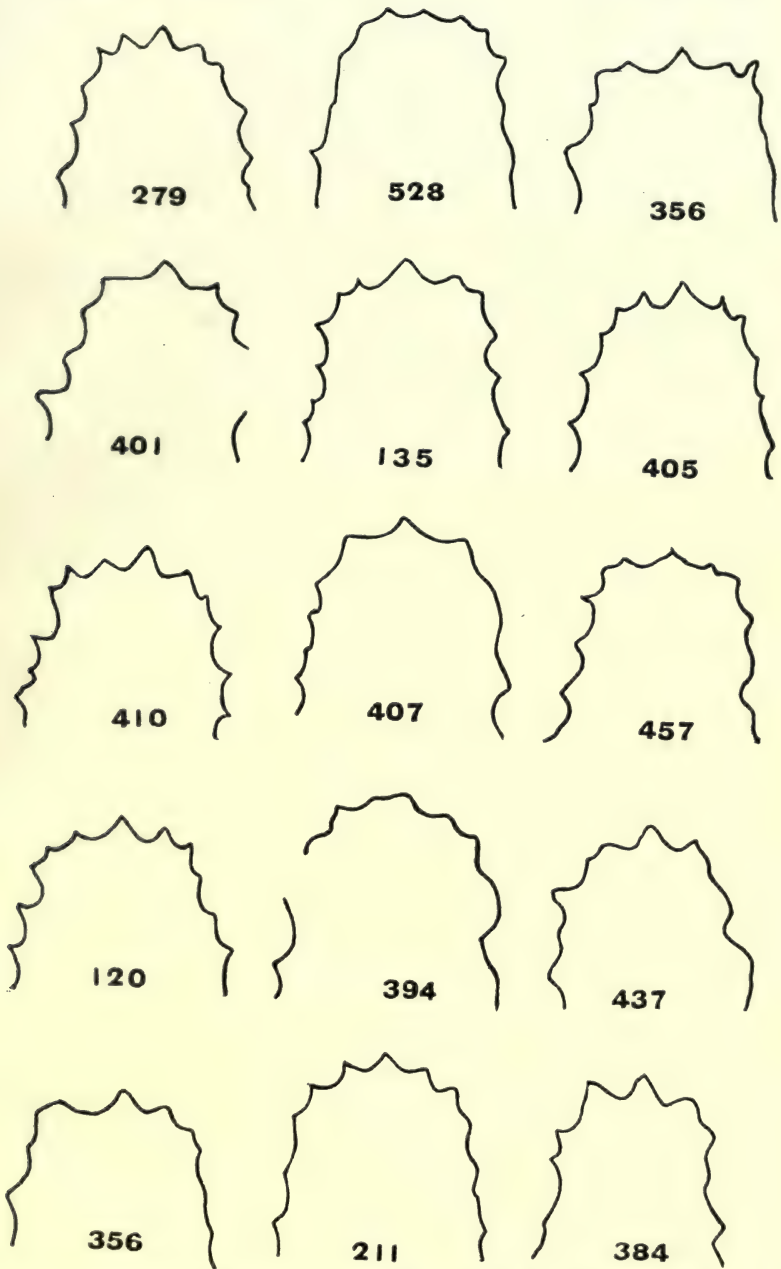
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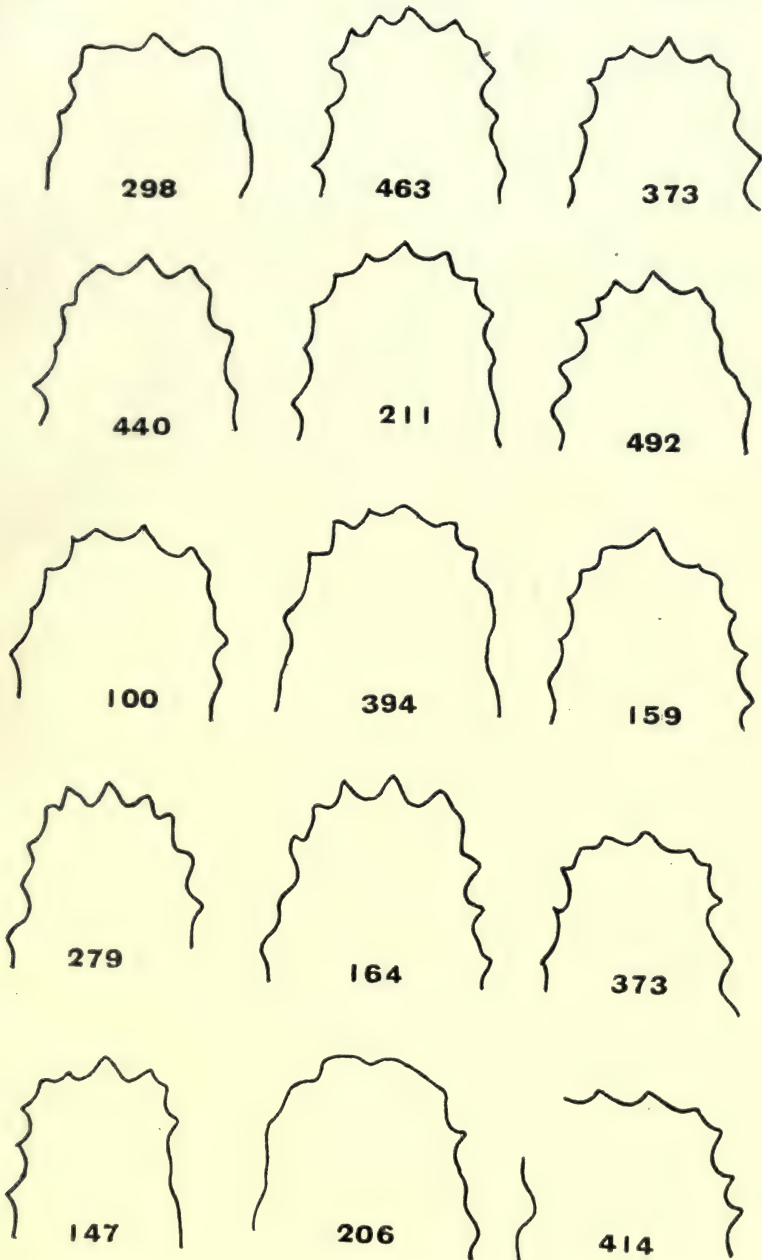




