

Material Culture of the Numa  
THE JOHN WESLEY POWELL  
COLLECTION

1867-1880

DON D. FOWLER  
and  
JOHN F. MATLEY

SMITHSONIAN CONTRIBUTIONS TO ANTHROPOLOGY

NUMBER 26

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SMITHSONIAN INSTITUTION PRESS

City of Washington

1976

## ABSTRACT

Fowler, Don D., and John F. Matley. *Material Culture of the Numa: The John Wesley Powell Collection, 1867–1880. Smithsonian Contributions to Anthropology*, number 26, 181 pages, 82 figures, 1 map, 2 tables, 1979.—Between 1867 and 1880 John Wesley Powell made collections of material culture items from several Numic-speaking Indian groups in the Great Basin and Colorado Plateau regions of the western United States. The collections were made in conjunction with Powell's ethnographic studies of those groups (Fowler and Fowler, eds., 1971). The USNM (United States National Museum) collections, on deposit in the National Museum of Natural History, Smithsonian Institution, were studied by the authors in 1967–1968. The items described herein represent approximately one-half of the total collections. The remainder were deposited, on an exchange basis, in other major museums in the United States and abroad in the latter portion of the 19th century.

Several individual items, or classes of items, from the USNM collections, were described by various authors of comparative studies of American Indian material culture in the late 19th and early 20th centuries. However, the full range of items in the collections has not been described previously.

The bulk of the items were collected by Powell from various Southern Paiute or Northern Ute bands; the remainder from the Deep Creek Gosiute, and Goose Creek, Bear River and Wind River Shoshoni. The items reflect cultures in the early stages of acculturation to the intrusive Euroamerican cultures. The value of the collections is enhanced by photographs taken, principally in 1873 and 1874, by John K. (Jack) Hillers, Powell's photographer. The photographs show various items being worn or used by their makers.

With the exception of Powell's studies and collections, systematic ethnographic work among Numic-speaking Indian peoples was not undertaken until the 1920s or later. By that time, much knowledge of, and use of, aboriginal crafts had been lost or existed only in the memories of older people. In contrast, the collections described herein reflect still viable lifeways of the "Numa" as lived in the 1870s, and add a significant increment to our knowledge of those lifeways.

OFFICIAL PUBLICATION DATE is handstamped in a limited number of initial copies and is recorded in the Institution's annual report, *Smithsonian Year*. SERIES COVER DESIGN: North American Indian design of mounted horsemen on animal skin.

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### Library of Congress Cataloging in Publication Data

Fowler, Don D. 1936—

Material culture of the Numa.

(Smithsonian contributions to anthropology ; no. 26) Based on the John Wesley Powell Collection in the National Museum of Natural History.

Bibliography: p.

Supt. of Docs. no.: SI 1.33:26

1. Numic Indians—Antiquities. 2. Indians of North America—Great Basin—Antiquities. 3. Great Basin—Antiquities. 4. Powell, John Wesley, 1834–1902—Ethnological collections. I. Matley, John F., joint author. II. National Museum of Natural History. III. Title IV. Series

GN1.S54 no. 26 [E99.N97] 301.2'08s [970'.004'97] 78-22066

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# Material Culture of the Numa

*Don F. Fowler and John F. Matley*

## Introduction

During his years of exploration and research in the Colorado Plateau and Great Basin areas of western North America between 1867 and 1880 (Darrah, 1951:73-204), Major John Wesley Powell made extensive studies of the Indian inhabitants of those regions (Fowler and Fowler, 1969). He amassed a large body of ethnographic and linguistic data, most of it only recently published (Fowler, Euler, and Fowler, 1969; Fowler and Fowler, eds., 1971). Concomitant with his ethnographic studies, Powell made extensive collections of items of material culture, including ethnobotanical specimens, for the former United States National Museum of the Smithsonian Institution, Washington, D.C. Most of these items have remained unstudied, although representative items were described in various comparative studies, as indicated below. Bye (1972) has described the extant ethnobotanical specimens collected by Powell, both those in the National Museum of Natural History, Smithsonian Institution, and those now in the Botanical Museum of Harvard University, Cambridge, Massachusetts. The present paper describes all the material culture items (exclusive of the ethnobotanical items) collected by Powell from several of the Numic-speaking Indian bands of the Great Basin and the Colorado Plateau, which are now on deposit in the National Museum of Natural History. It is intended as a companion volume and supplement to Powell's ethnographic manuscripts on the Numa (Fowler and Fowler, eds., 1971).

Powell's material culture collection is a unique and valuable ethnographic resource on the Numic-speaking peoples of western North America. When Powell visited the various "Numa" bands in the late 1860s and early 1870s, the people either had not been or were just being settled on reservations. While they had adapted some White goods and tools, they were still using traditional techno-economic patterns. Thus, at least for the several Southern Paiute bands, Powell was able to observe in use, and to have photographed, nearly the full range of aboriginal tools, implements, and clothing. This is in contrast to most other collections of material culture from the Great Basin, which were made after the Indian peoples had been settled on reservations for many years. By the 1910s, '20s and '30s, when most Great Basin ethnography was done, many tools and implements were often simply relics or mementos, and many manufacturing processes were nearly forgotten. Thus, later ethnographers, e.g., Steward (1943) and Kelly (1964), often could only collect models or drawings of many items. The contrast between Powell's observations and collections, made between 1870 and 1873 among the Southern Paiute, and the data that the young Southern Paiute Tony Tillohash gave to Edward Sapir (1910) forty years later is striking. It is a contrast between a functioning life-way and a life-way existing primarily in the memories of the older people.

A second reason why Powell's collection is important lies in his attempts at completeness. Other collections of Numic material culture made at about the same time as Powell's, e.g., those of Palmer

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(Bye, 1972; Fowler and Matley, 1978), are partial and scanty. The comprehensiveness of the Powell collection is, however, mitigated by a few losses and by trades and exchanges between the National Museum of Natural History and other museums, as indicated below. Nonetheless, the collection is the only one covering nearly the full range of Numa material culture, at least for the Southern Paiute groups. It is also the only ethnographic collection yet described for any Numic group and, as such, is a valuable resource for Numic ethnography when used in conjunction with Powell's and later ethnographic observations.

The collection is also of use to archeologists, providing data on Numic material culture that can be used in the study of late-prehistoric and proto-historic sites and site components in the Great Basin and northern Colorado Plateau (Euler, 1964; Fowler, Madsen, and Hattori, 1973:81-85).

In titling the present work, we are following Powell's usage in his projected, but only partially completed (Fowler and Fowler, eds., 1971:35-69), *Report on the Indians of the Numa Stock*. As with Powell's *Report*, the material culture collection is not representative of all Numic-speaking groups. Those groups from which items were collected are discussed below.

The items described herein represent over one-half of the total number of Numa items originally collected. As was customary during the burgeoning growth of museums in the last quarter of the 19th century, many items were exchanged with other museums throughout the world. Other items have not survived the attrition of time or the effects of one or more moves between or within Smithsonian buildings in earlier years. To add to the decimation, the collection was rather neglected for the first few years it was in the museum. In 1884 Otis T. Mason, who had been a collaborator of the Smithsonian for several years, became a curator in the U.S. National Museum (USNM). The first two entries in his diary (1884a) after assuming office are as follows:

[1 July 1884] Today took charge of the Department of Ethnology in the National Museum [then in the Arts and Industries building] on the west balcony with Mr. Sweeney as my assistant . . . the specimens could hardly be in worse confusion.

Spent the day in assorting [sic] material, putting into the same drawer those things which have the same name, whether this arises from structure or function.

[2 July 1884] I find Major Powell's specimens in the worst condition.

(We are indebted to John C. Ewers for calling our attention to these entries.)

In a subsequent letter to James C. Pilling, Powell's chief clerk in the Bureau of Ethnology, Mason (1884b) wrote concerning the collections: "Between breakage and the moths, things are fallen on evil times . . ."

Mason apparently imposed some order on the collection, although memoranda signed by Neil M. Judd in 1915 indicate uncertainty as to the full extent and provenience of the collection. In the 1950s the collection was reorganized and the documentation clarified and corrected. The collection is now listed under accession number 2357 in the U.S. National Museum catalog. The proper conservation, treatment, and storage of the collection since the 1950s has done a great deal to ameliorate the ravages of the 1880s. These measures also facilitated and aided our study of the collection.

In studying the collection, all specimens were checked against Powell's (1873, 1878) manuscript catalogs and against the USNM accessions catalog. There are a number of discrepancies in provenience between Powell's catalogs and the accession catalog, due apparently to clerical errors made in the early part of this century or before. For example, "Uinkarets" (Southern Paiute) and "Uintats" [Uintah] (Ute) are sometimes confused, as are "Shivwits" (Southern Paiute) and "Seuvarits" (Ute). We suspect also that "Uinkarets" and "Unkakani-guts" (both Southern Paiute bands) are confused and hence have labeled all such specimens as "Uinkarets." Also, Powell often used the term "Ute" in a linguistic sense to refer to any one, or all, of the Southern Numic-speaking groups (see discussion of linguistic and band terminology, pp. 5-6), and this usage is sometimes carried over into the classification of specimens. We have attempted to rectify these errors by careful cross-checking, but the problem is compounded by the fact that not all specimens listed in the museum accessions catalog are listed in the Powell catalogs. There are several dozen items listed in the accessions catalog and found in the collection that are not listed in the Powell catalogs. These omissions, coupled with the clerical errors, lead us to suspect that some Shivwits Southern Paiute specimens may be Seuvarits Ute specimens, or vice-versa, and that some

Uinkarets Southern Paiute specimens may be Uintats [Uintah] Ute, or vice-versa. In some cases the year of accession can be checked against Powell's itinerary for that year or the year before, but in others, materials were not accessioned for some time after receipt; hence this checking device also fails.

The collection has two other controversial aspects. First, in 1867–1868, during his first two trips to the Colorado Plateau area, Powell was employed by, and made collections for, the Illinois State Normal University Museum. Later, after he received federal financial support and was working under the auspices of the Smithsonian Institution, Powell removed a portion of the collection from Illinois to the Smithsonian, much to the annoyance of the Illinoisan authorities, who tried in vain to recover the specimens (Darrah, 1951:185–186). Some of the specimens illustrated herein still retain the Illinois Normal Museum labels, e.g., Figure 6*b*, in addition to the USNM numbers.

Second, Powell carried some of the White River Ute clothing which he had collected in 1868 with him on his tour of Utah and Nevada as Special Commissioner of Indian Affairs in 1873. He dressed up some of the Kaibab Southern Paiute in these clothes to be photographed by Jack Hillers (Fowler, editor, 1972:6; Kelly, 1964:59–60). This is shown by the word "Colorado" and a museum accession number visible on the bodice of the dress worn by a Southern Paiute woman in Figure 17. Probably the beaded buckskin shirt worn by Powell's informant and guide Chuarumpeak in several photographs, e.g., Figure 20, was also a White River Ute garment which Powell gave him as a present.

Some Southern Paiute items, clothing and baskets, apparently were made under the supervision of Ellen Powell Thompson, Powell's sister and the wife of Almon Harris Thompson, Powell's chief topographer during the 1870s.

According to Mason (1904:490–491),

the National Museum has a rare old collection of Ute or Shoshonean material, of which A. H. Thompson writes that of the baskets and other articles of Indian manufacture gathered by the Powell expedition between 1870 and 1875 the greater part, probably nine-tenths, were secured from the Kaivavits of Kaibab and the Shivwits about St. George, southern Utah, and the Moapas about St. Thomas, southeastern Nevada. These clans [sic] all belong to the Paiute nation. The articles secured from the Ute were from the

Gosiute [sic; the Gosiute are linguistically Central Numic; the Ute are Southern Numic speakers] about Deep Creek in western Utah and the Uinta Ute on the Uinta Reservation. By far the larger part of the Paiute collection was from the Kaivavits. Much of the clothing (buckskin and rabbit fur) and many of the baskets were made by the Indians working under the direction or rather observation of Mrs. E. P. Thompson, the endeavor being to have the work done by the methods employed before the coming of the whites and by the older people of the clan.

Mason's assertion is further confirmed by notations on a stereopticon set of Hillers's photographs now in the Arizona Historical Society, Tucson. The photographs belonged to Frederick S. Dellenbaugh, who was with the Powell expedition between 1871 and 1873. One notation reads, "All of the buckskin garments in these photographs were *made to order for Major Powell on old patterns* and after the photographs were made the garments were sent to the Smithsonian Institution" (cited by Euler, 1966, appendix I, p. 1; emphasis added).

Although we have no proof, we suspect also that the Plainslike feather headdresses, worn by Southern Paiute men in several photographs, e.g., Figure 39, were made to order for Powell. The more usual men's headgear seems to have been the caps shown in Figures 40 and 41.

There is some further information on Powell's collecting items from the Southern Paiute in the diaries of some of the men who were with him in southern Utah, especially those of F. S. Dellenbaugh (1962), A. H. Thompson (Gregory, ed., 1939), S. V. Jones (Gregory, ed., 1948–1949), and W. C. Powell (Kelly, ed., 1948–1949). In December, 1871, W. C. (Clem) Powell, the Major's cousin, wrote (Kelly, ed., 1948–1949:378):

Took an inventory of the Maj's Indian curiosities: rabbit net, pottery, bows and arrows, Moqui clothing, etc. Maj. told me he wanted to take an inventory of everything . . . and to box up the Indian traps when I had time.

The following summer Clem wrote to the *Chicago Tribune* (Kelly, ed., 1948–1949:405–406):

Major Powell has given special attention to Indian lore. He has made vocabularies of the Ute tongue, learned their traditions, religious rites, and tribal laws. He speaks the gibberish of the various tribes, and probably is the most thorough student of their jargon of any white man now living. Specimens of the implements of war and husbandry, product of the industry and skill [of the Indians] are being collected in as complete sets as possible.

During a trip to the Uinkarets in late 1872, Powell made more collections (Dellenbaugh, 1962: 253):

The Major traded for bags of food seeds, baskets, spoons made from mountain sheep's horns, balls of compressed cactus fruit from which the juice had been extracted for a kind of wine, rolls of oose-apple [yucca fruit] pulp, which they ate like bread, etc. . . all for the Smithsonian Institution.

Thompson (Gregory, ed., 1939:103), noting the same transactions, is less specific: "This morning the Major traded with the P[a]iute."

Powell periodically shipped crates of materials from the field to the Smithsonian Institution. As noted above, the collection was badly handled until Mason came on the scene in 1884. Thereafter the collection was better organized and available for study. Various individual items, or classes of items, from the collection were described or illustrated by Mason (1885, 1889a, 1889b, 1889c, 1891a, 1891b, 1894, 1896, 1904) and others (Culin, 1890, 1907; Dellenbaugh, 1906; Hawley, 1898; Hoffman, 1896; Holmes, 1891; Hough, 1890; Kelly, 1964, fig. 1b; McGuire, 1899; and Wilson, 1890).

#### Acknowledgments

Many individuals and organizations made this study possible. Analysis of the collection was carried out under a National Research Council Visiting Postdoctoral Research Associateship at the Smithsonian Institution and a grant from the National Endowment for the Humanities, both held by the senior author in 1967-1968. The manuscript was put into final form during a sabbatical leave from the Desert Research Institute, University of Nevada System, held by the senior author in the spring of 1973. The support of these organizations is gratefully acknowledged.

At the Smithsonian Institution, Clifford Evans, John C. Ewers, Betty Meggers, Saul H. Reisner and Waldo Wedel were most helpful. George Phebus and George Metcalf were of great service in locating and handling the collections. Various staff members of the National Museum of Natural History kindly took time to identify numerous ornithological, botanical, and osteological specimens. We also wish to thank Gilda Fisch, Catherine S. Fowler, John Witthoft for aid on various matters pertaining to the collections, and an espe-

cial note of thanks to René Royak Shaler who ably assisted in measuring and describing many items in the collection. Roxanne Gillette and Alma Smith typed various drafts of the manuscript. Drawings are by Ken Miller, Katrina Lasko, Deanna Page, and George Robert Lewis. Our thanks for all their patient work. Finally, we wish to acknowledge the kind permission of the American Philosophical Society to reproduce sections of the Sapir (1910) manuscript.

#### Numa Material Culture

By the beginning of the historic period, ca. A.D. 1776, the Numic-speaking peoples occupied most of the Great Basin, portions of the Colorado Plateau, and portions of the Central Rocky Mountains in the present-day western United States (Map 1). One group, the Comanche, had split off from the other Numic groups and, by the 1770s were achieving dominance of the Llano Estacado and adjacent regions in the Southern Plains.

The names of the various Numic bands in the Basin-Plateau-Rocky Mountain areas derive from a variety of Indian, or English, place names, or names given to one Indian group by another and carried into the historical literature by Whites, e.g. "Ute," "Southern Paiute," "Northern Paiute." Powell first proposed "Numa" as a linguistic cover-term for the Numic-speaking peoples of the Desert West (Fowler and Fowler, eds. 1971:5). The term was later superseded by "Plateau Shoshonean" (Kroeber, 1907), a term generally used in the ethnographic literature until the 1960s.

The term "Numic" is derived from the native term all these peoples use for themselves, variously *nümü* in Northern Paiute, *nüwü* in Southern Paiute, *nümü* in Shoshoni, etc., meaning "person, human being, or native speaker" (C. Fowler and D. Fowler, 1971:97). In his ethnographic manuscripts Powell used the term "Numa" to refer to Numic-speaking peoples (Fowler and Fowler, eds., 1971: 37), although he later (Powell, 1891) grouped them under the heading "Shoshonean."

In recent years there has been a return to Powell's terminology (Lamb, 1958). At present, the Numic language family or branch of the Uto-Aztecan stock is generally divided into three main groupings: Western, Central, and Southern Numic (Miller, 1966:78-89).



general to the San Juan, Kaibab, Uinkarets, Unkaniguts, Shivwits, Moapa, Las Vegas and Chemehuevi bands shown on Map 1. "Southern Paiute, Southern Utah" refers in general to the bands that Powell encountered in southern Utah and the Arizona Strip (that portion of present-day Arizona north of the Grand Canyon), i.e., the Kaibab, Uinkarets, Unkaniguts and Shivwits. Historically, there were other Southern Paiute bands in southern Utah and southern Nevada that are not shown on Map 1 (see Kelly, 1964: *passim*, Steward, 1938: 182-185, Fowler and Fowler, eds., 1971:104, and Table 1).

"Ute" herein refers to the various "Northern Ute" bands of Utah and northwestern Colorado and the "Western Ute" of central Utah. Powell did not make collections from, nor study the several "Southern Ute" bands of southern Colorado, hence the term "Ute" herein does not refer to those groups. On Map 1 Northern Ute bands shown are the Uintah and the White River. Western Ute bands shown are the Timpanoaguts, Pahvant, Sevarits and Red Lake. In the 1870s the Western Ute groups, with the exception of some Pahvant people, were placed on the Uintah Reservation in the Uintah Basin of Utah with the "Uintah" bands, and all came to be known collectively as "Uintah Ute." Later, in 1880, the White River groups were also placed on the same reservation (Steward, 1955). Historically, there were other Northern and Western Ute bands (Fowler and Fowler, eds. 1971:105, Table 1) that are not shown on Map 1. In general, the distinction made by ethnographers between "Ute" and "Southern Paiute" groups is a cultural one, referring to those groups that possessed and used horses prior to Euroamerican settlement in the 1840s (Steward 1955: *passim*), i.e., "Ute" as opposed to those groups that did not have horses, i.e., "Southern Paiute."

Central Numic includes two languages, one spoken by the Panamint Shoshoni in the Death Valley area, the other, with dialects, spoken by various "Western," "Northern," and "Eastern" Shoshoni bands shown on Map 1, i.e., the Deep Creek Gosiute, Goose Creek Shoshoni, Bear Lake Shoshoni, and Wind River Shoshoni, as well as other bands not shown (Steward, 1938: *passim*) and the aforementioned Comanche of the southern Plains.

Western Numic also includes two languages, one spoken by the Mono of California, the other,

with dialects, by various Northern Paiute bands in eastern California, southern Oregon, and Nevada. The historic Bannock of southern Idaho are also Western Numic speakers, although they lived primarily in Central Numic territory in close association with Shoshoni bands.

Although Powell studied some Northern Paiute bands (Fowler and Fowler, eds., 1971:210-249) he made material culture collections only from some Central Numic and Southern Numic groups, those underlined on Map 1.

