not yet been established. The raccoon fat is used in connection with this medicine. The herb, as the name implies, is used for swellings, and also for cuts and simple fractures A small amount of the root is ground up and sprinkled upon the cut or swelling. Raccoon fat is then painted around the wound. Mrs. Little-chief stated that grease from any wild animal would serve as well, though grease from a tame animal would be ineffectual.

In the case of a fracture the same procedure is followed as with a cut or swelling, but heat application is used as well. The Indian doctor first gently pulls the limb and sets the bone. He then applies the herb and raccoon grease. Next he warms his hands at the stove or fire and places them on the broken limb at the point of fracture. This warming is repeated for several hours at a time, and is said to give the patient relief from pain. Splints of matted bison hair and rawhide are known to have been used for fractures by the Dakota (Densmore 1918: 261), but were not mentioned in connection with this treatment by Mrs. Little-chief.

The above-described remedies are still in common use. Mrs. Little-chief stated that in the past year several Indians, not being able to afford the services of white physicians have come to her to be treated. It is probable that many other herb simples and medical practices formerly connected with the holy dance society and other Dakota shamanistic cults, such as the buffalo and bear doctors, have continued in a similar fashion, being administered by anyone who has bothered to learn their uses.

JAMES H. HOWARD

NORTH DAKOTA STATE HISTORICAL SOCIETY MUSEUM
BISMARCK, NORTH DAKOTA

BIBLIOGRAPHY

DENSMORE, FRANCES 1918 Teton Sioux Music, Bulletin 61, Bureau of American Ethnology.
HOWARD, JAMES H. 1952 A Yanktonai Dakota Mide Bundle. North Dakota History 19, No. 2: 132–139.

## TIME PERSPECTIVE IN PLAINS INDIAN BEADED ART

The following is a brief description of the initial effort at The Science Museum of St. Paul, Minnesota, to establish on the basis of data (elements of design, techniques of construction, basic and accessory materials employed, bead types and colors) from known specimens in American museums a method for determining the relative age and probable tribal origin of unknown bead-decorated objects from the North Central Plains area.[1] Such a method would, if scientifically acceptable, prove a boon to the small as well as to the large museum, for an extraordinary large proportion of Plains Indian bead-decorated objects must be regarded as unknowns.

The study was conceived originally because of the difficulties and uncertainties arising from an attempt to classify and catalog a new collection of Plains Indian beaded objects about which little was known, either of the provenance of the specimens or their dates of collection. The usual procedures were followed. Kroeber, Wissler, Lowie, and other authorities were studied, the Bureau of American Ethnology Reports and the Anthropological Papers of the American Museum of Natural History searched for possible clues to the origin of the specimens. The objects were measured against available descriptions of construction patterns, Kroeber's and Wissler's design elements, the

variously mentioned tribal peculiarities, and even chance photographs. Eventually, a good number of the pieces in the collection were duly but tentatively identified.

In the course of the cataloging, we attempted to set down in some kind of ordered series those criteria of identification used in the past by the different ethnographers in their descriptive and comparative studies of the various Plains tribes. These criteria we supplemented by data from other and later ethnologists. Based on the literature, we thus built up for most of the tribes of this area a fairly complete and detailed series of criteria useful in identification. Additionally, we compared and coded beads, and we attempted to test other characteristics—fringes, feathers, tinklers, kinds of cloth and of skin—anything definite enough to be comparable.

Most beaded objects may be regarded as a complex of separable traits, traits which are determinable and comparable with similar traits on other beaded objects. It seems probable, due to such factors as tribal preferences or habits, the changing supply of trade goods available at different time periods, and contact, both tribe with tribe and Indians with whites, that the total complex of traits of any object has time aspects, which will reveal within the limits of probability, the approximate age and probable tribal origin of a beaded piece.

Initially our hypotheses were tested distributionally on our own museum collections. Samples from three tribes were selected for comparison—25 Blackfoot specimens, 33 Dakota, and 14 Ojibwa. For a test run we compared only the beads, the percentages of each tribal sample which showed particular beads. The results indicated apparent significant tribal differences, for the frequencies of occurrence of some beads were such that we had to assume some degree of tribal choice in beads—or possibly rather a choice in beads from those made available (due to different bead sources, traders, etc.).