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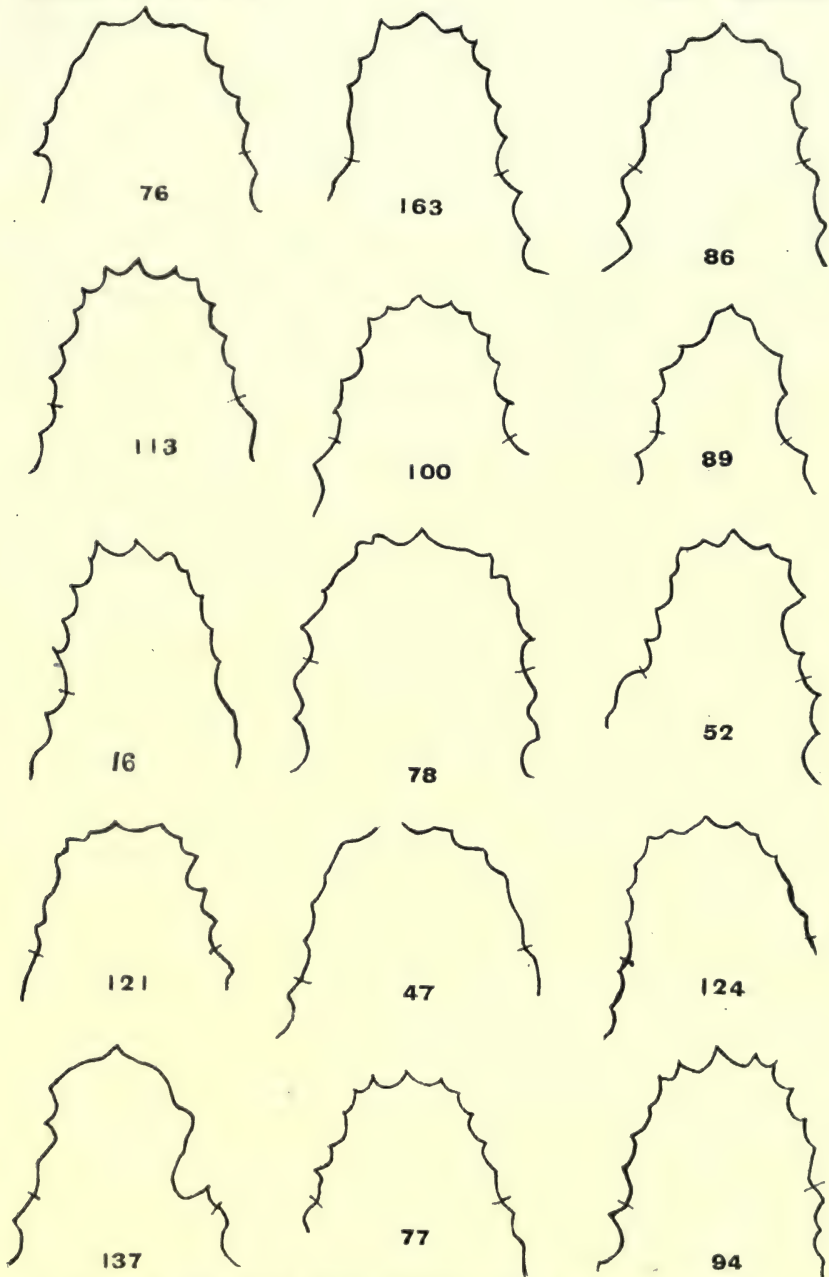