By the time of Powell's arrival in 1867, these groups had had diverse histories of contact with Euroamerican culture. The Northern Ute, Wind River Shoshoni, and, in part, the Goose Creek and Bear Lake Shoshoni had long possessed horses, participated in the fur trade and had taken on many of the ways of their Plains Indian neighbors to the east (Fowler, 1965). The Southern Paiute and the Gosiute did not begin using horses until the 1860s (C. Fowler and D. Fowler, 1971:108). Both the Southern Paiute and the Gosiute were frequent targets for slave raids by various Ute bands, Navajos, or Mexicans from at least 1800 until the late 1850s. By 1830 there was a regular traffic in horses, cattle, guns, and slaves along the Old Spanish Trail from Sante Fé, Taos, and Abiquiu in New Mexico to southern California (Bailey, 1966:146). As a result of the slave trading, many Southern Paiute and Gosiute groups had withdrawn into inaccessible areas and had relatively less contact with Euroamericans than did other mounted groups (Euler, 1966:46). But all groups had been in some sort of contact with the Mormon and Anglo settlers of Utah and Colorado by the time Powell arrived in 1867. Thus the material culture of the Numa was already in a rapid state of transition, as can be seen in many of the Hillers photographs in Steward (1939), Euler (1966, Appendix 1), Fowler (ed., 1972), and herein.

Data on Numa aboriginal and early contact period material culture are widely scattered in ethnographic and ethnohistoric sources. The principal sources for the Southern Paiute are Euler (1966), Kelly (1964), Powell (1875), Sapir (1910), and Stewart (1942); Cooke (1937) and Lowie (1924) for the Northern Ute; Price (1952) and Steward (1943) for the Gosiute; Lowie (1909, 1924), Steward (1943), and Murphy and Murphy (1960) for the Goose Creek Shoshoni; Steward (1938) for the Bear River

Shoshoni; and Shimkin (1947) for the Wind River Shoshoni.

The earliest descriptions of Numa culture are found in the journal of Fray Silvestre Vélez de Escalante, written in 1776 (Bolton, 1950). With his fellow Franciscan, Fray Francisco Antanasio Domínguez, Escalante led a party of Spanish explorers from New Mexico northwestward through western Colorado and into Utah in search of a route to Monterey, California. Near the site of present-day Cedar City, Utah, the party turned southeastward, toward the Hopi country and Santa Fé, and did not continue on to California. Yet, they charted the way for what soon became the Old Spanish Trail, between New Mexico and California (Cline, 1963: 43-53).

During the journey Domínguez and Escalante came into contact with various Numic groups. In the Gunnison River Valley of western Colorado they met a party of eighty "Yutas . . . all on good horses" (Bolton, 1950:155). In the Uintah Basin of eastern Utah they met other horse-using Ute groups and heard of the feared "Comanche Yam-piricas" to the north, probably a segment of the people known historically as the Eastern Shoshoni (Fowler, 1965; Stewart, 1958). On the shores of Utah Lake they visited the

Timpanoagatzis [Timpanoaguts], who live on the abundant fish of the lake. . . . Besides this, they gather in the plain grass seeds from which they make atole [gruel], which they supplement by hunting hares, rabbits and fowl of which there is a great abundance here. . . . Their habitations are chozas or little huts of willow, of which they also make nice baskets and other necessary utensils. In the matter of dress they are very poor. The most decent clothing they wear is a buckskin jacket and long leggings made of the same material. For cold weather they have blankets made of the skins of hares and rabbits. . . . They have good features and most of them have heavy beards [Bolton, 1950: 186].

Continuing southward along the Wasatch Front, the party met eight Indians near the site of present-day Levan, Utah, "most of them naked except for a piece of buckskin around their loins" (Bolton, 1950:188). Soon after, on the Sevier River, they met more Indians:

Very early twenty Indians arrived at the camp together with those who were here yesterday afternoon, wrapped in blankets made of the skins of rabbits and hares. . . . These people here have much heavier beards than the Lagunas [Timpanoaguts]. They have holes through the cartilage of their noses and they wear as an ornament a

little polished bone of deer, fowl or some other animal thrust through the hole [Bolton, 1950:189].

Further south near the site of Cedar City, Utah, the party encountered a group of Indian women. With sacerdotal modesty Escalante remarked that, "these women were so poorly dressed that they wore only some pieces of buckskin hanging from their waists, which barely covered what can not be looked at without peril" (Bolton, 1950:201). The women also possessed some fragments of blue cloth which Escalante concluded they probably received in trade from the Havasupai to the south. A man with whom they spoke, "carried a large net very well made of hemp, which he said he used to catch hares and rabbits" (Bolton, 1950:202).

Descending into the Virgin River Valley below present-day Toquerville, Utah, the party found

a well made mat with a large supply of ears and husks of green corn which had been placed on it. Near it, on the small plain and on the bank of the river, there were three small corn patches with their very well made irrigation ditches. . . . From here downstream [down the Virgin River] and on the mesas on either side for a long distance, according to what we learned, live Indians who sustain themselves by planting maize and calabashes, and who in their language are called the Parussi [Shivwits] [Bolton, 1950:205].

Escalante's description of irrigated maize plots and reports of horticulture along the Virgin River is the earliest evidence of aboriginal Southern Paiute horticulture. Later explorers in the early 1800s also reported some Paiute farming along the river (Euler, 1966:112).

Escalante's party did not follow down the Virgin River, but turned southeastward to find a way across the Colorado River. In so doing they traversed the Arizona Strip area, north of the Grand Canyon. In what was probably Uinkarets territory, they met some Indians with whom they traded for mountain sheep meat, cakes of dried tuna (prickly pear, *Opuntia* sp.) and seeds. They learned also that these people did not grow maize (Bolton, 1950:211-212). A few days later, the Spaniards met another group of Paiute, probably of the Kaibab band, near the Paria River. After finally locating the ford on the Colorado River now named for them—Crossing of the Fathers—the party crossed over and traveled southward toward the Hopi mesas. They encountered a few "Yutas Payuchis" (Bolton, 1950:228) or San Juan Paiutes before finally reaching the Hopi mesas and, later, Santa Fé.

We have quoted from Escalante's diary at some length, because it is the earliest account of several Numic groups and it provides some baseline data on Numa material culture and subsistence. The account indicates that by 1776 horses were in common use by the Ute groups east of the Wasatch Range, but not by the Ute and Southern Paiute groups west of the mountains. The descriptions of Southern Paiute clothing is of interest in contrast to the clothing worn a century later, which was much more influenced by Ute and White models. As noted, Escalante's description of horticulture along the Virgin River establishes the practice as aboriginal in that area and indirectly confirms later ethnographic reports that horticulture spread from the Virgin Valley area to other Southern Paiute bands only after 1850 (Kelly, 1964:39).

There are scattered descriptions of various Numa items of material culture and subsistence practices in the trappers', emigrants', and settlers' diaries, in the reports of federally sponsored explorations, and in wagon road and railroad surveys from 1800 until the Civil War (see C. Fowler, compiler, 1969: 113-186, for references to these sources). Much of the material is summarized in Malouf (1966), Steward (1938), and Euler (1966).

Following the Civil War, the so-called "Great Surveys" (Bartlett, 1962), including Powell's survey, were founded and many of the survey parties passed through Numic areas. Various reports from the Hayden and Wheeler surveys refer to Numa culture, languages, and subsistence (see Schmeckebier, 1904, for references).

Powell's various annual reports to the Smithsonian on the activities of his survey contain scattered references to, and descriptions of, Numa languages, cultures and society (e.g., Powell, 1874: 25-32). But his principal descriptions of Numa material culture and subsistence are in his ethnographic manuscripts (Fowler and Fowler, eds., 1971) and in his famed *Explorations* report (Powell, 1875, 1895a). The following sections are taken from the revised edition of the Powell report since they are not included in his ethnographic manuscripts.

In discussing the Bridger Basin area of southwestern Wyoming, north of the Uintah Mountains, Powell (1895a:71-72) wrote:

The region thus described, from Fremont's Peak to the Uinta Mountains, has been the home of tribes of Indians of

the Shoshonean family from time immemorial. It is a great hunting and fishing region, and the vigorous Shoshones still obtain a part of their livelihood from mesa and plain and river and lake. The flesh of the animals killed in fall and winter was dried in the arid winds for summer use; the trout abounding in the streams and lakes were caught at all seasons of the year; and the seeds and fruits of harvest time were gathered and preserved for winter use. When seeds were gathered they were winnowed by tossing them in trays so that the winds might carry off the chaff. Then they were roasted in the same trays. Burning coals and seeds were mixed in the basket trays and kept in motion by a tossing process which fanned the coals until the seeds were done; then they were separated from the coals by dexterous manipulation. Afterwards the seeds were ground on mealing stones and molded into cakes, often huge loaves, that were stored away for use in time of need. Raspberries, chokecherries, and buffalo berries were abundant, and these fruits were gathered and mixed with the bread. Such fruit cakes were great dainties among these people.

For the area south of the Uintah Mountains Powell (1895a:62-65) wrote:

From time immemorial the region drained by the Grand, White, and Yampa rivers has been the home of the Ute tribes of the Shoshonean family [i.e., linguistic family, as per Powell's (1891) classification] of Indians. These people built their shelters of boughs and bark, and to some extent lived in tents made of the skins of animals. They never cultivated the soil, but gathered wild seeds and roots and were famous hunters and fishermen. As the region abounds in game, these tribes have always been well clad in skins and furs. The men wore blouses, loincloth leggings, and moccasins, and the women dressed in short kilts. It is curious to notice the effect which the contact of civilization has had upon these women's dress. Even twenty years ago [1850s] they had lengthened their skirts; and dresses, made of buckskin, fringed with furs, and beaded with elk teeth, were worn so long that they trailed on the ground. Neither men nor women wore any headdress except of festival occasions for decoration; then the women wore little basket bonnets decorated with feathers, and the men wore headdresses made of the skins of ducks, geese, eagles, and other large birds. Sometimes they would prepare the skin of the head of the elk or deer, or of a bear or mountain lion or wolf, for a headdress. For very cold weather both men and women were provided with togas for their protection. Sometimes the men would have a bearskin or elkskin for a toga; more often they made their togas by piecing together the skins of wolves, mountain lions, wolverines, wild cats, beavers and otters. The women sometimes made theirs of fawnskins, but rabbitskin robes were far more common. These rabbitskins were tanned with the fur on, and cut into strips; then cords were made of the fiber of wild flax of yucca plants; and round these cords the strips of rabbitskin were rolled, so that they made long ropes of rabbitskin coils with a central cord of vegetal fiber; then these coils were woven in parallel strings with cross strands of fiber. The robe when finished was usually about five or six feet square, and it made a good toga for a cold day and a warm blanket for the night.

Turning to the Southern Paiute, Powell (1895a: 84), as did Kelly (1964:142) later, recognized the sparse population in the Kaiparowits band area:

The region of the country which has been thus described, from the Tavaputs Plateau to the Paria River, was the home of a few scattered Ute Indians, who lived in very small groups and who hunted on the plateau, fished in the waters, and dwelt in the canyons. There was nominally but one tribe, but as the members of this tribe were in very small parties and separated by wide distances the tribal bonds were very weak and often unrecognized. A country so destitute of animal and vegetal life would not support large numbers, and the few who dwelt here gained but a precarious and scant subsistence. To a large extent they lived on seeds and roots. The low, warm canyons furnished admirable shelter for the people, and their habitual costumes were loincloths, paints, and necklaces of tiny arrowheads made of the bright-colored agates and carnelians strung on snakeskins.

Powell 1895a:316-320) described the Southern Paiute Kaibab band as follows:

During the inclement season they live in shelters made of boughs or the bark of the cedar [juniper], which they strip off in long shreds. In this climate most of the year is dry and warm, and during such time they do not care for shelter. Clearing a small, circular space of ground, they bank it around with brush and sand, and wallow in it during the day and huddle together in a heap at night—men, women, and children; buckskin, rags, and sand. They wear very little clothing, not needing much in this lovely climate.

The sunny mountainside is covered with wild fruits, nuts, and native grains, upon which they subsist. The *oose*, the fruit of the yucca, or Spanish bayonet, is rich, and not unlike the pawpaw of the valley of the Ohio. They eat it raw and also roast it in the ashes. They gather the fruits of a cactus plant, which are rich and luscious, and eat them as grapes or express the juice from them, making the dry pulp into cakes and saving them for winter and drinking the wine about their camp fires until the midnight is merry with their revelries.

They gather the seeds of many plants, as sunflowers, goldenrod, and grasses. For this purpose they have large conical baskets, which hold two or more bushels. The women carry them on their backs, suspended from their foreheads by broad straps, and with a smaller one in the left hand and a willow-woven fan in the right they walk among the grasses and sweep the seed into the smaller basket, which is emptied now and then into the larger, until it is full of seeds and chaff; then they winnow out the chaff and roast the seeds. They roast these curiously; they put seeds and a quantity of red-hot coals into a willow tray and, by rapidly and dexterously shaking and tossing them, keep the coals aglow and the seeds and tray from burning. So skilled are the crones in this work they roll the seeds to one side of the tray as they are roasted and the coals to the other as if by magic.

Then they grind the seeds into a fine flour and make it into cakes and mush. . . . For a mill, they use a large

flat rock, lying on the ground, and another small cylindrical one in their hands. They sit prone on the ground, hold the large flat rock between the feet and legs, then fill their laps with seeds, making a hopper to the mill with their dusky legs, and grind by pushing the seeds across the larger rock, where they drop into a tray. .

Mothers carry their babes curiously in baskets. They make a wicker board by plaiting willows and sew a buckskin cloth to either edge, and this is folded in the middle so as to form a sack closed at the bottom. At the top they make a wicker shade, . . . and wrapping the little one in a wildcat robe, place it in the basket, and this they carry on their backs, strapped over the forehead, and the little brown midgets are ever peering over their mothers' shoulders. In camp, they stand the basket against the trunk of a tree or hang it to a limb.

There is little game in the country, yet they get a mountain sheep now and then or a deer, with their arrows, for they are not yet supplied with guns [*sic*, see p. 86]. They get many rabbits, sometimes with arrows, sometimes with nets.

Most of their bows are made of cedar [juniper], but the best are made of the horns of mountain sheep. These are soaked in water until quite soft, cut into long thin strips, and glued together; they are then quite elastic. During the autumn, grasshoppers are very abundant. When cold weather sets in, these insects are numbed and can be gathered by the bushel. At such time, they dig a hole in the sand, heat stones in a fire nearby, put some hot stones in the bottom of the hole, put on a layer of grasshoppers, then a layer of hot stones, and continue this, until they put bushels on to roast. There they are left until cool, when they are taken out, thoroughly dried, and ground into meal. Grasshopper gruel or grasshopper cake is a great treat.

Of the adjacent Southern Paiute bands Powell (1895a:104-106) wrote:

On the terraced plateaus [of the Arizona strip] three tribes of Indians are found: the Shivvits ("people of the springs"), the Uinkarets ("people of the pine mountains"), and the Unkaniguts ("people of the red lands," who dwell along the Vermilion Cliffs). They are all Utes [linguistically] and belong to a confederacy with other tribes living farther to the north, in Utah. These people live in shelters made of boughs piled up in circles and covered with juniper bark supported by poles. These little houses are only large enough for half a dozen persons huddling together in sleep. Their aboriginal clothing was very scant, the most important being wildcat skin and wolfskin robes for the men, and rabbitskin robes for the women, though for occasions of festival they had clothing of tanned deer and antelope skins, often decorated with fantastic ornaments of snakeskins, feathers, and the tails of squirrels and chipmunks. A great variety of seeds and roots furnish their food, and on the higher plateaus there is much game, especially deer and antelope. But the whole country abounds with rabbits, which are often killed with arrows and caught in snares. Every year they have great hunts, when scores of rabbits are killed in a single day. It is managed in this way: They make nets of the fiber of wild flax and of some other plant, the

meshes of which are about an inch [2.5 cm] across. These nets are about three and half feet [1 m] in width and hundreds of yards in length. They arrange such a net in a circle, not quite closed, supporting it by stakes and pinning the bottom firmly to the ground. From the opening of the circle they extend net wings, expanding in a broad angle of several hundred yards from either side. Then the entire tribe will beat up a great district of country and drive the rabbits toward the nets, and finally into the circular snare, which is quickly closed, then the rabbits are killed with arrows.

A great variety of desert plants furnish them food, as seeds, roots, and stalks. More than fifty varieties of such seed-bearing plants have been collected. The seeds themselves are roasted, ground, and preserved in cakes. The most abundant food of this nature is derived from the sunflower and the nuts of the piñon. They still make stone arrow-heads, stone knives and stone hammers, and kindle fire with the drill.

Finally, F. S. Dellenbaugh (1962:117-78), who was with Powell in 1872 gives a good description of the transitional status of Kaibab Paiute material culture:

About a mile from Kanab [Utah] the Kaibab band of Pai Utes were encamped, and we had a good opportunity to visit them and study their ways. The Major was especially interested and made voluminous notes. . . . Their wickiups, about seven feet [2 m] high, were merely a lot of cedar

[juniper] boughs, set around a three-quarter circle, forming a conical shelter, the opening toward the south. In front they had their fire, with a mealing stone or two, and round about were their conical and other baskets, used for collecting grass seeds, piñon nuts, and similar vegetable food, which in addition to rabbits formed their principal subsistence. At certain times they all went to the Kaibab [Plateau] deer hunting. Their guns, where they had any, were of the old muzzle-loading type, with outside hammers to fire the caps. Many still used the bow and arrow and some knew how to make stone arrowheads. . . . Their clothing was, to some extent, deerskin, but mainly old clothes obtained from the whites. They made a very warm robe out of rabbit skins, twisted into a long rope and then sewed side to side into the desired size and shape. . . . They obtained fire by the use of matches when they could get them, but otherwise they used the single stick or 'palm' drill.

These several quotes from Powell and Dellenbaugh support our assertion of the transition which Numa material culture was undergoing at the time of Powell's visits. The Southern Paiute bands are of especial interest here because they had had the least contact with White culture by 1870. Guns, cast-off White clothing, and matches were in use in 1870, but so were aboriginal bows and stone-tipped arrows, deer- and rabbit-skin clothing and firedrills.

## The Collection

In presenting detailed descriptions of the collection, we have organized the materials first into general classes or categories of objects, i.e., textiles, clothing, weapons, etc.; second, by tribe or band (insofar as a particular category of object is represented for a specific tribe or band); and third, by USNM catalog number. Given Powell's original aim of collecting complete "sets" of material culture items, we investigated the possibility of presenting the descriptions by tribe or band, i.e., all the Kaibab Southern Paiute items, then all the Shivwits Southern Paiute items, etc. But three factors led us to choose the present system. First, many of the "sets" listed in Powell's catalogs were subsequently broken up as items were exchanged with other museums. Second, there would necessarily be duplication in description of details of manufacture of several classes of items. A third, and major, factor was our uncertainty as to the proper tribe or band assignment of some items, due, as noted above, to inconsistencies between and among

Powell's catalogs, the USNM catalog, and the labels on the artifacts.

For reasons of space we have not made extensive or detailed comparisons with materials reported for those Numic groups not included herein, or with groups in adjacent culture areas as was *de rigueur* in comparative material cross-culture studies earlier in the century. We have, however, attempted to include details of manufacturing or processing, especially from the unpublished Sapir (1910) manuscript.

In the following sections the collection is described by classes of items. Note that in the figure legends and tables the following abbreviations are used (Ute, Colorado Territory and White River Ute are probably the same group, but both names are used in Powell's catalogs):

- BAE Bureau of American Ethnology Collection, National Anthropological Archives, National Museum of Natural History, Smithsonian Institution
- BLS Bear Lake Shoshoni

DCG	Deep Creek Gosiute
GCS	Goose Creek Shoshoni
KSP	Kaibab Southern Paiute
LVSP	Las Vegas Southern Paiute
MSP	Moapa Southern Paiute
SPSU	Southern Paiute, Southern Utah
SSP	Shivwits Southern Paiute
SU	Seuvarits Ute
UCT	Ute, Colorado Territory
USP	Uinkarets Southern Paiute
UU	Uintah Ute
WRS	Wind River Shoshoni
WRU	White River Ute

Figures for this volume were originally designed to fit the larger format of numbers 1–25 of this *Contributions* series. Reduction in format to the present dimensions necessitated recalculation of scale; “ca.” in figure legends indicates that the scale is correct within  $\pm 5\%$ .

### Basketry

Basketry was very important in Numa material culture. Baskets were used for collecting and transporting seeds and roots, for winnowing and parching processes, for water and food storage and as clothing in the form of women’s basket hats. The several types of baskets described by Kelly (1964: 78–83, 162–63, pls. 3, 4) and Sapir (1910:76–77) for the Southern Paiute are all found in the Powell collection, with the exception of a wrapped-stitch carrying frame described by Kelly (1964:162–63, pl. 3a).

Basketry forms one of the largest classes of implements in the collection. The majority of the specimens were collected from the Southern Paiute. As noted, some specimens can be assigned to specific bands; others cannot and are included under the general heading of Southern Paiute. Other specimens were collected from the White River Ute, the Deep Creek Gosiute, and the Goose Creek Shoshoni.