The probable importance of time perspective had been previously suggested during our preliminary listing of useful criteria of identification, and the trade factor implied that time would necessarily have to be considered in any further study. This emphasis on time is, of course, neither very new nor very startling. Nearly two decades ago Strong (1936) stated that the generally accepted characteristics of the cultures of the Plains area were based entirely on distributional studies and that these characteristics are in fact only those of relatively late-in-the-area cultures. More recently Fenton (1952) has called attention to the possibilities of still getting at time perspective in areas such as the Plains. However, it was on the basis of our preliminary studies, that we formulated the following working hypotheses about the use of beads by Plains tribes:

1) that particular types and colors of beads may be specific to or most popular among certain tribal groups,
2) that these bead preferences may, just as types of basic materials, accessory decorative devices, etc. be restricted to, or occur most frequently in, certain time periods—due perhaps to the sheer availability of the beads,
3) that while a single bead type might be by itself insufficient to localize or date beaded objects, tables showing the distribution, frequency of occurrence, and the chronology of all known beads might be useful aids in the identification and dating of unknown specimens. While the tendency certainly exists to use beads over and over again—with new beads appearing only as the old beaded objects are lost, destroyed, sold or given away, relative dating would be calculable by the appearance of new beads.

During six months in 1952, visits were made to eight museums[2] throughout the country for the purpose of examining and recording data from known beaded specimens of the Plains area. By known specimens are meant those dated and localized according to museum accession records. 393 specimens from nine northern Plains tribes and the Woodland Ojibwa were selected. The sample is distributed in time and by tribes as follows:

| | Pre-1875 | 1875 | 1885 | 1895 | 1905 | 1915 | Post 1925 |
|---|---|---|---|---|---|---|---|
| Crow | | 1 | 2 | 34 | 13 | 1 | |
| Assiniboin | 2 | | 4 | 30 | 8 | 3 | |
| E. Dakota | 2 | 2 | 6 | 2 | 4 | | |
| W. Dakota | 8 | 25 | 17 | 18 | 12 | | |
| Cheyenne | 3 | | 7 | 31 | 3 | 1 | |
| Arapaho | 1 | | 3 | 16 | | | |
| Blackfoot | 1 | 1 | 20 | 33 | 13 | 6 | 1 |
| Gros Ventre | | | 1 | 15 | 3 | | 1 |
| Plains Cree | | 6 | | 1 | 6 | | 1 |
| Ojibwa | | | 13 | 3 | 9 | | |

Because of the obvious difficulties and limitations in working with many museum collections, collections where many specimens are neither dated nor localized, or frequently incorrectly identified, we (1) selected whenever possible only specimens collected in specific areas by competent collectors, and (2) emphasize that all dating is necessarily relative and approximate. While the actual date of accession or collection has been recorded, a specimen collected or accessioned during the period 1876–1885 is considered in our graphic analysis as approximately 1875, as this reflects our judgment that most beaded specimens collected by competent collectors were manufactured during the decade immediately prior to the collection date. Occasional pieces that do not fit this pattern will not, we feel, defeat the overall usefulness of our analysis, and in any event, the method does give absolute terminal dating.

While initially our hypotheses were concerned with the distribution in time and space of bead types, it was never the intention that unknown specimens might be dated and localized solely on the basis of bead criteria, and in recording data from museum specimens, the following kinds of data were recorded:

1) basic materials employed and accessory materials (feathers, weasel skin, tinklers, etc.),
2) design and design elements (using chiefly Kroeber, but also Wissler),
3) stitching techniques and modes of construction,
4) beads by type and color

For each specimen all definite traits within each of the above categories were entered by code number on punch cards.

The method used in analysis of the 393 specimens is essentially archeological. For each of the ten tribes we have indicated on charts and in ascending order beginning with the earliest dated specimen, the presence and absence of each trait in the above categories (Powell 1953). The charts were, for greater facility in representation, converted to graphs and tables to show the relative tribal distribution in time and space of each trait. It should be noted that the periods for which there are valid samples (twelve or more specimens for a ten year period) vary greatly; the Dakota are ade-

quately represented for four decades between 1870–1910; the Blackfoot for the three decades 1880–1910; the Crow for but the twenty-year period between 1890–1910. For the other tribes reliable samples are lacking for longer than a ten-year period. It is hoped, however, that in the near future, the many gaps may be filled in and the chronological areas lengthened for all tribes.

Inadequate though the samples may be, they do permit some comparison of the distributional and chronological spread of the different traits among the ten tribes represented. An example might be the small brassy or silver-faceted metallic beads which are known to have appeared in the Plains in the late Nineteenth Century. Considered in flat perspective, the "center of intensity" would be among the Dakota, followed by the Crow, Arapaho, and Cheyenne. In temporal perspective, metallic beads appear in the Eighties among the Dakota with some use by the Arapaho; they are abundant in the Nineties among the Dakota and infrequent among the Arapaho, Cheyenne and Crow. The period of greatest Crow use of the beads appears to be around and after 1900. Metallic beads of this kind do not show up on Blackfoot, Assiniboin, or Gros Ventre pieces.