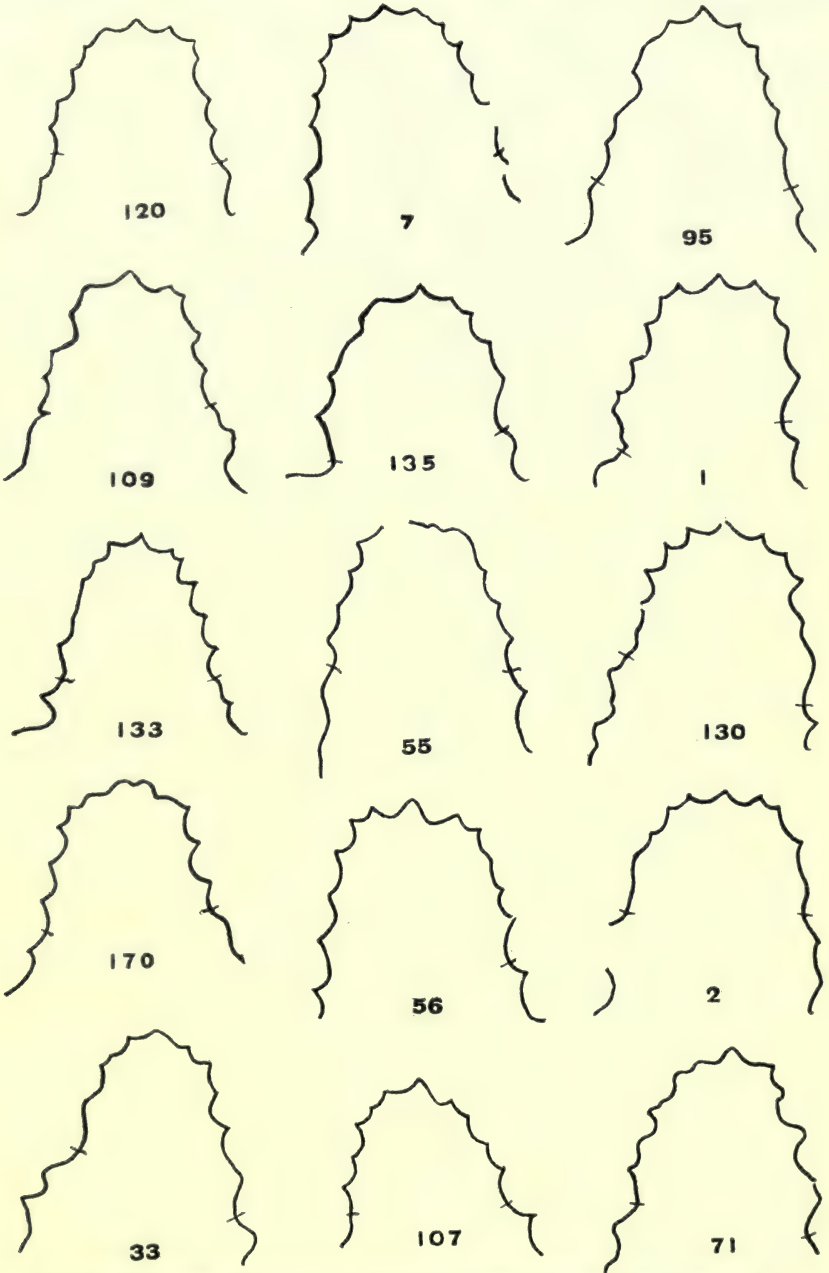
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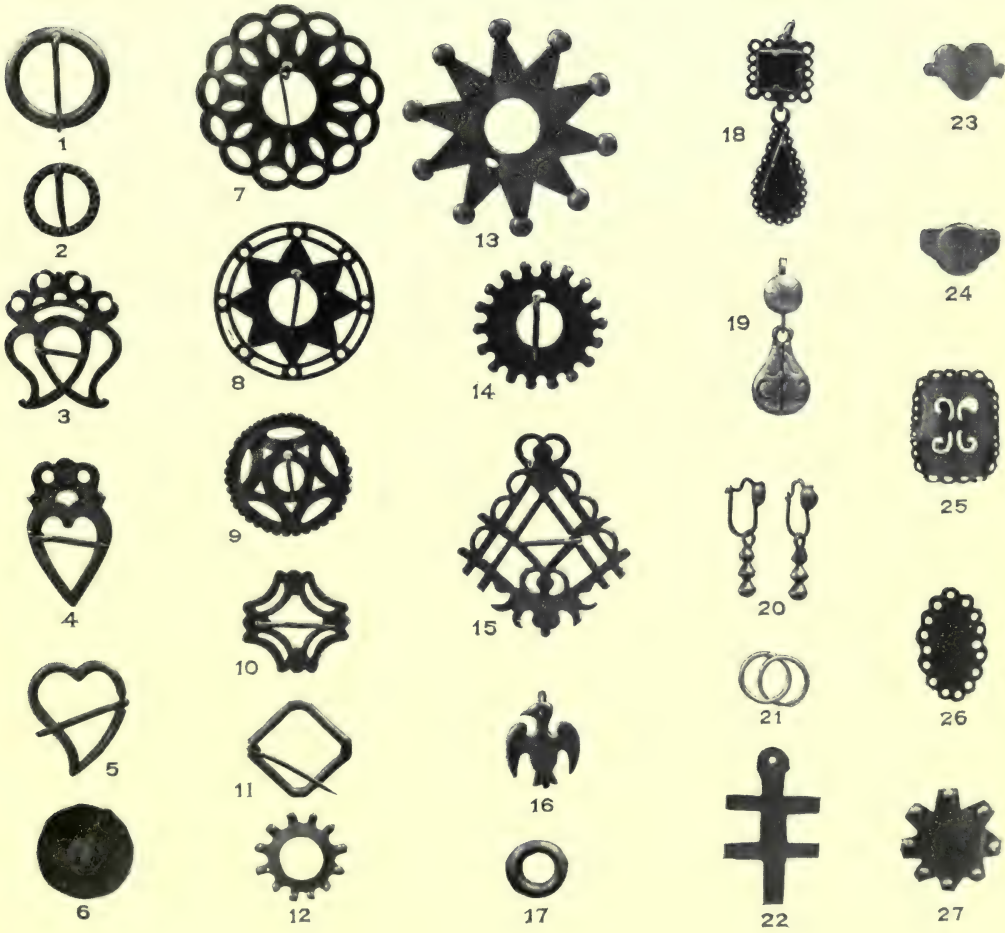
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PALATE TRACINGS FROM ADULT FEEBLE-MINDED MALES. (Reduction  $\frac{1}{3}$ .)