Mason (1885, 1904) described and illustrated several Powell specimens in his classic studies of North American Indian basketry. With one or two exceptions, the specimens illustrated by Mason were not found in the collection by the present authors. Possibly these specimens were stored separately from the rest of the collection after Mason studied them. We have, thus, included Mason’s descriptions of those specimens that he illustrated.

The nomenclature used in describing details of basketry construction is based on Mason’s (1901, 1902, 1904:188–97) work, with some modifications adopted from Weltfish (1930, 1932), Morris and Burgh (1941:61–63), and Adovasio 1970:4–6, figs. 4–8). Definitions of function are given the first time a particular type of implement is described. “Trays” and “bowls” intergrade; the latter being generally deeper with sides more nearly perpendicular to the bottom. The terms “mush bowl,” “tray,” “meat tray,” and “hat” are from Powell’s (1873, 1978) catalogs. Unless otherwise specified, “diameter” refers to the maximum rim diameter of bowls, trays, seed baskets, and basket hats. The diameter of water jugs was measured at the point of greatest circumference of the body; neck diameter was measured at the point of maximum constriction of the neck; “opening” refers to the rim diameter at the top of the neck. “Height,” where used, was determined by placing specimens rim downward on a table and measuring to a plane (parallel to the table top) that touched the extreme exterior point of the basket bottom.

### *Kaibab Southern Paiute*

SEED FANS.—These implements were used to beat seeds from bushes and plants into carrying baskets or other receptacles.

*USNM 11824*: Seed fan; twined weave; rod bundle twined together to form grip at one end, spread out in spoon shape to form warp foundation and then brought together at other end with close twining weft. Some rim rods extend through bundle rods to complete the oval spoon. Weft is continuous reversing direction and crossing itself between every other rod; weft rows are at irregular intervals. Rim is made by whipping rim rods and twined weave border with splints, noninterlocked. Length: 51 cm; width: 22 cm; rod diameter: 0.30–0.33 cm.

SEED BASKETS.—Large conical twined-weave baskets used to carry seeds, pinyon cones, etc.

*USNM 14670* (Figure 14b): Seed basket, conical; convex work surface; diagonal twine, vertical warp rods radiate from apex (which is covered with a rawhide thong), and spread out with additional rods inserted; weft splints twine in clockwise (seen from apex) spiral, over two rods under one rod alternating rod pairs in each weft row. Rim has

a two-rod foundation coil, simple stitched around circumference; a rim rod is whipped to coiling, noninterlocked. Two buckskin thongs are passed through weave and tied inside; each end of a buckskin strap is tied to these thongs; one thong is supplemented with a 2-ply, S-twist *Apocynum cannabinum* fiber cord. Diameter: 44.5 cm; height: 47.5 cm; rod diameter: 0.20–0.35 cm; rim rod diameter: 0.60 cm; carry strap: 2 cm wide × 91 cm long.

*USNM 14677* (Figure 14e): Seed basket, conical; convex work surface; diagonal twine weave; canted warp rods radiate from apex (which is covered with a rawhide piece stitched on with sinew), and spread out with additional rods inserted; weft splints twine in clockwise spiral, over two rods/under one rod, alternating rod pairs in each weft row. Rim has two-rod foundation coil, simple stitched around circumference; a rim rod is whipped to coiling, noninterlocked. Two rawhide thongs passed through weave and tied to outside serve as tie points for a carry strap of 2-ply, S-twist, *Apocynum cannabinum* fiber cord, doubled. Diameter: 48 cm; height: 51 cm; rod diameter: 0.20–0.35 cm; rim rod diameter: 0.6 cm; carry strap: 0.5 cm diameter × 97 cm long.

**BOWLS AND TRAYS.**—Used as dishes for seed gruels (mush) and as meat trays.

*USNM 11844* (Figure 10g): Tray; close coiling, simple stitch, noninterlocked, passing through rod of previous row, and over two-rod foundation; stacked. Stitch inserted between two stitches of previous row on outside and inside, varying with stitch inserted through stitch splint of previous row. Oval center; self rim; counterclockwise coiling; concave work surface. Diameter: 32.5 cm; height: 5 cm; rod diameter: 0.2 cm.

*USNM 11848* (Figure 11a): Tray; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Split stitches on convex surface; normal center spiral, counterclockwise (seen from inside); concave work surface; rim is single rod, whipped on with splint, noninterlocked; inside is worn down greatly and weave is filled with sand and ground meal; ground meal is also present on outside surface. Diameter: 43.5 cm; height: 7 cm; rod diameter: 0.32–0.35 cm; rim rod diameter: 0.52 cm.

*USNM 11871* (Figure 12c): Meat tray; close coil-

ing, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Split stitches on concave surface; normal coiled center with clockwise spiral (seen from inside). Convex work surface; self rim, terminating rod slightly larger. Charred places on inside surface. Diameter: 50.2 cm; height: 8.9 cm; rod diameter: 0.35–0.40 cm; rim rod diameter: 0.55 cm.

*USNM 11872* (Figure 11d): Tray; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Split stitches on concave surface. Normal center, clockwise spiral (seen from inside). Convex work surface. Rim is single rod whipped on with single splint, noninterlocked. Inside surface weave is filled with sand, dirt, and unknown substance; catalog (Powell, 1873) calls this a "meat tray" so substance may be meat and fat residue. Diameter: 48 cm; height: 8 cm; rod diameter: 0.25–0.3 cm; rim rod diameter: 0.6 cm.

*USNM 14711* (Figure 8l): Mush bowl; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two rod foundation; stacked. Stitch inserted between two stitches of previous row, varies with stitch inserted through stitch splint of previous row. Normal coiled center; self rim but with interlocked stitch; counterclockwise spiral, concave work surface. Diameter: 22.3 cm; height: 5.6 cm; rod diameter: 0.25 cm.

*USNM 14713* (Figure 10d): Mush bowl; close coiling, simple stitch, noninterlocked, passing through rod of previous row and around two rod foundation; stacked. Some stitches split on concave surface; convex work surface; normal coiled center; spiral clockwise (seen from inside). Rim is whipped with three splints, noninterlocked. Diameter: 26.5 cm; height: 5.4 cm; rod diameter: 0.25–0.35 cm.

*USNM 14716* (Figure 11b): Mush bowl; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Stitches on convex surface are split by following row stitches; concave work surface; normal center coiling with first three coils bound with splint wrapping. Spiral counterclockwise (seen from inside). Rim is whipped with three splints, noninterlocked. Diameter: 25.6 cm; height: 7.4 cm; rod diameter: 0.15–0.30 cm.

*USNM 14720* (Figure 5d, cf. Mason 1885, pl. 25, fig. 47); Mush bowl, close coiling, simple stitch,

noninterlocked, passing through rod of previous row and over two-rod foundation; bunched. Stitch inserted between two stitches of previous row on outside and inside surface; normal coiled center, rim whipped around terminating two rods; black or brown dyed splints stitched into coiling to form inverted triangle designs; clockwise coiling; convex work surface. Diameter: 17.4 cm; height: 6.2 cm; rod diameter: 0.25 cm.

#### PITCH-COVERED WATER JUGS.

*USNM 11249* (Figure 6a; cf. Mason, 1904:361, pl. 117 top): Water jug; loose close coiling, clockwise, simple stitch noninterlocking, passing around rod of previous foundation row and over two-rod foundation; stacked. Normal center; constricted neck and flared mouth; rim whipped around terminating rod foundation in noninterlocked stitch; two-rod handle passing through and around coil rods at top and bottom of handle and wrapped with splint stitching. Inside is thickly coated with pitch; convex work surface. Diameter: 27 cm; height: 26.7 cm; neck diameter: 10.5 cm; opening diameter: 11 cm; rod diameter: 0.35 cm.

*USNM 11250* (Figure 6c): Water jug; loose close coiling, clockwise, simple stitch, noninterlocking and passing around rod from previous row and over two rod foundation; stacked. Normal center, constricting at neck. Rim whipped and noninterlocked around and attached to neck of jug by passing rods around coil rods and splints around splint stitching; inside is thickly coated with pitch; convex work surface. Diameter: 22 cm; height: 25.4 cm; neck diameter: 10 cm; opening diameter: 9.5 cm; rod diameter: 0.35 cm.

*USNM 11261* (Figure 6e): Water jug; loose close coiling, clockwise, simple stitch noninterlocking, passing through rod of previous row and over two-rod foundation; stacked. Normal center. Constricted neck and flared mouth. Rim whipped around terminating rod and noninterlocked stitching. Inside coated lightly with pitch; convex work surface. Diameter: 29 cm; height: 32.5 cm; neck diameter: 10.7 cm; opening diameter: 12.5 cm; rod diameter: 3.8 cm.

#### OTHER BASKETS.

*USNM 14701* (Figure 9b): Small conical twined basket; warp rods radiate from bottom, expand basket with additional rods and then constrict at

neck. Rods bent over at rim and whipped with two splints, noninterlocking; weft splints twine in clockwise spiral (seen from bottom outside) over two rods/under one rod; alternating triangles are painted on neck of basket; inside of basket is stained with red ochre; vertical warp. Diameter: 12 cm; height: 11.5 cm; mouth diameter: 6.8 cm; rod diameter: 0.20–0.28 cm.

#### *Uinkarets Southern Paiute*

#### SEED FANS.

*USNM 11817* (Figure 1a; cf. Mason, 1904:492, fig. 181): Seed fan, twined; rod bundle twined together to form grip at one end, spread out to form warp foundation and then brought together with close twining and two rods under; weft returns and crosses itself between every other rod; weft rows are at irregular intervals; rim is made of a rod bundle whipped with splint coiling, noninterlocked; some rim rods extend into grip bundle and some complete oval spoon. Length: 50.5 cm; width: 23.2 cm; average rod diameter: 0.25–0.5 cm.

*USNM 11821* (Figure 1c): Seed fan, twined weave; rod bundle twined together to form grip at one end, spread out in spoon shape to form warp foundation and then brought together with close twining at the other end. Weft continuous, taking two rods over and two rods under, reversing direction and crossing itself between every other rod; weft rows are at irregular intervals; rim is made of bundle whipped with splint coiling stitch, interlocked; some rods extend through bundle and loop around spoon returning into bundle serving as spoon rim. Length: 48 cm; width: 23.2 cm; rod diameter: 0.28–0.35 cm.

*USNM 11823* (Mason, 1885, pl. 23; 1904:491, fig. 180): Seed fan; illustrated but not described by Mason.

#### SEED BASKETS.

*USNM 11814* (Figure 13f): Seed basket, conical; convex work surface; diagonal twine weave; slightly canted warp rods radiate from apex and spread out where additional rods are inserted; weft splints twine in clockwise spiral, over two rods/under one rod, alternating rod pairs in each weft row. Rim has two-rod foundation coil, simple stitch around circumference; a rim rod is whipped to coiling,

noninterlocked; two rawhide thongs passed through weave and tied on outside serve as tie points for buckskin carry strap. Diameter: 48.5 cm; height: 49 cm; rod diameter: 0.22-0.35 cm; rim rod diameter: 0.6 cm; carry strap: 4 cm wide  $\times$  90 cm long.

**BASKET HATS.**—These are twined-weave hats worn by women as in Figures 17 and 18.

*USNM 11831* (Figure 8f): Hat; diagonal twine weave; slightly canted warp rods bent in half and forming peak; rods spread out and widen hat as additional rods are inserted. Weft splints twined in clockwise spiral (seen from top outside), over two rods/under one rod, alternating rod pairs in each weft row. Warp rods are bent at bottom and whipped together with two splints, noninterlocked, to form rim; convex work surface. Design around hat near base (rim) made with four and one separate stitch splints with bark left on one side; design is visible on convex surface only. Diameter: 20 cm; height: 14.7 cm; rod diameter: 0.20-0.28 cm.

#### BOWLS AND TRAYS.

*USNM 11276* (Figure 8d): Mush bowl, close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Stitch inserted between two stitches of previous row varying frequently by passing through stitch of previous row on outside and inside surface. Normal coiled center, rim with alternate one plain and two dyed splints whipped around and inserted through terminating rod of two-rod foundation; other brown or black dyed splints are stitched into coiling forming design; coiling counter-clockwise, convex work side. Diameter: 27.8 cm; height: 8.7 cm; rod diameter: 0.3 cm.

*USNM 11866* (Figure 11e): Mush bowl; tight close coiling, simple stitch, noninterlocked; passing through rod of previous row and around three-rod foundation, bunched; normal coiled center clockwise spiral (seen from inside). Convex work surface; self rim. Diameter: 24.5 cm; height: 6.3 cm; rod diameter: 0.25-0.3 cm.

*USNM 11867/1* (Figure 3d): Wincrowing tray; diagonal twine weave; several warp rods form arc and remaining rods are bent over these and fan out, additional rods added to give tray width; other end of rods are bent at right angles and coil stitched together forming straight edge. Weft splints twined over two rods/under one rod, alternating rod pairs in each weft row; border rods on arc and

along straight edge form warp for close coiling, noninterlocked, simple stitch passing through rod of previous row and around two-rod foundation, stacked; around border a rim rod is whipped to coiling, noninterlocked. Very similar to specimen, *USNM 11857*, illustrated by Mason (1904:494, fig. 186). May be same specimen.

*USNM 11867/2* (Figure 8o): Mush bowl; close coiling; simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Stitch inserted between two stitches of previous row on inside surface; on outside surface this also occurs varying with stitch inserted through stitch splint of previous row; normal coil center; self rim; clockwise spiral, concave work side. Diameter: 28 cm; height: 10 cm; rod diameter: 0.2 cm.

*USNM 11870-A* (Figure 12a): Meat tray; close coiling, simple stitch, noninterlocked, passing through rod of previous row, and over two-rod foundation; stacked. Split stitches on convex surface, self rim; terminating rod slightly larger. Diameter: 49.5 cm; height: 6.2 cm; rod diameter: 0.30-0.35 cm; rim rod diameter: 0.45 cm.

*USNM 14712* (Figure 8e): Mush bowl; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Stitch inserted between two stitches of previous row, varies with stitch inserted through stitch splint of previous row; normal coiled center; self rim but with interlocked stitch; counter-clockwise, concave work surface. Diameter: 32 cm; height: 5.2 cm; rod diameter: 0.3 cm.

*USNM 14735* (Figure 12e): Tray; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Stitch inserted between two stitches of previous row on outside surface; normal coiled center; self rim; counterclockwise coiling; concave work surface. Diameter: 34.5 cm; height: 8.1 cm; rod diameter: 0.3-0.4 cm.

#### *Shiwits Southern Paiute*

##### SEED FANS.

*USNM 11825* (Figure 1d): Seed fan; twined weave; rod and bundle twined together to form grip at one end and spread out in spoon shape weave; rod bundle twined to form warp foundation and finally brought

together at other end. Some rim rods extend through bundle rods to complete oval spoon. Weft is continuous, reversing direction and crossing itself between every other rod. Weft rows are at irregular intervals. Rim is made by whipping splint stitch around rim rods and twine border, noninterlocked. Length: 47 cm; width: 26 cm; rod diameter: 0.32–0.40 cm.

**WINNOWING TRAYS.**—These twined trays were used to winnow chaff from seeds as well as to roast seeds and nuts by mixing them with live coals and tossing the mixture until the foods were cooked.

*USNM 11853* (Figure 4a): Winnowing tray; diagonal twined weave, warp rods stem from one point, fanning out, additional rods being added to give width to tray. Other end of rods are bent at right angles and whipped together. Weft splints twine over two rods/under one rod, alternating rod pairs in each weft row. A rim rod is whipped to border warp rods on arc; on straight edge, noninterlocked stitch. Concave work surface; inside and outside surfaces are partially impregnated with pitch. Length: 50 cm; width: 51 cm; height: 9.2 cm; rod diameter: 0.25–0.32 cm; rim rod diameter: 0.5 cm.

#### BOWLS AND TRAYS.

*USNM 11856* (Figure 10a): Tray, close coiling, simple stitch, noninterlocked, passing through rod of previous row, and over two-rod foundation; stacked. Stitch inserted between two stitches of previous row on outside and inside, varying with stitch inserted in splint stitch of previous row; oval coiled center, self rim; clockwise coiling, convex work surface. Diameter: 37 cm; height: 5.2 cm; rod diameter: 0.3 cm.

*USNM 11859* (Figure 3c): Mush bowl; close coiling, simple stitch, noninterlocked, passing through larger center rod of previous row and over three-rod foundation; bunched. Stitch inserted between two stitches of previous row, varies with stitch inserted through stitch splint of previous row. Normal coiled center; self rim with noninterlocked stitch; clockwise spiral, concave work surface. Diameter: 34 cm; height: 9.7 cm; rod diameters: 0.2, 0.2, and 0.32 cm.

*USNM 11860* (Figure 7f): Mush bowl; close coiling, simple stitch, interlocked; two-rod foundation; stacked. Normal coiled center; self rim; brown or black dyed splints taken in three to five stitches

staggered on different rows creating design on outside of basket; counterclockwise spiral, convex work surface. Diameter: 34 cm; height: 12.1 cm; rod diameter: 0.15 cm.

*USNM 14705* (Figure 8k): Mush bowl; close coiling, simple stitch, noninterlocking, passing through rod of previous row and over two-rod foundation; stacked. Stitch inserted between two stitches of previous row, varies with stitch inserted through stitch splint of previous row. Oval center, self rim with simple stitch, interlocking with previous row of stitches around terminating single rod foundation; counterclockwise spiral, concave work surface. Diameter: 25.5 cm; height: 6.5 cm; approximate rod diameter: 0.3 cm.

*USNM 14706* (Figure 8j): Mush bowl; close coiling; simple stitch, noninterlocked, passing through center rod of previous row and over three-rod foundation; bunched. Stitch inserted between two stitches of previous row, varies with stitch inserted through stitch splint of previous row. Normal coiled center; self rim with simple stitch passing through rod of previous row and around three-row foundation; clockwise spiral, concave work surface. Diameter: 24.5 cm; height: 7.6 cm; approximate rod diameter: 0.2–0.3 cm.

*USNM 14707* (Figure 8i): Mush bowl; close coiling; simple stitch, noninterlocked, passing through larger center rod of previous row and over three-rod foundation; bunched. Stitch inserted between two stitches of previous row, varies with stitch inserted through stitch splint of previous row. Normal coiled center; self rim. Counterclockwise spiral, concave work surface. Diameter: 25.7 cm; height: 6.4 cm; approximate rod diameter: 0.18 to 0.28 cm.

*USNM 14708/1* (Figure 12d): Mush bowl; close coiling; simple stitch, noninterlocked, passing through larger center rod of previous row and over three-rod foundation; bunched. Stitch inserted between two stitches of previous row, varies with stitch inserted through stitch splint of previous row. Normal coiled center; self rim; counterclockwise spiral, concave work surface. Diameter: 19.8 cm; height: 4.5 cm; approximate rod diameter: 0.18 and 0.30 cm.

*USNM 14708/2* (Figure 9c): Bowl; close coiling; simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Stitch inserted between two stitches of ing; simple stitch, noninterlocked, passing through

stitch splint of previous row. Oval center; self rim; counter-clockwise spiral, convex work surface. Diameter: (base) 14 cm, (rim) 19–20.5 cm; height: 13.2 cm; rod diameter: 0.4 cm.

*USNM 14709* (Figure 10c): Mush bowl; close coiling; simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Stitch inserted between two stitches of previous row, varies with stitch inserted through stitch splint of previous row. Oval center; self rim, but with single rod foundation; counterclockwise spiral, concave work surface. Diameter: 18.8 cm; height: 6.5 cm; rod diameter: 0.4 cm.

#### PITCH-COVERED WATER JUGS.

*USNM 11879* (Figure 4f): Water jug; close coiling; clockwise simple stitch, noninterlocked, passing through rod of previous bundle and over two-rod foundation; stacked. Normal center; constricted neck and flared mouth. Rim is splint whipped around terminating rods and noninterlocked with stitching. Inside and outside coated with pitch. Convex work surface. Two sets of braided 3-ply horse hair cords are tied into coiling about half way up side of jug. A carrying strap of 2-ply, S-twist *Apocynum cannabinum* fiber, woven in the same manner as rabbit nets, is tied to each horse hair loop. Diameter: 35 cm; height: 41 cm; neck diameter: 9 cm; opening diameter: 9.5 cm; net carrying strap length:  $\approx$  1 m.

#### *Southern Paiute, Southern Utah*

##### SEED FANS.

*USNM 11819*: Seed fan; twined weave; rod bundle twined together to form grip at one end, spread out in spoon shape to form warp foundation and then brought together with close twining at the other end. Weft continuous, taking two rods over and two rods under, reversing direction and crossing itself between every other rod. Weft rows are at irregular intervals. Rim is made of rod bundle whipped with splint coiling stitch, noninterlocked; some rim rods extend into grip bundle and some complete oval spoon. Length: 53.8 cm; width: 26 cm; rod diameter: 0.3–0.4 cm.