A similar use in time is indicated for small metal tinklers. Little mention is found in the literature on these cone-shaped ornamental devices. They appear on most kinds of garments, pipe-bags, and pouches. Lowie (1921) mentioned their use by the Crow, and there are examples in plate illustrations for the Gros Ventre (Kroeber) and Dakota (Wissler). These tinklers appear on our oldest Dakota specimens (1856 and 1860), are frequent in the Seventies, and over 40% of Dakota specimens of the Eighties show the presence of tinklers. Their use in the Nineties declines to about 30% and to about 15% in the decade 1900–1910. Tinklers appear on scattered pieces from other Plains tribes with the Crow showing a 25 to 30% frequency in the 1900–1910 period—double that of the Dakota for the same period. Again, as with the metallic beads, there is no indication that these small tinklers were commonly used by the Blackfeet, Assiniboin, and other northern tribes.

A similar differential use of beads in time and space is indicated, and many other traits show both chronological and distributional variations of significance. For many of the traits, negative evidence would seem to be a valid criterion for the localization of specimens. This is suggested above by the apparent lack of use of metallic beads and tinklers by the Blackfeet and Assiniboin. Beads may turn out to be especially good time indicators, and it may be possible eventually to tie in dated museum specimen beads with the early trade beads being turned up archeologically in the Plains area. Here, however, we wish only to suggest the possibilities of the method and the techniques. They are, we feel, of both practical and theoretical significance. Practically, with more adequate samples, one should be able to fit unidentified beaded specimens from this area to charts and graphs and with some degree of accuracy, identify and date them. Trade areas might eventually be worked out, both from the specimens themselves and with the aid of historic material such as the records of the Hudson Bay Company. The distribution of beads, trade cloths and ornaments suggest a general northern trade area in apparent sharp contrast to eastern and southeastern United States trade sources.

Theoretically, presenting these data chronologically gives Plains beaded art and design another dimension. Many of the early studies had necessarily to follow a purely

timeless approach, or if the dynamic aspects of art and techniques were studied distributionally, the data of study were assumed contemporary. Wissler (1917) got at time sequence by trait analysis or "comparative reasoning." Our admittedly tentative results imply, we feel, that at least some degree of time perspective in the field of Plains beaded art can still be obtained from specimens available in the various museums.

ORVOELL R. GALLAGHER AND LOUIS H. POWELL

NEW YORK, N. Y.
ST. PAUL, MINNESOTA

BIBLIOGRAPHY

FENTON, W. N. 1952 The Training of Historical Ethnologists in America. American Anthropologist 54: 332–335.

KROEBER, A. L. 1908 Ethnology of the Gros Ventre. Anthropological Papers of the American Museum of Natural History I, Part 4: 165.

LOWIE, R. H. 1924 Minor Ceremonies of the Crow Indians. Anthropological Papers of the American Museum of Natural History 21 Part 4: 290.

POWELL, LOUIS H. 1953 A Study of Indian Beadwork of the North Central Plains. Indian Leaflets of The Science Museum, nos. 5–7. St. Paul, Minnesota.

STRONG, W. D. 1936 Anthropological Theory and Archaeological Fact *in* Essays in Anthropology Presented to A. L. Kroeber. University of California Press, Berkeley.

WISSLER, C. Decorative Art of the Sioux Indian. Bulletin of the American Museum of Natural History 18 Part 3 Plates 40, 41 and 43.

———, 1917 The American Indian.

[1] A large part of this project has been made possible through the generous support of the Hill Family Foundation, St. Paul, Minnesota.

[2] Acknowledgment is due to the staffs of the following museums: The United States National Museum, American Museum of Natural History, Museum of the American Indian, Museum of the Plains Indian, Sioux Museum, North Dakota Historical Society, Milwaukee Public Museum and the Chicago Natural History Museum.

## LETTER TO THE EDITOR

### TSCHOPIK'S *Aymara of Chucuito, Peru. I, Magic.*

SIR:

May I endorse Holmberg's superendorsement of La Barre's review of Tschopik's *Aymara: I, Magic?*

I concur that it is a superb functional study of magic, and would add that I can think of none that better illustrates the relation of an aspect of a culture with the personality typical of that culture.

A. L. KROEBER

UNIVERSITY OF CALIFORNIA
BERKELEY, CALIFORNIA