BROOCHES, RINGS AND EAR-RINGS.

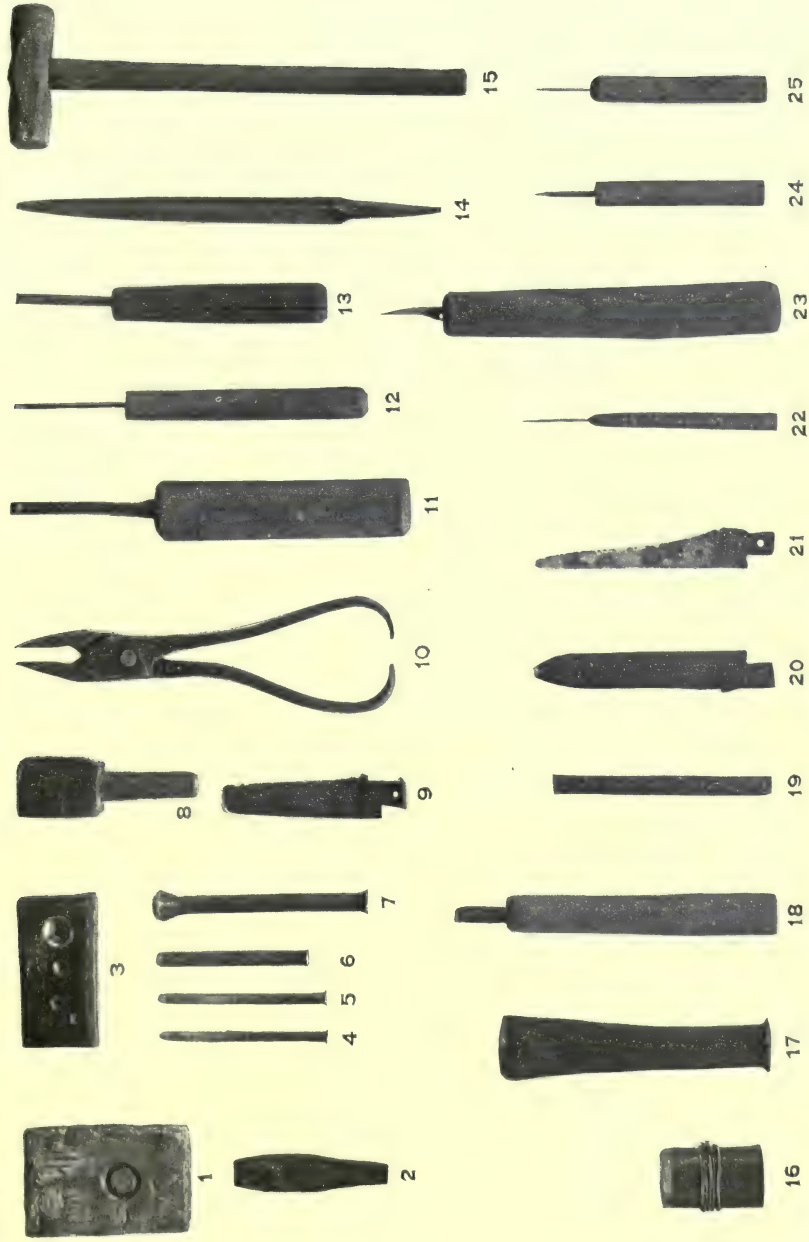






HEAD-DRESS AND BRACELETS





SILVERSMITH'S TOOLS.