*USNM 11822* (Mason, 1904: 491–492, fig. 181: specimen at rear of illustration): Seed fan. Not found in collection. Mason describes as follows:

A bundle of rods is fastened together to form the grip of the fan, the other ends of these rods are then spread out and afterwards brought together at a point, at the same time bent downward in spoon form for a warp. These are held in place by a continuous twined weaving backward and forward, the rows being at irregular intervals. Near the end the points are held together by compact twined weaving. The border is made by coiled work built up on a pair of strong rods.

*USNM 11823* (Mason, 1885, pl. 23; 1904: 491, fig. 180): Seed fan. Not found in collection. Described by Mason as follows:

. . . a harvesting fan of the Paiutes made of small stems, split or whole, and bound together with various fiber [sic], the manual portion being wrapped with softer material.

The specimen is crude in comparison with other seed fans in the collection, as Mason notes.

*USNM 11826* (Figure 1e): Seed fan; twined weave; rod bundle twined together to form grip at one end, spread out in spoon shape to form warp foundation and then brought together at other end with close twining. Weft is continuous, over two/under two, reversing direction and crossing itself between every other rod. Weft rows are at irregular intervals. Rim is made of rod bundle whipped with splint coiling stitch, noninterlocked. All rim rods extend into grip bundle. Length: 49 cm; width: 23.5 cm; rod diameter: 0.35–0.4 cm.

*USNM 14330*: Seed fan; twined weave; rod bundle (probably twined together originally) forms grip at one end, spread out in spoon shape to form warp foundation and then brought together at the other end with close twining. Weft is continuous, reversing direction and crossing itself between every other rod. Weft rows are at irregular intervals. Rim is made of rod bundle whipped with splint coiling stitch, noninterlocked. Some rim rods extend into grip bundle and some complete oval spoon. Length: 45 cm; width: 24.5 cm; rod diameter: 0.3–0.4 cm.

##### SEED BASKETS.

*USNM 11806/1* (Figure 13a): Seed basket, conical; diagonal twined weave. Convex work surface; vertical warp rods radiate from apex (which is covered with a piece of rawhide stitched with sinew). Rods spread out where additional rods are inserted. Weft splints twine in clockwise spiral, over two rods/under one rod, alternating rod pairs in each weft row. Rim has eight-rod foundation coil, bunched,

simple stitched around circumference. A rim rod is whipped to coiling, noninterlocked. Two rawhide thongs pass through weave and serve as tie points for rawhide carry strap. Diameter: 48 cm; height: 53 cm; rod diameter: 0.2–0.3 cm; rim rod diameter: 0.6 cm; carry strap: 2 cm wide  $\times$  105 cm long.

*USNM 11806/2* (Figure 13b): Seed basket, semi-conical; close coiling; concave work surface; simple stitch, noninterlocked, passing over two-rod foundation and through rod of previous row; stacked. Clockwise spiral (seen from inside) on normal coiled center; rim rod is whipped, noninterlocked through rod of terminating coil. Two rawhide thongs pass through weave and serve as tie points for carrying cord of 2-ply, S-twist *Apocynum cannabinum* fiber. Diameter: 41.6 cm; height: 33 cm; rod diameter: 0.30–0.35 cm; rim rod diameter: 0.5 cm; cord: 0.6 cm diameter  $\times$  70 cm long.

*USNM 11808* (Figure 13c): Seed basket, conical. Diagonal twined weave; convex work surface; canted warp rods radiate from apex (which is covered with a piece of rawhide stitched on with 2-ply S-twist *Yucca* sp. fiber). Rods spread out where additional rods are inserted. Weft splints twine in clockwise spiral, over two rods/under one rod, alternating rod pairs in each weft row. Rim has six-rod foundation coil, bunched, simple stitched around circumference. A rim rod is whipped to coiling, noninterlocked. Two rawhide thongs each pass through weave and round separate rod which is bent back and forth and whipped with a splint. This acts as a support preventing rawhide from pulling through weave. A buckskin carry strap is tied at each end to the rawhide loops outside. Diameter: 48.5 cm; height: 47 cm; rod diameter: 0.25–0.35 cm; rim rod diameter: 0.8 cm; carrying strap: 3.5 cm wide  $\times$  70 cm long.

*USNM 11811* (Figure 13d): Seed basket, conical; diagonal twine weave; convex work surface; vertical warp rods radiate from apex (which is covered with a piece of rawhide stitched on with sinew). Rods spread out where additional rods are inserted. Weft splints twine in clockwise spiral, over two rods/under one rod, alternating rod pairs in each weft row. Design in seven bands spaced approximately 7 cm apart, each consisting of six rows giving a diagonal design within bands. Rim has four-rod foundation coil, bunched, simple stitched around circumference. The rim rod is whipped, noninter-

locked, to coiling. Two rawhide thongs pass through weave and serve as tie points for buckskin carry strap. Diameter: 68 cm; height: 70 cm; rod diameter: 0.20–0.25 cm; rim rod diameter: 0.62 cm; carry strap: 2.5 cm wide  $\times$  108 cm long.

*USNM 14668* (Figure 7b): Seed basket, conical; diagonal twine weave; convex work surface. Vertical rods radiate from apex (which is covered with commercial leather piece stitched on with buckskin thong). Rods spread out where additional rods are inserted. Weft splints twine in clockwise spiral, over two rods/under one rod, alternating rods in each weft row. Rim is whipped, noninterlocked, by a single splint stitch. Two S-twist 2-ply sinew cords are passed through weave, supported on inside surface by passing over wooden peg and forming loop on outside. These serve as tie points for a buckskin carry strap. May possibly be the same specimen as USNM 14667 illustrated by Mason (1904, fig. 185). Diameter: 37 cm; height: 30.5 cm; rod diameter: 0.22–0.28 cm; rim rod diameter: 0.6 cm; carry strap: 1 cm wide  $\times$  93 cm long.

*USNM 14671* (Figure 14c): Seed basket, conical; convex work surface. Diagonal twine weave; slightly canted warp rods radiate from apex (which is broken apart but patched with rawhide piece stitched on with sinew). Rods spread out where additional rods are inserted. Weft splints twine in clockwise spiral, over two rods/under one, alternating rod pairs in each weft row. Rim has six-rod foundation coil, bunched, simple stitched around circumference. A rim rod is whipped to coiling, noninterlocked. Two rawhide thongs passed through weave serve as tie points for buckskin carry strap. Diameter: 51.5 cm; height: 53 cm; rod diameter: 0.2–0.4 cm; rim rod diameter: 0.62 cm; carry strap: 2 cm wide  $\times$  73 cm long.

*USNM 14673* (Figure 14d): Seed basket, conical. Diagonal twine; vertical warp rods radiate from apex (which is covered with a rawhide piece stitched on with sinew), and spread out where additional rods are inserted. Weft splints twine in clockwise spiral (seen from apex), over two rods/under one rod, alternating rod pairs in each weft row. Rim has two-rod foundation coil, simple stitched around circumference. A rim rod is whipped to coiling, noninterlocked. Two rawhide thongs are passed through weave and tied outside. To these, each end of a buckskin strap is tied. Diameter: 52.8 cm;

height: 55 cm; rod diameter: 0.30–0.35 cm; rim rod diameter: 0.6 cm; carry strap: 2 cm wide × 88 cm long.

*USNM 14688* (Figure 7*d*, cf. Mason, 1904, pp. 274, 493–94 and Figs. 82, 182–85): Small berry-gathering basket; diagonal twine weave. Warp rods begin at bottom in two sets of four pairs of rods each. One set overlays the other at a right angle. Pairs are twined together with splint stitches and extend up basket with additional warp rods added to develop basket diameter. Weft splints twine in course two rods over/two under, alternating with a mate splint. The two splints cross at every other rod. Weft rows are irregular intervals spiraling in clockwise direction (seen from bottom outside). Work surface is convex. Rim is formed where warp rod ends are bent and coil stitched together, noninterlocked. A single rod rim is whipped onto coiling with splint stitch, noninterlocked. On two sides a buckskin carrying strap is tied to the rod rim. Diameter: 21 cm; height: 24.5 cm; rod diameter: 0.25–0.4 cm; rim rod diameter: 0.6 cm; buckskin strap: 2.5 cm wide × 93 cm long.

#### BASKET HATS.

*USNM 11829/1* (Figure 8*c*): Hat; diagonal twine weave; canted warp rods originate at peak, and bound with sinew, spreading out and widening hat as additional rods are inserted. Weft splints twined in clockwise spiral (seen from top-outside) over two rods/under one rod, alternating rod pairs in each weft row. Warp rods are bent at bottom and whipped together to form rim. Two splints are whipped around rim, noninterlocked. One of these splints is dyed dark color. Designs formed with colored splint stitches are also found in one row next to rim, three rows just above and in three rows on upper half of hat. Convex work surface, canted warp. Diameter: 22.2 cm; height: 13.5 cm; rod diameter: 0.18–0.25 cm.

*USNM 11834* (Figure 9*e*): Hat; diagonal twine weave; canted warp rods bent in half forming peak which is twined with sinew (thus sinew weft begins weave for first several rows). Rods spread out and widen hat as additional rods are inserted. Weft splints twined in clockwise spiral (seen from top outside) over two rods/under one rod, alternating rod pairs in each weft row. Warp rods are bent at bottom and whipped together with splint. Over this row two splints are whipped, noninterlocked, to

form rim. Convex work surface. Design bands around hat near middle and near peak are formed by two rows each of black dyed splints. Design is visible on both surfaces. Diameter: 21 cm; height: 14 cm; rod diameter: 0.25–0.3 cm.

*USNM 11837* (Figure 9*d*): Hat; diagonal twine weave; warp rods cut off forming hole at peak which is covered with a small piece of buckskin stitched on with S-twist sinew thread. Rods spread out and widen hat where additional rods are added. Weft splints twine in clockwise spiral (seen from top outside), over two rods/under one rod, alternating rod pairs in each weft row. Warp rods are bent at bottom and whipped together to form rim. Two splints, one dyed, whipped around rim, noninterlocked. Convex work surface. Dyed splints stitched into weave form design in five-stitch rows at middle of hat and two rows near top. Canted warp. Diameter: 21 cm; height: 14.5 cm; rod diameter: 0.20–0.25 cm.

*USNM 11838* (Mason, 1904: 491, fig. 179): Hat; not found in collection. Described by Mason as follows:

. . . a hat of a Ute [Paiute, according to Powell's 1873 catalog] Indian woman, in diagonal twined work. The warp stems converge at the top and the additional ones are added as the texture widens. The weft splints are twined so as to include the vertical warp twigs in pairs, but not in corresponding ones to those of the row underneath. The lines of weft elements ascend diagonally and a twilled effect is produced on the surface. . . The border of this Ute basket is ingeniously made. First, the projecting warp elements were bent and whipped in place with splints to form the body of the rim; on the top of this the weaver has sewed an ornamental false braid catching the splint into the bent warp stems underneath. The ornamentation on the outside is produced by three-strand monochrome or dichrome weaving.

*USNM 11842*: Hat; diagonal twined weave. Warp rods form peak at convergence, spreading out and widening hat with additional rods being added. Weft splints twine in clockwise spiral (seen from outside) over two rods/under one rod, alternating rod pairs in each weft row. Warp rods are bent at the bottom and noninterlocked. Convex work surface. Canted warp. Diameter: 22 cm; height: 15 cm; rod diameter: 0.25–0.35 cm.

*USNM 14307*: Hat; diagonal twined weave; warp rods are bent in half and form peak where twining begins at top of hat. Buckskin thong is tied to peak. Rods spread out and widen hat where additional

rods are added. Weft splints twined in clockwise spiral (seen from top outside) over two rods/under one rod, alternating rod pairs in each weft row. Warp rods are bent at bottom and whipped together to form rim. Three splints are whipped around rim, noninterlocked. Convex work surface; part of the weft splints have bark left on, creating random mottled design effect. Canted warp. Diameter: 22 cm; height: 14 cm; rod diameter: 0.25–0.3 cm.

#### WINNOWING TRAYS.

*USNM 14680* (Figure 3*b*): Winnowing tray; diagonal twine weave; warp rods form arc over which remaining warp rods are bent at base and fan out, additional rods being added to give tray width. Warp rods are bent at right angles on other end and coil stitched together forming a straight edge. Weft splints twined over two rods/under one rod, alternating rod pairs in each weft row. Around arc and across straight edge a rim rod is whipped with a splint, noninterlocked, stacked, stitch passing through rod of previous row. Length: 29 cm; width: 30 cm; height: 5.5 cm; rod diameter: 0.25–0.3 cm; rim rod diameter: 0.4 cm.

*USNM 14682* (Figure 4*b*): Winnowing tray; diagonal twine weave. Several warp rods form arc and remaining rods are bent over these and fan out with additional rods being added to give tray width. Other ends of rods are bent at right angles and coil stitched together forming straight edge. Weft splints twined over two rods/under one rod, alternating rod pairs in each weft row. Border rods on arc and along straight edge are warp for close coiling, noninterlocked, simple stitch passing through rod of previous row and over two-rod foundation, stacked. Around border a rim rod is whipped to coiling, noninterlocked stitch. Length: 46.5 cm; width: 47.5 cm; height: 6.7 cm; rod diameter: 0.25–0.35 cm; rim rod diameter: 0.52 cm.

*USNM 14683* (Figure 4*d*): Winnowing tray; diagonal twine weave. Several warp rods form arc and remaining rods butt to these and fan out with additional rods being inserted to give tray width. Other ends of rods are bent at right angle and coil stitched together forming straight edge. Weft splints twined over two/under one rod, alternating rod pairs in each weft row. Border rods are warp for close coiling, noninterlocked. To this a rim rod is whipped, noninterlocked stitch passing through rod

of previous bundle. Length: 46.5 cm; width: 45.8 cm; height: 6.5 cm; rod diameter: 0.25–0.35 cm; rim rod diameter: 0.6 cm.

*USNM 14685* (Figure 4*c*): Winnowing tray; diagonal twine weave. Several warp rods form arc and remaining rods butt to these and fan out with additional rods being inserted to give tray width. Other ends of rods are bent at right angles and coil stitched together forming straight edge. Weft splints twine over two rods/under one rod, alternating rod pairs in each weft row. Border rows on arc and along straight edge are warp for close coiling, noninterlocked, simple stitch passing over rod bundle. To this a rim rod is whipped with noninterlocked splint stitch. Length: 49.2 cm; width: 54.5 cm; height: 5.9 cm; rod diameter: 0.35–0.4 cm; rim rod diameter: 0.6 cm.

#### BOWLS AND TRAYS.

*USNM 11865* (Figure 8*a*): Mush bowl; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Stitch inserted between two stitches of previous row on outside and inside surfaces, varies with stitch inserted through stitch splint of previous row. Normal coiled center; self rim; clockwise spiral, convex work side. Buckskin and cloth thong tied to rim. Diameter: 21.5 cm; height: 5.3 cm; rod diameter: 0.28 cm.

*USNM 11869* (Figure 11*c*): Mush bowl; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Both convex and concave surfaces exhibit split stitches. Oval center coil spiraling counterclockwise (seen from inside). Concave work surface. Rim whipped with three splints passing through top rod, noninterlocked. Diameter: 30.5 cm; height: 6.5 cm; rod diameter: 0.30–0.35 cm.

*USNM 11870-B* (Figure 12*b*): Meat tray; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Split stitches on convex surface. Normal coiled center, counterclockwise spiral (seen from inside). Concave work surface. Self rim, terminating rod slightly larger. Diameter: 48 cm; height: 7.4 cm; rod diameter: 0.25–0.45 cm; rim rod diameter: 0.5 cm.

*USNM 14704* (Figure 8*h*): Bowl; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation;

stacked. On convex surface stitch splits previous row stitch and on concave surface stitch is inserted between two stitches of previous row. Concave work surface. Counterclockwise spiral (seen from inside). Normal coiled center. Rim is whipped with three splints, noninterlocked with regular stitches. Diameter: 25 cm; height: 12.2 cm; rod diameter: 0.20–0.25 cm.

*USNM 14717* (Figure 10*b*): Mush bowl; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Some stitches on convex surface are split by stitch on following row. Concave work surface. Normal coiled center, spiral counterclockwise (seen from inside). Three splint whipping, noninterlocked, forming rim. Diameter: 24 cm; height: 7 cm; rod diameter: 0.25–0.38 cm.

*USNM 14723* (Figure 8*g*): Mush bowl, close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; bunched. Stitch inserted between two stitches of previous row on outside and inside surfaces. Normal coiled center; rim whipped around terminating single rod of two-rod foundation. Brown or black dyed splints stitched into coiling forming zig-zag designs; clockwise coiling; convex work side. Diameter: 23.5 cm; height: 6.8 cm; rod diameter: 0.21 cm.

*USNM 14724* (Figure 10*e*): Bowl; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Convex work surface split stitch, concave surface stitch passed between stitches of previous row. Concave work surface. Oval center, counterclockwise spiral (seen from inside). Rim is self rim. Diameter: 17.5 cm; height: 3.2 cm; rod diameter: 0.25–0.32 cm.

*USNM 14725* (Figure 2*e*): Mush bowl; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Convex work surface. Normal center spiraling clockwise (seen from inside). Rim whipped with three splints passing through top rod, noninterlocked. Diameter: 29.5 cm; height: 8.3 cm; rod diameter: 0.20–0.25 cm.

*USNM 14737* (Figure 10*f*): Tray; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Both convex and concave surface exhibit split stitches. Normal coiled center spiraling clock-

wise (seen from inside). Convex work surface. Self rim. Diameter: 35.2 cm; height: 5.6 cm; rod diameter: 0.30–0.38 cm.

*USNM 14739* (Figures 7*e*, 8*n*): Bowl; close coiling, simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Stitch inserted between two stitches of previous row on inside and inserted in splint stitch of previous row on outside surface. Normal coiled center, self rim. Design formed of brown or black dyed splints forming one complete coil near center and star shape formed by three to four stitches taken on a coil and staggered to build design. Counterclockwise coiling; concave work surface. Diameter: 30.2 cm; height: 7.4 cm; rod diameter: 0.3 cm.

*USNM 14740* (Figure 2*a, b*): Large bowl, close clockwise coiling, simple stitch, noninterlocking and passing through rod of previous row and over three-rod foundation; bunched. Normal center, rim whipped around terminating coiling and interlocked with last stitch. Convex work side. Black or brown dyed splints are used in stitching to form design. Diameter: 37 cm; height: 11.3 cm; rod diameter: 0.20–0.25 cm.

*USNM 14742* (Figure 3*a*): Large bowl; close clockwise coiling, simple stitch interlocking and passing through rod of previous row, over three rod bunched foundation. Normal center, rim stitch whipped around terminating coiling and interlocking with last stitch. Convex work side. Diameter: 37.2 cm; height: 12 cm; rod diameter: 0.2 cm.

*USNM 14744* (Figure 2*c, d*): Large bowl; close clockwise coiling, simple stitch, noninterlocked and passing through rod of previous row and over three-rod foundation; bunched. Normal center, rim whipped around terminating coiling and interlocked with last stitch; convex work side: black or brown splints are used in stitching to form design. Diameter: 43 cm; height: 12 cm; rod diameter: 0.2 cm.

#### PITCH-COVERED WATER JUGS.

*USNM 10758, 10760, 11880, 11882* (Mason, 1904: 258–259 and pl. 32: nos. 1–3, 7): Water jugs; not found in collection. Described by Mason as follows:

Major J. W. Powell . . . in company with Prof. A. H. Thompson, made a collection of water-tight basket work from the Paiute Indians (Shoshonean family) in southern Utah. . . .

Cat. no. 10758, is a Tsai a wats of squat form in a single-rod coiling weaving, with three lugs at equal distance around the shoulder for carrying. Height,  $4\frac{3}{4}$  inches [12 cm]. . .

Cat. no. 10760, is a globose jar in coiled weaving, carelessly done on a splint foundation, as among the Utes. Height,  $7\frac{1}{2}$  inches [19 cm]. There are no lugs on the outside, so this piece would be a pitcher rather than a canteen.

Cat. no. 11880 . . . is an excellent specimen of twined work in twill, with single rows of three-ply twine and the neck in openwork . . . the melted pitch or asphaltum is poured inside and rinsed around until the surface is covered. Height, 9 inches [22.85 cm]. The rope handle gives the appearance of a pitcher.

Cat. no. 11882, is a Tsai a wats, in twined weaving, the pattern being twilled work. Lugs on the side support the broad, soft, buckskin band. The pitch is evenly laid on, just revealing the texture beneath. Height,  $7\frac{1}{2}$  inches [19 cm]. . . .