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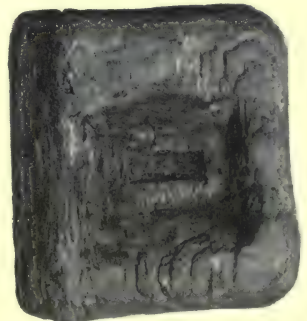
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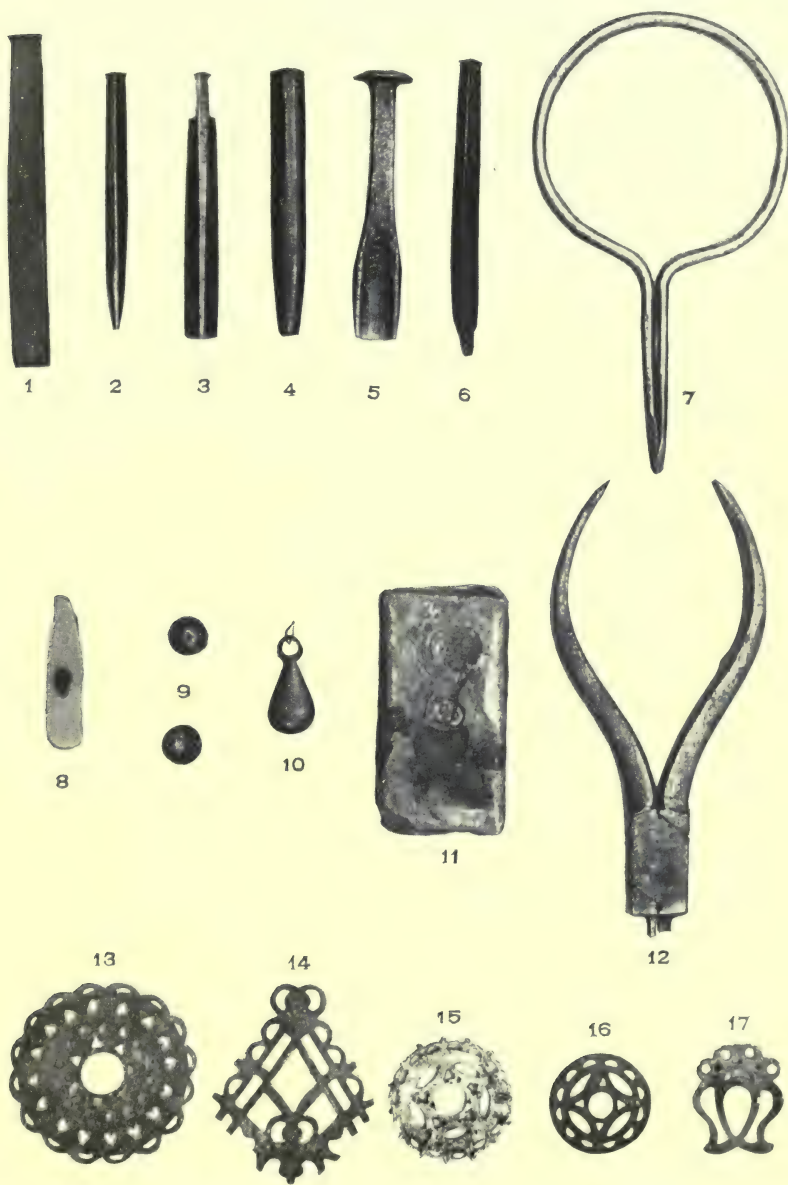
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SILVERSMITH'S TOOLS.





ADDITIONAL FORMS FROM THE MONTGOMERY COUNTY HISTORICAL SOCIETY COLLECTION.