*USNM 11874* (Figure 4e): Water jug, pitch-covered, pitch-lined. Close coiled; simple stitch, noninterlocked, passing through rod of previous row and over two-rod foundation; stacked. Normal center, counterclockwise spiral (seen from outside-bottom). Convex work surface. Globular shape constricting to neck and slightly flaring to mouth. Rim is three splints whipped onto terminating coil. On one side two sets of five 3-ply horse hair loops pass through weave. These are reinforced with rawhide wrapping on outside and each end of a buckskin carry strap is tied to a horse hair loop. Diameter: 31 cm; neck diameter: 9 cm; mouth diameter: 10 cm; height: 45 cm; buckskin strap: 4 cm wide  $\times$  97 cm long.

*USNM 11876* (Mason, 1904:361, pl. 117 exterior): Pitch-covered water jug; not found in collection. Described by Mason as

Paiute . . . specimen in which the foundation is a single rod and in sewing the stitches simply interlock with those beneath, giving a very much more regular form to the surface. The border is in oblique coiled sewing. There are lugs on the side for the purpose of carrying, and the head-band is of soft deerskin.

#### PITCH CONTAINERS.

*USNM 14698/1* (Figure 5f): Basket pitch container; twined, weft splints taking two rods and passing behind a third rod. Wefts cross between rods. Rods or spokes are held together at ends by weft splints and expand at basket middle by additional rods being added. Circular opening on one side is rimmed with simple stitch, noninterlocking, whipping warp and weft bordering opening. Inside of container is lined with *Pinus edulis* pitch.

Reddish cast on exterior may be due to coating of juniper leaves pounded with red ochre, which is put on before pitch; clockwise spiral, convex work surface. Length (from handle to handle): 18 cm; width: 10.3 cm; rod diameter: 0.3 cm; circular opening diameter: 3.7 cm.

*USNM 14698/2* (Figure 5g): Basket pitch container without application of pitch; twined, weft splints over two rods and under one. Wefts cross between rods. Rods or spokes are held together at ends by weft splints and expand at basket middle by additional rods being added. Circular opening on one side is rimmed with simple stitch, noninterlocked, whipping warp and weft bordering opening. Design ring at each end of basket is formed by using reddish dyed splints in weft. Clockwise spiral (seen from outside), convex work surface. Length (from spoke to spoke): 14.5 cm; width: 11.3 cm; rod diameter: 0.22 cm; circular opening diameter: 5.8 cm.

#### OTHER BASKETS.

*USNM 11262* (Mason, 1904:494-495, figs. 187, 188): Coiled jar; not found in collection. Described by Mason as

Paiute Indians, Utah . . . a coiled seed jar. . . It belongs to the type of coiled work called two-rod; that is, the foundation of the coil work consists of two stems, one above the other; the stitches pass around these two and under one of the foundation underneath and interlock. Baskets of this kind are frequently dipped into hot gum or pitch of some kind. . . . The peculiar effect of this sort of weaving is to hide one of the rods in the foundation and to reveal the other. Frequently, the upper one in each pair is smaller, and by driving the stitches close home a tolerably close and very enduring structure is the result.

*USNM 14700* (Figure 9a): Globular basket with slight constriction at neck and opening. Diagonal or twilled twining. Counterclockwise spiral with convex work surface. Rim is three-strand twine work on two last rows. Buckskin thong passes from inside to outside on each of two sides of basket neck for carrying strap. Design woven in with dyed brown splints. Some areas of design accentuated with black paint. Diameter: 20.5 cm; height: 20 cm; mouth diameter: 16.5 cm; rod diameter: 0.25 cm.

*USNM 19034* (Figure 5a): Scoop, twined weave. Rod bundle twined together to form self-handle at one end, spread out in spoon-shape to form warp foundation, and returned to handle bundle. Weft

is over two/under one and also forms exterior of handle. Tan color alternates with dark where bark is left on. Length: 16.2 cm; width: 13.7 cm; rod diameter: 0.30–0.35 cm.

### *Moapa Southern Paiute*

#### SEED FANS.

*USNM 11820* (Figure 1b): Seed fan; twine weave; rod bundle twined together to form grip at one end, spread out in spoon to form warp foundation and finally brought together at opposite end. Weft is continuous, reversing direction and crossing itself between every other rod. Weft rows are at irregular intervals. Rim rod is whipped with a splint, noninterlocked, to rest of twine weave border. Length: 44.5 cm; width: 21 cm; rod diameter: 0.32–0.48 cm.

*USNM 14325*: Seed fan; twined weave; rod bundle twined together to form grip at one end, spread out in spoon shape to form warp foundation and then brought together at opposite end with close twining. Weft is continuous, reversing direction and crossing itself between every other rod, taking two rods over and two rods under in stitch. Weft rows are at irregular intervals. Rim is made of rod bundle whipped with splint coiling stitch; noninterlocked. Some rim rods extend into grip bundle and some complete oval spoon. Length: 47.5 cm; width: 22.5 cm; rod diameter: 0.25–0.5 cm.

#### SEED BASKETS.

*USNM 10770* (Figure 14f): Seed basket, semiconical; close coiling; simple stitch, noninterlocked, passing over two-rod foundation and through rod of previous row; stacked. Clockwise spiral (seen from inside) on normal coiled center. Rim rod is whipped, noninterlocked, through rod of terminating coil. Two rawhide thongs pass through weave and serve as tie points for buckskin carry strap. Diameter: 53 cm; height: 52 cm; rod diameter: 0.3–0.4 cm; rim rod diameter: 0.48 cm; carry strap: 2.5 cm wide × 122 cm long.

*USNM 11812* (Figure 13e): Seed basket, conical; diagonal twine weave; convex work surface; nearly vertical warp rods radiate from apex (which is broken and patched with a piece of commercial leather stitched on with sinew). Rods spread out where additional rods are inserted. Weft splints

twine in clockwise spiral, over two rods/under one rod, alternating rod pairs in each weft row. Designs, in eight stitch rows irregularly spaced along basket weft, are made of dyed black splints simple stitched two over/two under around basket circumference. Rim has three-rod foundation coil, bunched, simple stitched around circumference. A rim rod is whipped to coiling, noninterlocked. Two rawhide thongs pass through weave and serve as tie points for rawhide carry strap. Diameter: 54.5 cm; height: 55 cm; rod diameter: 0.25–0.3 cm; rim rod diameter: 0.8 cm; carry strap: 1.3 cm wide × 68 cm long.

*USNM 14669* (Figure 14a): Seed basket, conical, diagonal twine weave; warp rods radiate from apex (which is broken from use), and spread out where additional rods are added. Weft splints twine in clockwise (seen from apex) spiral, over two rods/under one rod, alternating rod pairs in each weft row. Warp is essentially vertical. Rim has two-rod coiling, simple stitched around circumference. A rim rod is whipped to coiling, noninterlocked. Two buckskin thongs are passed through weave and tied inside and each end of a rawhide carry strap is joined to each of these by looping through and stitching with rawhide to standing part. Work surface is convex. Diameter: 40.5 cm; height: 44 cm; rod diameter: 0.25–0.3 cm; rim rod diameter: 0.5 cm; carry strap: 3.5 cm wide × 55 cm long.

#### BASKET HATS.

*USNM 14310*: Hat; diagonal twine weave; warp rods are bent in half and form peak where twining begins at top of hat. Rods spread out and widen hat where additional rods are added. Weft splints twined in clockwise spiral (seen from top outside) over two rods/under one rod, alternating rod pairs in each weft row. Warp rods are bent at bottom and whipped together to form rim. Three splints are whipped around rim, noninterlocked. Convex work surface. Part of weft splints have bark left on, creating random mottled design effect. Canted warp. Diameter: 18 cm; height: 12.5 cm; rod diameter: 0.25–0.4 cm.

*USNM 14320*: Hat; diagonal twine weave; warp rods cut off forming hole at peak. Rods spread out and widen hat where additional rods are added. Weft splints twined in clockwise spiral (seen from top outside), over two rods/under one rod, alternating rod pairs in each weft row. Warp rods are bent at bottom and whipped together to form rim.

Three splints whipped around rim, noninterlocked. Convex work surface. Dyed splints form design in three rows of stitches around middle of hat and three rows near rim. Canted warp. Diameter: 23.5 cm; height: 14 cm; rod diameter: 0.25–0.35 cm.

#### PITCH CONTAINERS.

*USNM 14697* (Figure 5e): Pitch container; twined, weft splints taking two rods and passing behind a third rod. Wefts cross between rods. Rods on spokes are held together by weft splints at each end and expand at basket middle by additional rods being added. Circular opening on one side is rimmed with simple stitch, noninterlocking, whipping warp and weft bordering opening. Inside of container is *Pinus edulis* pitch lined. Reddish cast may be due to coating of juniper leaves pounded with red ochre, which is put on before pitch. Clockwise spiral, convex work side. Length (from handle to handle): 12.9 cm; diameter: 9.1 cm; rod diameter: 0.3 cm; circular opening diameter:  $\approx$  5 cm.

#### White River Utes, Colorado Territory

##### BASKETS.

*USNM 10751/1* (Figure 6f): Basket, flat base; constricted at neck and flared at mouth. Close coiling, simple stitch passes through rod of previous row and over two-rod foundation; stacked. Concave surface has split stitch. Normal coiled center, clockwise spiral (seen from inside). Rim is whipped with two splints noninterlocked. Concave work surface. Diameter: 34 cm; neck diameter: 27 cm; inside mouth diameter: 29 cm; height: 24.5 cm; rod diameter: 0.35–0.4 cm.

*USNM 10751/2* (Figure 7c): Berry basket, flat base, constricted at neck and flaring at mouth; close coiling, simple stitch passed through rod of previous row and over two-rod foundation, stacked; concave surface has split stitch. Normal coiled center, clockwise spiral (seen from inside). Rim is whipped with two splints, noninterlocked. Convex work surface. Two thongs tied together and fastened to rim and at neck constriction by passing through basket and knotting on inside. Diameter: 24.5 cm; neck diameter: 19 cm; inside mouth diameter: 19.5 cm; height: 23.5 cm; rod diameter: 0.35–0.4 cm; buckskin strap: 0.5 cm wide  $\times$  45 cm long.

*USNM 10752* (Figure 7a): Berry basket, flat base,

constricted at neck and slightly flaring at mouth. Close coiling, simple stitch, noninterlocked. Stitch passes through rod of previous row and over two-rod foundation; stacked. Convex surface exhibits split stitches except for three coils, which partially have split stitches on concave surface. This is not obvious and probably not for design purposes. It may indicate change in work surface when basket reached that point of construction. Normal center, clockwise spiral (seen from inside). Rim is whipped with three splints, noninterlocked. Two loops of rods twined together and passed through weave serve as probable carrying strap tie points. Diameter: 24 cm; neck diameter: 17 cm; inside mouth diameter: 17.5 cm; height: 22 cm; rod diameter: 0.3–0.4 cm.

#### PITCH-COVERED WATER JUGS.

*USNM 10759* (Figure 5b; cf Mason, 1904: 258–259, pl. 32, lower right): Water jug, "club-shaped." Two-strand twining, counterclockwise; spiral and convex work surface. Rim whipped with splint, noninterlocked. Six-rod bundle handle wrapped with sinew. Woven commercial cloth strip wrapped around bottom under layer of pitch. Heavy pitch covering inside and outside obscures much detail. Diameter: 17 cm; neck diameter: 4.5 cm; base diameter: 7 cm; height: 25 cm.

*USNM 10765* (Figure 6b): Water jug, pitch lined, constricted at neck, slight flare at mouth; close coiling, simple stitch passes through rod of previous row and over two-rod foundation; stacked. Convex work surface; normal coiled center, counterclockwise (seen from outside). Rim is whipped with two splints, noninterlocked. Two loops of three-ply braided horse hair are passed through weave to serve as tie points for buckskin strap. Diameter: 23 cm; neck diameter: 17 cm; height: 25.5 cm; rod diameter: 0.3–0.4 cm; inside mouth diameter: 3.5 cm. Strap measurement not recorded.

#### Deep Creek Cosiute

##### BOWLS.

*USNM 11861* (Figure 8b): Mush bowl; close coiling, simple stitch, noninterlocking, passing through rod of previous row and over two-rod foundation; stacked. Stitch inserted between two stitches of previous row on outside surface. On inside surface stitch inserted through stitch splint of previous row.

Normal coiled center; self rim. Clockwise spiral, concave work surface. Diameter: 19.9 cm; height: 8.2 cm; rod diameter: 0.3 cm.

*USNM 11863/1* (Figure 8*m*): Mush bowl; close coiling, simple stitch, noninterlocking, stitch passing through rod of previous row and over two-rod foundation; stacked. Stitch inserted between two stitches of previous row on outside and inside surfaces, varies with stitch inserted through stitch splint of previous row. Normal coiled center; self rim; counterclockwise spiral, convex work side. Diameter: 25.8 cm; height: 6 cm; rod diameter: 0.4 cm;

*USNM 11863/2* (Figure 8*p*): Mushbowl; close coiling, simple stitch, noninterlocked, stitch passing through rod of previous row, over one rod and through top rod of two-rod foundation; stacked. Stitch inserted between two stitches of previous row on outside and inside surfaces, varies with stitch inserted through stitch splint of previous row. Normal coiled center; self rim; clockwise spiral, convex work side. Diameter: 27.5 cm; height: 10 cm; rod diameter: 0.2 cm.

#### PITCH-COVERED WATER JUGS.

*USNM 10757* (Figure 6*d*): Water jug; loose close coiling, clockwise, simple stitch, noninterlocking, passing around rod of previous row and over two-rod foundation; stacked; normal center; constricted neck and flared mouth; rim whipped around terminating rod and noninterlocked with stitching. A buckskin thong 50 cm long is passed behind four splint stitches (left) below neck. Opposite this are two sets of three-ply braided horse hair cords passed behind splints. To these cords, a rawhide thong is tied at each end forming a carrying strap, extending approximately 1 m in length; convex work surface; inside of jug is thickly coated with pitch. Diameter: 21.8 cm; neck diameter: 9 cm; mouth diameter: 10.5 cm; height: 25 cm; rod diameter: 0.35 cm.

*USNM 11254* (Figure 5*c*): Water jug; loose close coiling, clockwise, simple stitch, noninterlocked, stitches passing through and some passing around rod of previous row and over two-rod foundation; stacked; normal center; constricted neck; rim whipped around terminating rod and noninterlocked stitching. Inside has slight coating of pitch. Handle of split rod wrapped with splint and passed through neck at rim and out below at base of neck; convex work surface. Diameter: 20.5 cm; height: 19

cm; neck diameter: 9 cm; rod diameter: 0.30–0.45 cm.

#### *Goose Creek Shoshoni*

##### BASKET HAT.

*USNM 11843*: Hat; diagonal twine weave; warp rods cut off forming hole at peak. Rods spread out and widen hat where additional rods are added. Weft splints twined in clockwise spiral (seen from top outside) over two rods/under two rods, alternating rod pairs in each weft row. Warp rods are bent at bottom and whipped together around rim. Three splints are whipped around rim, noninterlocked. Convex work surface. Canted warp. Diameter: 20.5 cm; height: 12 cm; rod diameter: 0.25–0.3 cm.

#### Netting and Cordage

The use of netting and cordage is of considerable antiquity in the Great Basin area. Materials recovered from all levels of Danger Cave (Jennings, 1957:226–234), Hogup Cave (Aikens, 1970:121–132, table 13) and in numerous other Great Basin archeological sites indicate the manufacture and use of cordage and netting for ten millennia or more. Steward (1938, *passim*), Downs (1966:48), and others stress the importance of rabbit hunting with large nets among non-equestrian Numic groups in historic times, and the archeological data indicate a long persistence of this activity.

Tony Tillohash, a Kaibab Southern Paiute informant (in Sapir, 1910:70), verifies the use of *Apocynum* rabbit nets:

Milkweed plants collected in fall when dry. Broken in middle and strands taken out and rolled by women into rope or string. . . Milkweed net for catching rabbits was very long and strung between two brushes [*sic*] by one man. He would go out and scare rabbits into the net (no party in this method); when he came back he would kill the rabbits by stroking sides strongly between thumb and index finger, causing heart to burst.

In contrast to this single-man technique, Kelly (1964:50–51) describes in detail wintertime rabbit drives using three to five long nets strung in a straight line or an arc, with several persons stationed at the nets and others used as “beaters” to drive rabbits toward the nets. Powell (Fowler and Fowler, editors, 1971:48) provides a similar description of

large scale rabbit drives, as well as the use of a smaller net, "sack-like in form with its mouth pinned or staked over the burrough of the rabbit, which on coming out is entangled in the meshes of the snare." Probably one or more of the small nets/haversacks described below were used in this way.

The collection contains a number of large and small fiber nets. Three of the nets are over 30 meters long and are classed here as rabbit nets. The other nets are small and may be classed as small nets or "haversacks," as Powell lists some of them in his catalog, although small nets were also used to snare rabbits.

The basic construction of all nets is the same, with very little variation from band to band. Accordingly, we present a generalized description of net manufacture (Figure 15). Any significant variation in construction is presented in the descriptions of individual specimens. Nomenclature follows Graumont (1945:160-182), Emery (1952), and Kent (1957:476-478, fig. 6).

The fiber used in all nets is *Apocynum cannabinum*, often called "Indian hemp." Cords have Z-spun single plies, formed into S-twisted, 2-ply cordage. The diameters and degrees of twist vary slightly in any single length of cord, and any change in diameter usually occurs over a considerable length. Mesh and primary loop cords vary from 1.5 to 3.0 mm in diameter; suspension cords and drawstrings are thicker, from 2.0 to 2.5 mm in diameter.

The construction of a net begins with the formation of a primary loop, formed into one or more coils. Primary bights are formed either from a standing cord depending from the knot of the primary loop (Figure 15a) or from an independent cord tied to the primary loop (Figure 15b). If the former, the standing cord dependent from the knot is passed back through the primary loop several times to form the primary bights. The standing cord then reverses direction and is knotted to each primary bight, forming an equal number of secondary bights, etc. If the bight cord is independent, the primary loop is formed of a single cord taken in one or more coils, tied at the two ends or by knotting the ends of double lengths together. The knots are most commonly the sheet bend, with square and granny knots also used. The independent bight cord and the first bight are tied off. The cord then passes back through the primary loop several times again, to form the primary bights. The standing end of

the independent cord then reverses direction to form the secondary bights, etc. The alteration of direction results in a diamond mesh (four knots) pattern of the net (Figure 15c). At the edges of the net where the standing part of the cord reverses direction, a triangular mesh is formed. This results in forming straight edges on the net.

The most common number of turns taken through a primary loop is 13, resulting in 13 primary bights and 13 secondary bights, with consequent uniformity in the width of the net. Some nets, however, have 10, 14, or 18 bights, and these are noted below. The knot used in mesh construction is the sheet bend, made by forming a bight in one cord (passive element) and a half hitch in the other (active element) (Figure 15d).

When the net reaches the desired length, the bights in the last row are gathered and a primary loop of either of the types mentioned above is passed through the bights.

Two lengths of heavier S-twist, 2-ply cord run along the top and bottom of the net, laced through every other half-diamond mesh. Some nets have suspension cords running along one side, doubling back and running along the other side, resulting in two loose cord ends at one end of the net. Others have two lengths of suspension cord, each running through one side, giving two loose ends at each end of the net.

In carrying bags or haversacks, the suspension cord is formed into a draw string by passing it all the way around the perimeter of the net and splicing it together at the ends. Splices are either two-strand short splices or eye splices (Shaw, 1933:96). In the latter, however, the strands are not tucked in as is usual in rope splicing, but are doubled back over the cord.

#### *Southern Paiute, Southern Utah*

##### LARGE RABBIT NETS.

*USNM 12051: Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15-0.2 cm; suspension cord: 0.28-0.3 cm; length (approximate, due to some decomposition): 31 m; width: 105 cm; mesh: 5 cm; primary loops: one missing, one 2 cm in diameter. Primary loop is of double coil type with independent cord acting as primary bights; 13 knots across.

## SMALL NETS/HAVERSACKS.

USNM 14403: *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.35–0.4 cm; hanging length: 160 cm; circular shaped length: 110 cm; mesh: 8 cm; primary loop diameters: 2 cm and 5 cm; 18 knots across. Primary loop at one end is multiple coil type with independent cord acting as primary bights. The other loop is tightly wrapped around gathering of primary bights and tied together with cord ends.

USNM 14411: *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.2 cm; suspension cord: 0.3 cm; hanging length: 100 cm; circular shape diameter: 52 cm; mesh: 5:5 cm. One primary loop is a one coil, 2 cm in diameter, single length cord with standing part acting as primary bights. The other primary loop is a single piece of rawhide, approximately 3 cm diameter. Suspension cord is laced around net body edge, through primary loops at each end and is spliced together for 22 cm by two-strand eye-splice method. Each end of cord is formed into an eye which loops through the other end and then returns and is spliced back to standing part. Net is 13 knots across.

USNM 14412: *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.2 cm; hanging length: 92 cm; circular shape diameter: 50 cm; mesh: 5 cm; primary loop diameters: 3.5 and 3.0 cm; 14 knots across. Primary loop at one end is of single coil type with standing part forming primary bights. Other primary loop is of double coil type with independent cord forming primary bights.

USNM 14413: *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.2 cm; suspension cord: 2.0–2.5 cm; hanging length: 89 cm; circular shaped diameter: 60 cm; mesh: 5 cm; primary loop diameters: 3.5 and 4.0 cm; 13 knots across. Primary loops at each end are of double coil type with independent cord forming primary bights. Suspension cord is laced around net body edges, through primary loops, and is spliced together for 23 cm in two-strand short splice method.

USNM 14414: *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.2 cm; suspension cord: 0.25–0.3 cm; hanging length: 82 cm; circular shaped diameter: 50 cm; mesh: 4 cm; primary loop diameters: 2.0 and 3.5 cm; 13 knots across. Primary loops are single coil type with stand-

ing part forming primary bights. Suspension cord is laced around net body edge, through primary loops and ends are two-strand eye splices together for 18 cm.

USNM 14415: *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.2 cm; suspension cord: 0.25 cm; hanging length: 88 cm; circular shape diameter: 47 cm; 11 knots across. Primary loops at each end are of double coil type with standing part forming primary bights. Suspension cord is laced around net body edge, through primary loops and is spliced together at ends for 20 cm. Each end of cord is formed into an eye which loops through the other eye and returns to be spliced by two-strand eye splice onto its standing part.

USNM 14416: *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.2 cm; suspension cord: 0.20–0.25 cm; hanging length: 105 cm; circular shaped diameter: 52 cm; mesh: 5.5 cm; primary loop diameters: 2.5 and 3.5 cm; 11 knots across. Primary loops are of double coil type with standing part forming primary bights. Suspension cord is laced around net body edge, through primary loops and one end loops through strand of the other, doubling back to form two-strand eye splices.

USNM 14417: *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.2 cm; suspension cord: 0.30–0.35 cm; hanging length: 97 cm; circular shaped diameter: 62 cm; mesh: 4.5 cm; primary loop diameters: 3 cm each; 13 knots across. Primary loops are of one double coil and one single coil type with standing part forming primary bights. Suspension cord is lacking around net body edge, through primary loops and ends are two-strand eye splices together, splice extending 20 cm.

*Shiwits Southern Paiute*

## SMALL NETS/HAVERSACKS.

USNM 14401: Carrying net; *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.3–1.4 cm; hanging length: 120 cm; circular shape diameter: 100 cm; mesh: 8 cm. One end of primary loop has a three-coil version of the single length cord with standing part acting as primary bights. The other end of specimen has a piece of rawhide tied through the terminating bights and knotted;

thong is 0.9 cm wide  $\times$  0.3 cm thick, and approximately 4.0 cm long. Specimen is 13 knots across. Since one end is gathered up and tied with the thong, specimen may be an end section of a large net which has been removed. However, it does not have usual associated net suspension cords, is of heavier than usual cord for netting, and method of gathering bights at one end is found on nets as well as haversacks.

*USNM 14404*: Small net; *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.20 cm; suspension cord: 0.20–0.25 cm; hanging length: 158 cm; circular shaped diameter: 45 cm; mesh: 4.5 cm; primary loop diameters: 2.5 and 3.0 cm; 13 knots across. Primary loops are of double coil type with independent cord forming primary bights. Suspension cord is nearly the same as body cord. It is laced through primary loops and around net edge; ends are two-strand eye spliced for 15 cm.

*USNM 14405*: Small net; *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.2 cm; suspension cord: 0.25 cm; hanging length: 80 cm; circular shape diameter: 53 cm; mesh: 5 cm. Primary loops at each end are of single coil type with standing part forming primary bights. One loop diameter is 2.5 cm and the other is not ascertainable due to deterioration. Suspension cord is laced around net body edge, through primary loops at each end and is spliced together at ends for 5 cm by two-strand short splice method. Net is 14 knots across.

*USNM 14406*: Small net; *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.2 cm; suspension cord: 0.3 cm; hanging length: 92 cm; circular shaped diameter: 65 cm; average mesh: 5.5 cm; 13 knots across. Primary loops 4.5 cm and 5.0 cm in diameter. Both of double coil type with independent cord acting as primary bights. Suspension cord is laced through primary loops and around edge of net. Ends are spliced by two-strand short splice method for 26 cm.

*USNM 14407*: Haversack; *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.2 cm; suspension cord: 0.3 cm; hanging length: 115 cm; circular shape diameter: 55 cm; mesh: 5 cm. Each end of haversack terminates at a primary loop, 3 cm and 3.5 cm in diameter. These loops are two-coil versions of the single length cord with standing part acting as primary bights. 13 knots across.

*USNM 14408*: Small net, *Apocynum* fiber, 2-ply,

S-twist cordage. Diameter of body cord: 0.15–0.2 cm; suspension cord: 0.25 cm; hanging length: 89 cm; circular shaped diameter: 50 cm; mesh: 5 cm; 13 knots across. Primary loops: 3 cm; both of double coil type with independent cord acting as primary bights. Suspension cord is laced through primary loops and around edge of net. Ends are joined by two-strand eye splices in each end. Splice extends 11 cm.

*USNM 14409*: Small net; *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.20 cm; suspension cord: 0.3 cm; hanging length: 83 cm; circular shaped diameter: 50 cm; mesh: 4.5 cm; primary loop diameters: 2.8 and 3.0 cm; 13 knots across. Primary loops at each end are of double coil type with independent cord tied to each and forming primary bights. Suspension cord is laced around net body edge, through primary loops and is spliced to itself by forming two-strand eye splice.

*USNM 14410*: Small net; *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.20–0.25 cm; hanging length: 87 cm; circular shaped diameter: 63 cm; mesh: 5 cm; 13 knots across. Primary loops: one made of blue colored woven cloth strip, 4 cm in diameter, the other of yellow colored cloth strip 6 cm in diameter. Independent cord acts as primary bights.

#### *Moapa Southern Paiute*

##### LARGE RABBIT NETS.

*USNM 11247*: *Apocynum* 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.20 cm; suspension cord: 0.28–0.30 cm; length of net:  $\approx$ 44 m; (net is in four broken pieces); width: 100 cm. Primary loops: 2 and 5 cm. Primary loops are of double coil type with independent cord lacing through them to form primary bights; 13 knots across. Mesh: 5 cm.

*USNM 12053*: *Apocynum* 2-ply, S-twist cordage. Diameter of body cord: 0.10–0.15 cm; suspension cord: 0.3 cm; length (approximate due to some decomposition): 43 m; width: 105 cm; primary loops: 4 cm in diameter. Loops are of single piece, loop with standing part acting as primary bights; 13 knots across.

##### SMALL NETS/HAVERSACKS.

*USNM 11244* (Figure 16, cf. Mason, 1889c, fig. 15): Carrying net; *Apocynum* fiber, 2-ply, S-twist

cordage. Single coil type with standing part acting as primary bight. At other end, terminating bights are gathered to form a single bight, which is seized by wrapping the standing cord around the length of the bight between two knots. Seizing is held by tucking the loose end under the last two wraps. 12 knots across. Diameter of body cord 0.35–0.45 cm; hanging length: 112 cm; circular shaped width: 70 cm; mesh: 7 cm; primary loop: 3 cm in diameter.

*USNM 12059*: Small net; *Apocynum* fiber, 2-ply, S-twist cordage. Incomplete piece, overall approximately 30 × 30 cm; cord diameter 0.20–0.25 cm; mesh: 8 cm.

*USNM 12064*: Carrying net, *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cords: 0.25–0.3 cm; hanging length: 142 cm; circular shape diameter: 100 cm; mesh: 5 cm. One end has a primary loop of one coil 2 cm in diameter with standing part acting as primary bights. The other end has a primary loop of three coils of 2-ply, S-twist cotton cord: 0.35 cm in diameter; loop: 3 cm in diameter; 16 knots across.

#### *Deep Creek Gosiute*

##### SMALL NETS/HAVERSACKS.

*USNM 14419*: Small net; *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.2 cm; suspension cord: 0.3 cm; hanging length: 85 cm; circular shaped diameter: 45 cm; primary loop diameters: 2.5 cm each; 13 knots across. Primary loops at each end are of double coil type with independent cord tied to each and forming primary bights. Suspension cord is laced around net body edge, through primary loops and is spliced together at end of 12 cm in two-strand short splice method. Mesh: 5 cm.

*USNM 14420*: Small net; *Apocynum* fiber, 2-ply, S-twist cordage. Diameter of body cord: 0.15–0.2 cm; suspension cord: 0.3 cm; hanging length: 106 cm; circular shaped diameter: 57 cm; mesh: 5 cm; 13 knots across. Primary loops: 4 and 5 cm in diameter; both of double coil type with independent cord acting as primary bights. Suspension cord is laced through primary loops and around edge of net, ends are joined by loop in one end and two-strand eye splice in the other extending 11 cm.

*USNM 14421*: Small net; *Apocynum* fiber, S-twist, 2-ply cordage. Diameter of body cord: 0.15–0.2 cm;

hanging length: 87 cm; circular shaped diameter: 45 cm; mesh: 4.5 cm; primary loop diameters: 3 and 4 cm; 10 knots across. Primary loops are of single coil type with standing part forming primary bights.

##### NETTING-RELATED ITEMS

The collection also contains a few miscellaneous items relating to netting and cordage.

#### *Southern Paiute, Southern Utah*

*USNM 14263*: A 2-ply, S-twist length of *Apocynum* cordage, 13.6 m long and 0.3–0.4 cm in diameter.

*USNM 14433*: A 41-cm-long, S-twist braid of juniper bark fiber. Listed by Powell (1873:3) as "bark fibre for making cord."

*USNM 14504*: A bundle of 11 *Apocynum* sticks, 26–34 cm long and 0.7–1.0 cm in diameter. Powell's (1873:3) catalog lists them as "examples of *Apocynum cannabinum* from which fiber used for cordage is obtained."

#### *Shivwits and Moapa Southern Paiutes*

There are four sets of unidentified hardwood sticks in the collection, all used as upright supports or prop-sticks for rabbit nets. All are pointed on one end and most have natural forked Y's on the other. Some without the fork have U-shaped notches cut in them. The sticks range from 78 to 93 cm long and 1.0 to 1.4 cm in diameter. Two of the sticks from set USNM 11218 (SSP) are curved to form half loops at the top ends. Provenience: Shivwits Southern Paiute: USNM 11218 (11 sticks); Moapa Southern Paiute: USNM 12052 (7 sticks); USNM 12054 (5 sticks); USNM 14502 (3 sticks).

##### Clothing

Most of the clothing in the collection is of the general "Northern Plains" style (Driver and Massey, 1957:318). Men's clothing includes buckskin breechcloths, moccasins, leggings, and shirts with flapped sleeves. Women's clothing includes dresses of two-piece hide manufacture as well as leggings and moccasins (cf. Douglas, 1950). The Ute and the Northern and Eastern Shoshoni groups included

herein had long been participants in most aspects of 19th century "Plains Indian" culture. Hence the "Northern Plains" style clothing collected from them by Powell is expected. It is not clear, however, when the several Southern Paiute groups began adopting a similar style of dress. Escalante (in Bolton, 1950:186) reported "buckskin jacket[s] and long leggings made of the same material," for the Timpanoaguts Ute of Utah Lake in 1776, but only buckskin loin clothes and rabbit-skin blankets for the Ute and Southern Paiute groups south of the lake along the Wasatch Front. Kelly (1964: 59-65) suggests that Plains style buckskin clothing was probably a recent, mid- to late-19th century, style and that bark clothing was older and in more general use. Steward (1943:274) points out that throughout the Great Basin area, it was probably only after the acquisition of guns that it was possible to procure "enough skins for complete dresses and shirts. Shoshoni-Fort Hall informants, for example, had heard that long ago when hunting was difficult, buckskins were rare; most garments and many moccasins were made of sage bark, and people commonly went barefoot."

It is highly likely that a similar situation prevailed among the Southern Paiute and that they began to adopt Plains style clothing as they acquired horses and guns in the 1860s (see "Horse Equipment").

Tony Tillohash described both buckskin and bark Southern Paiute clothing to Sapir (1910:66-68):

Deerskin shirt worn without hair, being tanned as for moccasins. They had sleeves reaching to waists, but no collars. Opening cut out on top for head; no front or back seam, only 2 side seams where skin was sewed together on folding over of skin. Main part all one skin; two extra pieces put on for sleeves with seams under or on one side. Seem to have had no fringing or ornamental work. General length of shirt down to knees. *Tony not quite sure of all this, not having ever seen one* [italics added].

Breech clout of buckskin; long strip tucked under private parts once and cinched by belt which was probably tied in front; clout wound around belt several times to hold better.

Women wore combination leggings and moccasins; the legging of the woman was tightly folded or swathed about itself and tied with legging strings. . . .

[The] *ináp'u* bush has fine bark (finer than cedar [juniper]) of twine of which both leggings and stocking or socks were made; socks can be worn either with bark or buckskin leggings, are only worn in winter. These bark clothes are of rather coarse weave. . . . Above socks seem to be rather

bark filling for feet and legs rather than regularly woven garments. . . .

Tony Tillohash (in Sapir, 1910:13, 90-91, fig. 1) also described a Southern Paiute method of moccasin manufacture:

Moccasins were entirely undecorated, neither beads nor porcupine quills nor paint being employed. Between the sole and the upper is found a very narrow connecting strip sewed on. This was considered the best type of moccasin, though the type without connecting strip was also found. . . .

Moccasins consist of 3 parts—sole, facing (upper), and top. Sole is made of separate piece of buckskin . . . made to correspond to outline of wearer's foot. Second piece . . . has approximate shape, buckskin being cut flat at end AB; hole is cut CD according to distance of wearer's ankle from toe. This upper is stitched on to sole with sinew. First AD and DB are raised and stitched together to form vertical seam at heel. A very small strip of skin is put all around between sole and upper, being as high as the thickness of the buckskin it is taken from; at first it extends out from the surface of the moccasin, perhaps twice as much as it is to be thick when moccasin finished: sinew carried counter-clockwise, considering sole to be at bottom, through all 3 pieces of leather by means of punching holes with awl and forcing sinew strand through by pushing with awl, stitch used being ordinary round or over and over (?) stitch. Link piece generally ends (two ends meet) in region of heel, but not exactly at vertical heel stitch. Before stitching proper about 4 preliminary stitches or groups of stitches are put in at toe, on sides and at heels to give shape and hold to upper; as they come to these in regular stitching, they are torn or cut out. After stitching link-piece is trimmed down to surface of moccasin. Top piece is roughly oblong in shape and is stitched on to upper border of upper (top may be absent, in which case tongue is used . . . (not clear whether tongue due to white influence). Both upper and top have several holes punched into them through which a string is passed (2 holes always close together): string is tied in front for upper, at sides for top. After stitching of sole to upper, moccasin is turned inside out, top then put on. Sometimes, not generally, skin has hair on; hair in finished product comes on outside. Beading was not done on own moccasins, but seems to have been practiced to some extent for purposes of trade.

The collection contains a number of items of skin clothing from the Southern Paiute, the Uintah and Colorado Ute and three Shoshoni bands. Powell's (1873) catalog suggests that he tried to collect sets or "suits" of clothing, but museum exchanges and losses have broken up the sets. Accordingly, we list the various items separately.

The moccasins in the collection have been studied previously. Mason (1896:371-381) lists the moccasins described herein, together with several other pairs not now in the collection. Some of the moc-

casins in the collection were later described and illustrated by Hatt (1916) whose detailed comparative study and classification of North American aboriginal footwear supercedes Mason's study and the classifications of Wissler (1910:140-151) and Roth (1908). Since few of the moccasins in the collection are decorated, we have not applied Wissler's (1927) typology of moccasin decoration.

Some items of clothing in the collection can be identified in one or more of Hillers's photographs and these are noted at the appropriate places. As indicated in the "Introduction," both Mason and Dellenbaugh asserted that Powell had the Kaibab Southern Paiute manufacture clothing "on old patterns." But it is clear that not all the clothing items in the photographs of the Kaibab were made by them. As previously noted, Powell carried one or more items of Colorado Ute clothing with him to southern Utah in 1873. The beaded dress worn by the woman in Figures 17 and 18 has "Colorado Territory" and the accession number "10800" written on the bodice. This dress is not now in the collection, but a fancier beaded dress, USNM 10799, is in the collection. This dress is worn by U-was, the wife of the Kaibab leader Chuarumpeak, in at least three of Hillers's photographs (e.g., Figure 19). Other items in the collection with catalog numbers between 10775 and 10810 have Illinois Normal University Museum labels on them, with provenience listed as "Ute, Colorado Territory." Hence, we conclude that this dress, USNM 10799, is of Ute manufacture and was loaned briefly to U-was for the picture taking. We suspect also that the rather fancy beaded shirt worn by Chuarumpeak in Figures 20 and 60 was also of Ute manufacture, which Powell may have given him as an informant's fee or a token of friendship.

In the following descriptions of tunics and dresses, measurements are taken from the neck/shoulder line downward, unless otherwise specified.

#### *Kaibab Southern Paiute*

##### MEN'S CLOTHING.

*USNM 11200:* Man's tunic, buckskin, flesh side in. Two main body skins folded over at top to form two flaps which are self-fringed. Pieces are stitched together with sinew at flap fold in seams, 13 cm long on either side of neck slit. Body pieces

are self fringed on sides where they are stitched to sleeves with sinew. Top and sleeve seams are only places two body skins are connected; there are no further side seams. Both skins have fore-leg skins extending out at bottom as four flaps. One skin is scalloped along bottom edge. Sleeves are separate pieces of skin. Each is brought around and stitched along bottom length with sinew. Bottom edge is also self-fringed. Cuffs are plain.

Length: 81 cm; width across shoulder and sleeves: 173 cm; width: (top) 60 cm, (bottom, including foreleg flaps) 103 cm; sleeve: (length) 55 cm, (width at cuff) 13 cm, (width at seam) 21 cm; neck slit: 30 cm; neck flap: (length) 16.5 cm. Neck flaps are as wide at folds as top body width. Fringe: (sleeves) 15-20 cm, (neck flap) 18-40 cm.

*USNM 14359:* Man's tunic, buckskin, flesh side in. Two main body skins, self-fringed on sides and tied together at three places with fringe pieces. Top self-fringed and stitched together with sinew, except for neck slit where each skin extends into self flaps which are self-fringed except along bottom edges; flaps depend front and rear. Self flaps have green coloring bordering sides and yellow coloring bordering bottom edges. Each sleeve is made of two pieces of skin stitched together with sinew along bottom, self-fringed at end. Sleeves are stitched to body sections with sinew, self-fringed on each skin and stitched together at top with sinew. Cuffs are buckskin in double-fringed strips stitched with sinew to end of sleeves.

Bottom extends out each side of two body skins at animal leg (unknown if hind or foreleg) skin flap. Bottom edge is cut in shape of two shallow flaps in center and entire edge along bottom is fringed. On one side, one leg skin flap is colored green and the other is colored yellow. Other side leg skin flaps are natural.

Length: 71 cm; width across shoulders and sleeves: 146.5 cm; body width: (top) 61 cm, (bottom) 85 cm; neck slit: 33 cm; Neck flap length: 23 cm; neck flap width at end: 19 cm; fringe: (side) 9-16 cm, (neck flap) 8-15 cm, (shoulder) 9-24 cm, (sleeve) 21-30 cm, (cuff) 1.5-2 cm; sleeve (length) 46 cm, (width at shoulder) 17 cm, (width at cuff) 11 cm.

*USNM 14364:* Man's tunic; made from two pieces of buckskin, sewn together at shoulder with buckskin lacing. Sides self-fringed and not sewn up, but

left open. Skins folded over at top to make yoke with flesh side out. Yoke self-fringed with black and white beading and three round holes. Bottom unfringed.

Sleeves made from two separate pieces of buckskin and sewn to body of tunic with two-ply sinew. Left sleeve has three rows of sinew stitching of 10.5, 19.5, and 3.5 cm each, apparently to sew up tears in skin. Sleeves are self-fringed and sewn together up from cuffs for distance of 9 cm with buckskin lacing. Sleeves are inset. Remainder of sleeves are unsewn, producing loose-fitting garment. Neck opening tied with buckskin thong on each side.