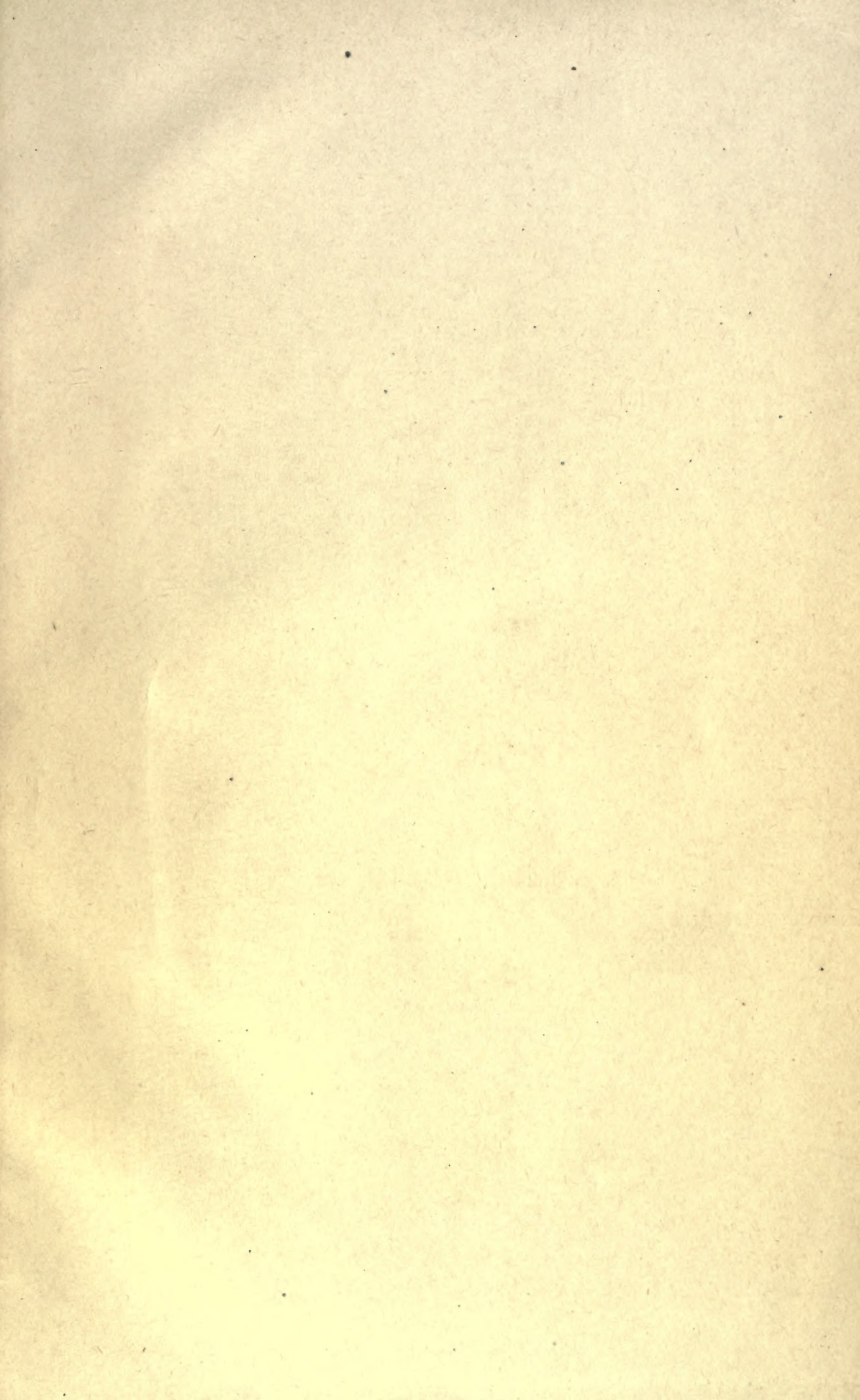
HAMMERING OUT A COIN.





EMBOSSING.





Please please me  
She kisses you  
Tears me too  
All my love  
I want to hold your hand  
Just to show  
When I saw her standing there

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