Length: 65 cm; width across shoulders: 51 cm; width across bottom (not including fringe): 81 cm; yoke width: (front) 16 cm, (back) 10 cm; yoke length: 15 cm; fringe (side) 15 cm, (yoke) 17 cm, (left sleeve) 15 cm, (right sleeve) 32 cm; sleeve length: (right) 33.5 cm, (left) 39.5 cm; sleeve width at cuff: 12 cm; sleeve width at upper arm: (left) 17.5 cm, (right) 19 cm; neck opening: 30 cm.

*USNM 14371* (Figure 21): Man's shirt, buckskin, four separate pieces stitched together with buckskin thongs. Two body pieces are skins, flesh side out, with rear leg skins extending out for sleeve capes. Two smaller pieces of skins, flesh side in, are stitched together across the top, except for neck slit, and stitched to body skins forming yoke. Neck slit is stitched around border with buckskin thong. Yoke has a small 9 × 14 cm piece in center of one side with fur left on. Four buckskin fringes hang at this decoration. On other side at yoke center a 10 × 10 cm piece is left with fur on. Four buckskin fringes hang at this decoration also. On main body skins sleeve flaps are self-fringed with fur left on. Two body skin sections are self-fringed on one side each and stitched together with buckskin so that each side has one strip of fringe showing. At bottom of skin animal's forelegs with hair still on them hang on self-fringe flaps; two of these four flaps have holes in them, which are patched with red cloth stitched on with sinew. Just inside along bottom border from each of these four flaps, respectively, are four separate buckskin flaps stitched to main skins with buckskin thongs. These are self-fringed with fur on and one has holes patched over with a piece of red cloth stitched with sinew. Inward along the border from these flaps are four small self flaps and in the center of border on each

skin there are two larger self flaps. The lower border has a strip of fringed buckskin stitched along edge with buckskin thongs.

Length: 126 cm; width across shoulders and sleeves: 145 cm; body width: (top) 72 cm, (bottom) 128 cm; width across top of yoke: 30 cm; length of yoke: 117 cm; size of four separate flaps at bottom: 17 × 13 × 1.5 cm; fringe: (sleeve, self-fringe) 7–8 cm, (side) 8–15 cm, (bottom, self-fringe) 8–9 cm.

*USNM 14376* (Figures 22, 23): Man's leggings, buckskin. Each legging is a single piece of skin, brought around, self-fringed at vertical edges and stitched 1.5 cm back from edge with sinew. Bottom is plain. Top widens out and has holes for tie points to lace leggings to garments above. Design: a band of yellow coloring bordered with black lines, opposing zig-zag in form. This design goes around circumference of both leggings at about knee level. Length: 80 cm; width: (top) 41 cm, (bottom) 21 cm, (of design band) 6 cm; fringe: (side) 16–30 cm.

*USNM 14378*: Man's leggings, buckskin. Each legging is a single piece of skin with self-fringe around base and extending out from vertical seam. Seam is approximately 2 cm in from edge of skin and is stitched with sinew. The top of the leggings are not brought around and stitched or fringed, but fall open into two flaps. On the flaps, holes are cut as tie points to lace leggings to other garments above. Length: 75 cm; width: (at bottom cuff) 13 cm, (at top flap) 32 cm; fringe: (bottom cuff) 7–10 cm, (side) 6–12 cm.

*USNM 14385* (Figure 24): Man's moccasins, pair, buckskin, flesh side in. Right moccasin consists of top, upper front, and rawhide sole with hole in heel. Upper has tongue flap with three holes cut in edge and two smaller holes laced with buckskin tie thong to flaps of top. Top is stitched to upper with sinew at sides. Top and upper are stitched to rawhide sole with sinew. Height of top: 19 cm; width of upper: 11 cm; length of sole: 25 cm; length of opening: 10 cm.

Left moccasin consists of single piece top and upper section stitched to rawhide sole with sinew. Upper section is brought around and sinew stitched in back up vertical seam. Front is open 14 cm from top nearly to ankle. Two buckskin draw thongs lace across front. Height of upper section: 22 cm; width of upper section: 11 cm; length of sole: 26.5 cm; length of opening: 14 cm.

*USNM 14388* (Figure 25): Man's moccasins, pair, buckskin. Tops, flesh side out; uppers, flesh side in; soles, buckskin with flesh side in with holes in heels. Tops are self-fringed at top edge, open in front with two buckskin draw thongs laced around. Tops stitched with sinew to uppers. Uppers are self-fringed and stitched at back and to soles with sinew. The seams are strengthened by buckskin strips inserted in seams (strips not shown in Figure 25). Tongues consist of two fringe pieces cut into upper. Height of right moccasin top: 37.5 cm; length of sole: 21 cm; fringe (tongue) 16 cm, (top edge) 6–16 cm, (heel) 4–6 cm.

Hatt (1916:200–201) described *USNM 14388* and *14390* as typical of his series XIX moccasin type, defined as "footwear consisting of sole with turned up rim, upper, top, and, eventually, instep piece," although as he notes for these specimens, "no instep piece is found, and the ankle band goes through a series of holes in the top piece which is open in front and very high, reaching the knee."

*USNM 14390* (Figure 26): Man's moccasins, pair, buckskin. Left moccasin has top with flesh side out; all other parts of both have flesh side in: tops, uppers, and buckskin soles with heel holes. Tops are self-fringed at top edge, open in front with two buckskin draw thongs laced around. Tops stitched with sinew. Uppers stitched with sinew to soles with buckskin strips (not shown in Figure 26) inserted in seam. Height of top: 45 cm; length of sole: 21 cm; width of upper: 9 cm; length opening at top-upper seam: 14 cm; fringe, top edge: 5–9 cm; self-fringe or flap at heel: 1.0–1.5 cm.

*USNM 14505*: Man's tunic, buckskin, either two whole fawn skins or two parts of larger animal, tied at top of tunic with four buckskin thongs, two on each side of neck opening. One skin is inverted to the other so that one side will have flaps at top. Sides of tunic are not stitched together, but on one side a buckskin thong is tied at one edge and extends around to other skin and ties in 20 cm from edge of that skin.

Nine skins with fur of Kaibab squirrel (*Sciurus kaibabensis*) are laced onto tunic with buckskin thongs. Bone tubes are laced on hemp (*Apocynum*) strings and sewn to tunic at one end. Front side of tunic has one skin attached just

below neck with skins tail down and two skins below and to each side of this, also with skins tail down. Bone string looped and attached to head of one of these lower skins. Another bone string is a broken loop attached to left of top skin. On back side of tunic, there are six squirrel skins; five are attached to border of body skin (two each side, one at bottom) each with skins tail down. Sixth squirrel skin is in middle center of tunic, tail down with a thong lacing through three larger bone tubes and attaching to base of skin tail. From top right of this side, a loop of hemp-threaded string of the smaller bones (same as on the other side) is attached. Similar hemp string and bone ornaments probably were attached at top center and top left as evidenced by remains of stitch holes and some hemp thread at these points.

Length: 60 cm; width: (at top) 75 cm (at bottom) 81 cm; large bone tube ornament: 2.5–3.0 × 0.6 cm; small bone tube ornament: 1.5–2.0 × 0.4 cm; length of tails on squirrel skins: 8–10 cm (these are worn or more likely trimmed down from the 20–25 cm normal average length).

#### WOMEN'S CLOTHING.

*USNM 10799* (Figure 19b): Woman's dress, buckskin. Body section is two skins, head end down, flesh side out, sides self-fringed and stitched together with buckskin lace. Yoke is single piece of buckskin, flesh side in, stitched to top of body sections with buckskin lace. Neck slit is bordered with beadwork, which extends out each side on tops of shoulders. Sleeves are hind leg skins, forming cape sleeves with some self-fringe with hair at edges. Bottom of skirt flairs out on each side into two flaps, which are self-fringed with fur left on fringe. On right and left of front side, two additional ornamented buckskin flaps are stitched to main body skins with sinew. Flaps are self-fringed and covered with red cloth overlain with black cloth and clear bead ornamentation. Neck and shoulder beadwork lazy-stitched with sinew; flap beadwork overlay stitched. Width across shoulder and sleeves: 140 cm; length: 128.5 cm; sleeve length: 40 cm; neck slit: 29 cm; fringe: 10–25 cm.

As indicated in the introduction to the clothing section, this dress is probably of White River Ute manufacture and was among the items Powell

brought with him to southern Utah in 1873 to "dress up" the Kaibab Paiute. The dress is worn by the wife of Chuarumpeak in several of Hillers's photographs.

*USNM 14352* (Figure 30): Woman's dress, buckskin, flesh side in. Self-fringed along sides and bottom. Two skin pieces are fastened together in two places by six 3 cm wide seams laced with buckskin thongs. Unlaced portion between serves as neck slit. Along one edge of neck slit a part of the skin 7.5 cm long has the fur left on. One skin has 32 deer toe ornaments tied randomly to bottom fringe. On other side of dress (not illustrated), five sinew loops are threaded with approximately 46 bone tube ornaments each and stitched at each end to bottom of skin. One red cotton thread is looped, laced with 10 bone tube ornaments and tied with sinew to bone of the buckskin fringes. One faded red thread is laced with four longer bone tubes and knotted at one end and tied to a buckskin fringe at the other. Twelve of the buckskin fringes around bottom of skin are laced with 10 to 18 bone tubes.

The other, and larger, skin is ornamented with deer toes, each attached to a buckskin self-fringe. At the right bottom corner a small bunch of unidentified black feathers is tied to a buckskin thong which is tied to a body skin self-fringe. At the left bottom corner a black feather and two cut downey white feathers are wrapped with sinew and tied to a buckskin thong which is tied to a body skin self-fringe. Three small animal skins (possibly *Neotoma cinerea*, wood rat) are tied to buckskin self-fringe.

Large skin: length: 94 cm; width: (top) 84 cm, (bottom) 62 cm; fringe: 8–12 cm. Small skin: length: 81 cm; width, (top) 36 cm, (bottom) 28 cm; fringe: 20–29 cm.

*USNM 14354*: Woman's dress, buckskin. Dress made of two whole skins, head end down, with flesh side out. Shoulder pieces are leg skins with hair left on. Skins sewn together along shoulders and from bottoms of arm holes to end of bodice with buckskin thongs. Both skins are self-fringed except along neck area. Fringe is cut completely along sides and bottom of two skins. Seams along both sides in waist area apparently made after fringing of skins, because to make seams, fringe was folded to inside of dress. Skirt of dress has numerous elk toes attached randomly to fringe by making hole in top part of elk toe, inserting single fringes through

hole and tying knot in fringe to secure toe to dress.

One small cluster of feathers, brown, orange and white in color, approximately 3 cm in length, attached to buckskin fringe in armhole area with brown cotton thread, approximately 18 cm down from shoulder area. One larger cluster of similar feathers on opposite side of dress, attached to main skin with sinew: brown, orange, white feathers, approximately 12.5 cm in length, located in armhole as with other feather ornament, 22 cm down from shoulder. Neck slit is 28.5 cm long, in main skin in neck slit area five buckskin ties inserted into 10 punched holes, two for each tie to be put through, possibly for purpose of loosening or tightening neck. Ties from 30–35 cm in length. There are six, 2–3.5 cm in diameter, circular holes on dress, three on each side, one on bodice and two on skirt, which seem to form a pattern.

Length from shoulder to bottom: 102 cm; width across shoulders: 87 cm; skirt length: 60.5 cm; bodice length: 34 cm; waist width: 42.5 cm; skirt width: (bottom) 45 cm; fringe: (side) 8 cm, (bottom) 8 cm.

*USNM 14356*: Woman's dress, partial, buckskin, one skin, tail end up, head end down. Self-fringed on sides and bottom. Four chipmunk tails tied on each side to fringe just below hind leg skin flaps. Deer toe ornaments tied to side fringes, 16 on one side, 7 on the other.

Length: 102 cm; width: (top) 112 cm, (bottom) 78 cm; fringe: (side) 10–17 cm, (bottom) 9–13 cm.

*USNM 14361*: Woman's dress, buckskin. Main body section is two skins, flesh side out stitched to yoke at top with double strand of three-ply, S-twist cotton thread. Animal's hind leg skins extend out at top to form cape sleeves which are self-fringed (with fur on) on edges. From bottom on sides, dart pieces extend from 16 cm wide at base, up garment 52 cm to a point. Dart is two pieces of buckskin, flesh side out, self-fringed (with hair on) at bottom and self-fringed along seam which is stitched with buckskin. Dart is stitched to body panels with double three-ply, S-twist cotton thread. From top of dart to point where cape sleeves begin, the two main body sections are self-fringed on the sides and stitched together with buckskin. Foreleg skin extends out at bottom and is at each side of garment pieced together with seven small pieces of buckskin. Stitching here is with double strands of three-ply, S-twist cotton thread.

Length: 118 cm; width across shoulder and cape sleeves: 152 cm; body width: (top) 76 cm, (bottom) 133 cm; yoke, across shoulders: 123 cm; Neck slit: 25 cm; fringe: (self-fringe at ends of sleeves) 6–8 cm, (side of main body) 8–12 cm, (dart side) 8–19 cm, (dart self-fringe (with hair on) on bottom edge) 6–7 cm, (bottom) 3–5 cm.

*USNM 14362*: Woman's dress, buckskin. Body section is two pieces of skin, flesh side out. Each piece is self-fringed on one side only so that when stitched together with buckskin thong each side is fringed. Also inserted in side seams are strips of buckskin fringe. Yoke is made of two pieces of buckskin, flesh side in, and laced to body with buckskin thong and to each other across top except for neck slit. Neck slit is bordered with a buckskin strip which has red cloth and bead decoration. On each side of yoke in center is a piece of deer skin with fur on. Also on each side 20 pairs of buckskin thongs hang from yoke-body border. Sleeves are made up of flap extensions of body sections, stitched to extensions of yoke with buckskin lace. Body section flaps have self-fringe with fur left on fringing.

The bottom of dress has flaps at each side, which are the skins' forelegs. These flaps are bordered with fur and at ends have self-fringe with fur. In curved areas between skin's neck and foreleg, insert skin is stitched with brown two-ply, Z-twist thread, probably of cotton. This insert skin, in turn, has fringe sewed along edge with buckskin lace. At center bottom, corresponding to skin's neck, fringe is stitched on with buckskin lace. A cut extends up center for 11 cm and on each side of this there is a hole which is self-fringed, fur on fringe around hole. Between foreleg flap and insert skin is a rectangular buckskin flap, laced to body section with buckskin and ornamented with red cloth beads and buckskin fringe. There are two of these ornamented flaps on each side, four in all. Two rows of buckskins thongs are attached (by passing through garment) to waist of gown. Most of the thongs are missing, but holes can be seen where they were attached. On one of the thongs a white ceramic button with a metal clasp ( $1.0 \times 0.7$  cm), one pale blue asymmetrical bead ( $1.0 \times 0.7$  cm), and two round brass buttons with metal clasps ( $1.1 \times 0.7$  cm) are attached.

Neck slit beadwork has two series of panels lazy-stitched with sinew. Beads on one side of slit are red, green (light and dark), white, and yellow. Red

beads are translucent. Pattern of rows: 3 rows red, 2 yellow, 3 dark green. Then a pattern of white and dark green right triangles with hypotenuse of each in common. This is made up of an average of 10 rows and duplicates 6 more times until dark green beads change in 5th row of 7th pattern to light green. Eighth, 9th, and 10th patterns are light green and white and last pattern is yellow and white. On the other side of the neck slit the beads are translucent red, white, translucent green, light green, and blue. Pattern of rows: Average ten rows red and white forming same opposed right triangles for four repetitions. Translucent green and white opposed right triangles for two times, then changing in midpattern to light green and white, duplicating this once, then red and white for three repetitions and finally two rows blue, two rows red, and two rows dark blue. There are four ornamented rectangular flaps on bottom of garment, each a buckskin piece with red cloth and beadwork on half and a strip of buckskin sewed across middle with buckskin lace. This strip is long self-fringe. Bottom of buckskin is scalloped. Cloth is stitched on with brown two-ply, Z-twist cotton thread. Beads are in two main patterns: The bottom pattern is opposed right triangles of 8–12 rows each, and of black and white beads, 10 in each row, lazy-stitched with sinew. The top pattern is sinuous wave of five loops with white beads outermost, black in middle, and light blue innermost. Each string (or color strand) is made of about 300 beads strung on sinew and overlay-stitched with a fine cotton thread.

Total length (less bottom fringe): 124 cm; width at yoke with sleeves: 153 cm; body width: (top) 57 cm, (bottom with foreleg flaps) 152 cm; neck slit: 25 cm; sleeve length: 57 cm; fringe: (sleeve) 1.5–3 cm, (side) 13–18 cm, (bottom) 4–7 cm, (ornamented flap) 18 cm; thong ornaments: 15–22 cm; beads: (translucent red)  $0.2 \times 0.15$  cm, (translucent green)  $0.2 \times 0.15$  cm, (dark green)  $0.2 \times 0.1$ – $0.15$  cm wide, (light green)  $0.2 \times 0.1$ – $0.15$  cm wide, (black)  $0.21 \times 0.15$  cm, (white)  $0.2 \times 0.08$ – $0.15$  cm wide, (yellow)  $0.19 \times 0.09$ – $0.15$  cm wide, (light blue)  $0.21 \times 0.12$  cm wide, (dark blue)  $0.2 \times 0.13$  cm wide. White, light green, dark green, and yellow beads seem to be of a different manufacture (probably Venice, Italy) than other beads, which are alike in size and shape within a color category.

*USNM 14366*: Woman's dress, buckskin. Two

pieces of skin, flesh side out, self-fringed on all edges. Animal hindleg skin flaps form cape sleeves. Two skins are laced across top with buckskin thong, allowing self-fringe on top to depend from seam. Neck slit is merely unstitched portion in middle. Bottom is lacking usual foreleg skin flaps on sides and is cut in general shape, longer at center.

Length: 124 cm; width across shoulder and cape sleeves: 104 cm; body width: (top) 68 cm, (bottom) 66 cm; neck slit: 35 cm; fringe (self-fringe on all edges): 11–17 cm.

*USNM 14368* (Figure 31): Girl's dress, buckskin; two main body skin sections, flesh side out. Self-fringed on sides and stitched together there with sinew. Top extends out into cape sleeves. Yoke is two pieces of skin, flesh side in, edges with fur on border, decorated with beadwork and stitched together along top with sinew. Bottom of dress is self-fringed with an additional buckskin fringe strip stitched with sinew along border. Leg skin flaps on each side are self-fringed with fur on at ends. In from each of these flaps is a two-piece separate flap of buckskin, stitching of sinew. Bottom half of this flap is self-fringed and top half has long self-fringe depending over bottom half. In from each of these flaps is a smaller self flap and in from this in center of each side are two large self flaps. This dress is a scaled-down copy of adult whole skin dresses. The two main body sections may be two small deer or fawn skins with tail up and head down (self-fringe with fur on is light brown color and may be fawn).

Beadwork consists of a row of alternating six dark blue and six white beads, lazy-stitched with sinew onto the yoke-body seam and encircles both front and back of dress. Below beadwork on each side, there are two rows of elk teeth ornaments, drilled and spot-stitched across top of main body skins. The top row has 28 teeth and the bottom row has 24. Five pairs of buckskin thong decorations attached at waist level depend from each side of garment; an additional five pairs of thong decorations attached at mid-skirt level also depend from each side of garment.

Length: 87 cm; width across shoulder and sleeve: 110 cm; body width: (top) 44 cm, (bottom) 97 cm; width across top of yoke: 84 cm; neck slit: 21 cm; fringe: (side) 9–13 cm, (bottom) 4.5–5 cm, (sleeves) 5–6 cm; fringe decoration: (longest) 32 cm, (shortest) 4.5 cm; beads: (white) 0.2 × 0.11–0.18 cm, (blue) 0.21–0.25 × 0.15–0.2 cm; teeth: 2.6–2.8 cm

long, 1.4–2 cm wide, 0.9–1.1 cm thick at thickest point.

*USNM 14373*: Woman's dress, buckskin, flesh side out. Hind leg skins once formed cape sleeves, but stitching is now missing. Garment consists of two skins, self-fringed on all edges and stitched across top 3 cm back from edge. Edge is folded down so that it and self-fringe depend from top seam. Neck slit is unstitched portion in middle of top seam.

Length: 96 cm; width across shoulders and sleeves: 74 cm; body width: (top) 54 cm, (bottom) 98 cm; self-fringe: 4–20 cm; neck slit: 23 cm.

*USNM 14386* (Hatt, 1916, fig. 48): Woman's moccasins, pair, buckskin, flesh side in. Rawhide soles. Each moccasin has one piece buckskin upper, stitched up back and to sole with sinew. Front of upper is open down to ankle and extends out at top into two flaps on sides. Across front are three separate buckskin tie thongs. Right moccasin sole has separate extra heel and foresole stitched on with sinew to main rawhide sole. These extra rawhide pieces had hair on which is nearly worn off. Both moccasins have a hole cut in heel of sole. Length of sole: 26.5 cm; width: 11 cm; length of openings: 15 cm; height of upper (including flaps at top): 30 cm.

*USNM 14387*: Woman's moccasins, pair, buckskin, flesh side in. Rawhide soles with holes in heels. Uppers are brought around and stitched up inner sides with sinew. Front of uppers are cut down from top to ankle and buckskin thongs at top and half way down tie across front openings. Rawhide soles fold up all around and are stitched to uppers with sinew. Height of uppers: 32 cm; length of sole: 24 cm; length of opening at ankle: 15 cm.

Hatt (1916:198–199) places moccasins *USNM 14386* and *14387* in his series xviii moccasin type: "footwear consisting of sole with turned up rim, and upper, generally of one piece. . . ."

*USNM 14392* (Figure 32d): Woman's belt, buckskin, 11 × 53 cm. Self-fringe along bottom edge, extending down 25 to 50 cm. At upper two corners, material extends 10 cm forming tie off straps.

*USNM 14395*: Woman's apron, buckskin; 84.5 cm long. Widths: (on left end) 12 cm, (on right end) 16.5 cm; (of buckskin tie on right side) 3 cm, (of tie on left side) 4.5 cm. Self-fringe (strands from 40–45 cm in length) on bottom side. Piece of four-ply, Z-twist cotton string attached to right side tie, possibly for museum display purposes.

## MISCELLANEOUS.

USNM 14627: Child's fur robe, squirrel skin (*Sciurus kaibabensis*) tanned with fur on. One skin is center of piece, ten skins stitched together and to center piece with sinew, heads of skins oriented toward center piece. All tails are cut or broken off short. Length: 39 cm; width: 58 cm; average skin: 15 cm wide  $\times$  22 cm long.

USNM 14628 (Figure 32c): Child's fur robe, squirrel skins (*Sciurus kaibabensis*) tanned with fur on and stitched together with sinew. Eight skins have full tails and five have tails cut short or broken off. Eight skins have holes that are patched over with pieces of same skin with fur on; stitched with sinew. Form of garment is irregular rectangle with five skins on top and eight skins below; all tails depend downward. Maximum length: 58 cm; maximum width: 82 cm; skins (less tails): 25–29 cm long  $\times$  14–15 cm wide.

*Shivwits Southern Paiute*

## MEN'S CLOTHING.

USNM 14358: Man's shirt, buckskin, flesh side in; two pieces of buckskin, self-fringed on sides and along top. Back 5 cm from top edges, skins are stitched together with sinew, except for the neck slit. At the neck the skins extend out into long narrow flaps (probably the tail skin area of animal). These flaps are also self-fringed. Sleeves are separate pieces of buckskin, self-fringed on all edges except at cuff. Skin is folded in half and stitched with sinew, forming a closed sleeve from cuff 40 cm up and 20 cm from there unstitched to point of attachment to body skin. Bottom is plain edged and each corner of each side extends into flap which was animal's foreleg skin.

Total length: 79 cm; shoulders and sleeves: 170 cm; body width: (top) 60 cm, (bottom, including skin foreleg flaps) 118 cm; sleeve width: (cuff) 12 cm, (upper arm) 14 cm; sleeve length: 55 cm; neck slit: 33 cm; fringe: (sleeve) 9–15 cm, (shoulder) 12–17 cm, (side) 9–12 cm, (neck flap) 9–12 cm; neck flap: (length) 34 cm, (width at fold) 23 cm, (width at end) 5 cm.

USNM 14375: Men's leggings, buckskin. Each legging is a single piece of skin, brought around, self-fringed on vertical length edges, and stitched 2 cm back from edge with sinew. Bottom edge is plain.

Top edge is plain, each edge has a hole cut in skin just above or below edge as well as a flap extending out and tie straps with fur on the tips of the straps.

Length: 80 cm; width: (bottom) 20 cm, (top, less flap and tie strap) 30 cm; flap width not including rest of vertical edge: 14 cm; tie strap length from flap: 15 cm; fringe (side): 12–17 cm.

USNM 14381 (Figure 32a): Man's breech cloth, buckskin, 68  $\times$  31 cm. Holes approximately 1 and 2 cm in diameter, patched with buckskin and stitched with sinew. Fringe cut into material on all borders.

## WOMEN'S CLOTHING.

USNM 11201: Woman's dress, buckskin, two skins, flesh side out, hind leg skins form cape sleeves. Skins stitched together along top with buckskin thongs leaving a neck slit. Sides are self-fringed and stitched together with buckskin thong. Seam is about 2 cm back from edge of skins. Bottom is cut plain. Inside, a red-colored line traces edge of garment. This is possibly original pattern-tracing indicating shape to be cut out of skin. Length: 133 cm; width across shoulder and sleeves: 122.5 cm; body width: (top) 80 cm, (bottom) 84 cm; neck slit: 32 cm; fringe (side): 12–16 cm.

USNM 12068: Woman's moccasins, pair, buckskin, flesh side in. Sole is rawhide with some fur still on bottom and hole cut in heel. Upper stitched with sinew to sole from toe to instep area and then extends out in flap to form tongue. Top is stitched with sinew from instep area around to other side of sole. Top is open to front but has no indication of tie pieces to close it together. Length of sole: 24 cm; height of top: 23 cm; width of upper: 9 cm; length of opening: 12 cm; length of tongue:  $\approx$  11 cm.

Hatt (1916:193–97) places these moccasins in his series xvii moccasin type: "Shoes consisting of sole with turned up rim, and instep and top pieces which are sewn to the sole, but not connected with each other by any seam."

USNM 14379 (Figure 32b): Woman's apron, buckskin. General shield shape with self-fringe cut into material along edge except along top; 56 cm across top  $\times$  52 cm down center. A 4.5 cm tear in center of specimen is stitched up with sinew (not visible in Figure 32b). Thirty-three deer toe ornaments tied on buckskin fringe around all edges except top. Ornaments have a hole in tip through which one strand of fringe is passed and knotted.

*USNM 14380*: Woman's apron; buckskin, 58 cm long  $\times$  33 cm at widest point. Self-fringe around edges of garment. Buckskin worn thin and fringe worn off in leg area from friction while walking(?).

*USNM 14389* (Figure 27): Woman's moccasin, left only, buckskin. Top with flesh side out, upper with flesh side in, sole with flesh side in. Top is self-fringed on top edge and extends on one side much longer than on the other. This may be a flap which was folded down. A strap of buckskin is laced around near top, further indicating that the flap would have to be folded down to draw up strap. Front is open and has another buckskin strap laced around near lower seam where top is stitched with sinew to upper. Upper is brought around, self-fringed, and stitched together in back with sinew. Two chipmunk tails are tied with sinew to fringe. Upper is stitched to sole with sinew and a strip of buckskin is inserted in seam. Sole has a hole cut in heel and a cut extends to rear splitting sole and extending into upper. Reason for this is unknown. Height of top: 41 cm; width of upper: 9 cm; length of sole: 22.5 cm; greatest height: 25 cm; length of opening at ankle: 12 cm.

*USNM 14634*: Woman's mitten; one only, white fur on untanned skin of unknown animal. Forms a long tapering tube with no seams or thumb. Outside is longer than the inside. Length: (long side) 36 cm, (short side) 27 cm; width: (at top opening) 9 cm, (at bottom opening) 4 cm.

#### *Ute, Colorado Territory*

##### MEN'S CLOTHING.

*USNM 10794*: Man's shirt or tunic, buckskin; tailored one back piece, two front pieces. Sides self-fringed and stitched together with sinew. Top stitched together with sinew. Sleeves separate pieces brought around and stitched with sinew along lower length. Bead work decoration lazy-stitched with sinew; blue and white beads on one sleeve and pink beads on the other. Cuffs bordered with fringe strip stitched on with sinew. Collar piece and rear neck flap stitched on with sinew. Neck flap is bordered with fringe strips stitched on with sinew. At collar there are two buckskin tie straps. Along open edges of front: top half has inserted dart pieces and fringe strips, at bottom of these are tie straps and then to bottom of jacket open

edges are scalloped with two more tie straps attached to sides.

Decoration besides bead work includes fringe, attached by lacing through garment; coloring stain, red bands on arms, formalized design on back using red, black, and green coloring; five tassels of wool yarn, each containing two-ply lengths of red-gray Z-twist, green-yellow S-twist, green-gray S-twist, green-red Z-twist, green-yellow S-twist, green-green Z-twist, green-light green Z-twist, and gray-purple S-twist.

Length: 68 cm; width across shoulders and sleeves: 157 cm; body width: (top, under sleeves) 60 cm; (bottom) 60 cm; sleeves length: 49 cm; sleeves: (width at shoulder) 20 cm, (width at cuff) 12.5 cm; neck flap: 27 cm long  $\times$  9 cm wide at bottom; collar: (height) 3 cm, (across) 23 cm; fringe: (side) 11–19 cm, (neck flap) 5–11 cm, (cuff) 5–6 cm, (inserted at dart) 5–7 cm, (sleeve decoration) 28–31 cm, (at shoulders) 70–75 cm; tassels: 9–10 cm.

*USNM 10801*: Men's leggings, buckskin, yellow coloring. Each legging is a single piece of skin, brought around, self-fringed on edge and stitched together with sinew. Bottom edge is folded up and stitched with sinew, forming a cuff 1 cm high. A band of fringe buckskin is stitched to legging with sinew 3 cm from bottom edge. Top of legging is plain edged, extending out from a flap to form tie straps on both sides. Extreme ends of tie straps have fur on.

Length: 96 cm; width: (bottom) 18 cm, (top, less flap and tie strap) 37 cm; fringe (cuff band) 5–6 cm, (side) 15–16; flap extending out from top: 21 cm long  $\times$  17 cm wide. Tie strap extending out from flap: 8 cm. These specimens have Illinois Normal Museum labels.

#### *Uintah Ute*

##### MEN'S CLOTHING.

*USNM 10778* (Figure 28): Man's moccasins, pair, buckskin, flesh side in. Each one is made of two main pieces of buckskin. Top is a piece of skin brought around and stitched with sinew to opening. Lower piece is a combined upper and sole. This is joined at center top of toe and stitched with sinew. A buckskin tongue flap is inserted in upper and covered with red cloth and a blue cloth flap

all stitched with sinew. Where upper folds around tongue seam, small tucks are evenly spaced. Upper has a small flap across back and is stitched up back with sinew. Around opening of upper and upper-top seam, there is a buckskin draw thong. Sole has hole cut in heel. Height of moccasin: 17 cm; length of sole: 24.5 cm; width of upper: 9.5 cm; height of top: 10 cm; tongue: 11 cm long  $\times$  6 cm wide; red cloth flap: 6.5 cm long  $\times$  6 cm wide; blue cloth flap: 4 cm long  $\times$  6 cm wide.

*USNM 10798* (Figure 33): Man's shirt, buckskin. Tunic body is two-piece with sleeves attached and large triangular neck flaps front and back. Body section: two halves, outside seam sewn across top except for neck slit, self-fringe along sides and sewn together on inside, waist or bottom of tunic is self-fringed. Sleeves are separate pieces of skin stitched to shirt with a double self fringe strip inset in shoulder seam. Seams along topside of sleeve join edges of sleeve piece, which is self-fringed on each edge. This seam is stitched on inside. Cuffs are plain. Neck slit is unsewn. Front and back U-shape neck flaps are sewn across each half of the neck slit. The seam is on the underside. Neck flaps are bordered with sewn-on strips of self-fringed buckskin.

Ornament (possibly claws of small bear): On front neck flap are strung on a buckskin thong and looped through hole cut 3 cm from left edge of the flap. Claws are 4 cm long  $\times$  0.9 cm (average) wide. A hole is drilled in the end of each through which a thong is passed and then knotted. The claw edges are cut in serrations, 4-6 in each side. The center of each claw is carved out and colored: 44 red, 22 yellow, and 24 blue. Thong is a buckskin strip, which is cut along each edge every 2 cm forming two strips to which 2 claws are attached (same color for each set of 2 claws). The basic thong is then rolled into a cord and held in that form with two-ply, Z-twist cotton thread. Entire ornament string is knotted to form one large loop which is passed through the hole in the flap and back through itself.

Across shoulders and sleeves: 176 cm; top to bottom: 80 cm; body width: (top) 78 cm, (bottom) 102 cm; sleeve width: (cuff) 14 cm, (upper arm) 20 cm; sleeve length: 53 cm; neck slit: 35 cm; fringe: (sleeve) 4-6 cm, (shoulder) 8-17 cm, (side) 7-10 cm; neck flap: (fringe) 5-6 cm, (length) 26 cm, (width at seam) 29 cm.

*USNM 10802*: Man's leggings, buckskin, yellow coloring. Each legging is a single piece of skin brought around and stitched with sinew along vertical length. Bottom edge is self-fringed with a separate buckskin cuff stitched on with sinew. Cuff is 8 cm long on one side and extending into a triangular flap, 27 cm long on the other side. Entire edge of cuff is self-fringed. Vertical seam is self-fringed on both sides, forming a double fringed seam extending two-thirds of the length from bottom. The upper third of the length has rectangular self flaps extending out 3-6 cm. Top is plain, but extends out into two straps. One strap on each legging is cut or torn short.

Ornaments: beadwork along one side of leggings; around circumference of bottom; around total border of cuff and cuff flap. Bead work: from bottom up along vertical seam; on piece of buckskin stitched to legging with sinew. This stitching has one white bead at each stitch along inside and bottom border. Beads are strung on sinew forming three rows of 10-14 beads, each lazy-stitched, forming a rectangular shape. Outside row design is a general pattern of rows of 24 white, 3 blue, 3 white, 3 blue, 3 white, 3 blue, 3 white, 3 blue repeated, three more times and then 40 rows of white. The middle series are rows of 27 white, 15 blue, repeated three more times and then 43 rows of white. The inside series are rows in pattern the same as the outside series. Bottom circumference beadwork is series of rows of 10-14 beads, each lazy-stitched to legging itself with sinew. Design pattern rows: 11 blue, 3 white, 3 blue, 3 white, 3 blue, 3 white, 12 blue, 3 white, 3 blue, 3 white, 3 blue, 3 white, 14 blue, 3 white, 4 blue, 3 white, 4 blue, 14 blue, 3 white, 3 blue, 3 white, and 6 blue. Cuff border rows lazy-stitched with sinew, alternating 4 rows black with 10 rows white on flap and 4 rows black with 4 rows white on rest of cuff border on one legging. On the other legging, there are 4 rows blue and 10 rows white on flap and 4 rows black and 4 rows white on rest of cuff border. Blue beads are translucent, white and black beads are not.

Length: (total) 108 cm, (without cuff) 78 cm; cuff length: (without flap) 9 cm, (with flap) 30 cm; width: (cuff) 14 cm, (top) 32 cm; vertical seam: (self-fringed) 52 cm, (with rectangular flap) 26 cm; tie strap: 41 cm; torn or cut strap: 19 cm; Fringe: (side) 20-27 cm, (bottom) 9-10 cm, (around edges

of cuff) 2–3 cm; beads (white, black, and blue):  $2 \times 1.8$  cm.

*USNM 14384*: Man's moccasins, pair, buckskin, flesh side in. Rawhide soles with 6 and 9 holes in soles. Upper is brought around and stitched up vertical seam. Upper is stitched around lower edge to sole and is left open in front from top down to ankle. Three buckskin tie thongs are laced across the front. Height of moccasin: 24 cm; width of upper: 11 cm; length of sole: 26 cm; length of opening: 14 cm.

Hatt (1916:167–168) lists these moccasins under his series VIII type: "Moccasins consisting of more than one piece; the bottom having T-shaped heel seam and T-shaped toe seam."

*USNM 17205*: Man's shirt, buckskin, flesh side in. Two skins with foreleg skins falling at bottom into four flaps. Tops of pieces were stitched together with buckskin thong 13 cm on either side of neck slit but have come apart. Skins are cut at the neck slit into two triangular flaps which fold over and hang, front and rear. These have a strip of buckskin fringe stitched to borders. Two separate pieces of buckskin are stitched to main body pieces for sleeves. The sleeves are self-fringed along bottom and each is stitched together for half its length along bottom with sinew. Cuffs are scalloped. Main body skin pieces are self-fringed on sides and stitched together with buckskin. A strip of buckskin fringe is inset in seam where sleeve attaches. Actual side seams only extend 21 cm below sleeves, the rest of the side lengths are plain and not stitched together. Bottom edge is scalloped on both main skin pieces. At one shoulder seam a buckskin fringe strap is passed through a hole and has 18 deer toe ornaments and 2 bone tubes attached to fringe.

Length: 73 cm; width across shoulder and sleeves: 155 cm; body width: (top) 53 cm, (bottom, including foreleg skin flaps) 130 cm; neck slit: 26 cm; neck flaps (length): 29 cm; sleeves: (length) 51 cm, (width at seam) 22 cm, (width at cuff) 14 cm; fringe: (neck flap) 7–10 cm, (body side) 10–13 cm, (inset at body-sleeve seam) 55–70 cm, (sleeve) 38–60 cm, (ornament) 10–13 cm.

*USNM 17215*: Man's leggings, buckskin. Each legging is one piece of skin, brought around and stitched with sinew along length. A strap of fringed buckskin is stitched around leggings with sinew 4 cm from bottom. Tops of leggings are untanned

rawhide 8–10 cm down, gradually blending into fully tanned skin. On one top flap of each legging there is a hole and on one legging a tie strap of buckskin is stitched to top flap with buckskin thong. Vertical edges of leggings are self-fringed the entire length, forming a double row of fringe along seam. Length: 81 cm; width: (bottom) 14 cm, (top) 23 cm; fringe: (bottom) 6–11 cm, (side) 25–32 cm; tie strap: 37 cm.

#### WOMEN'S CLOTHING.

*USNM 10780*: Woman's moccasins. Uppers, buckskin, flesh side in. Each upper made of one piece of skin, wrapped around and sewn together with sinew up inner lower leg, forming side seam. Top of upper piece is cut straight across. Base of upper is beaded and has buckskin draw thong. Soles are rawhide, sewn to upper with sinew. Buckskin strip inset and sewn in seam between upper and sole. Beading, right moccasin: navy blue and white, all lazy-stitched with sinew; left moccasin: navy blue, regular blue, and white, lazy-stitched with sinew. Rows of white beads longer than rows (sections) of regular blue beads and alternate in circle around ankle in bands of color. Inside rows of beading are buckskin drawstrings inserted through holes in buckskin. Sole: (length) 25 cm; length of upper: 51 cm; width of upper: (top) 18 cm, (ankle) 15 cm, (across foot) 11 cm; beads: (white)  $0.15\text{--}0.2 \times 0.10\text{--}0.15$  cm, (navy blue)  $0.175 \times 0.15$  cm, (regular blue)  $0.15\text{--}0.22 \times 0.05\text{--}0.13$  cm.

Hatt (1916:200) lists these moccasins as representative of his series XVIII type: "footwear consisting of sole with turned up rim, and upper, generally of one piece."

*USNM 14351*: Woman's "shawl," made of one complete buckskin, might be slightly colored with reddish pigment. Head end down with flesh side out; fur from deer feet still on outside for approximately 14 cm on left side, 9 cm on right side. Twelve cm of fur in middle of shawl top from what appears to be hind quarters or tail of deer. Self-fringed all around edge. On left side are 24 elk toe ornaments tied to buckskin fringe, also 2 bear claws approximately 8 cm long. Two chipmunk tails are attached with sinew stitching near bottom of shawl. On right side are 8 elk toes, 1 bear claw. One thin, small piece of animal fur, possibly chipmunk tail, stitched with sinew to single buckskin fringe, approximately 22 cm down

on side of shawl from where deer leg ends and hind quarter begins. Bottom is self-fringed with six chipmunk tails fastened to individual fringe with sinew thread. Four V-shaped scallops along bottom, possibly for ornamentation. Self-fringed strip of buckskin ( $\approx 31 \times 2$  cm) is attached to shawl, 16 cm from top and 27 cm from left side, with brown cotton thread. Two small elk toe ornaments and three chipmunk tails attached to fringe with sinew. Remnants of what looks like beige cotton stitching are on two sides of shawl, possibly for attachment of ornaments. One circular hole near top of shawl, 1.5 cm in diameter; 2 oval holes at 27–28 cm from left side and 33–34 cm from top of shawl. Width across top: 141 cm; length from top to bottom: 94.5 cm; width at hypothetical waist area: 55.0 cm; width across bottom: 50.0 cm; fringe (side) 10–14 cm, (bottom) 7–12 cm.

*USNM 14360* (Figure 34): Woman's buckskin dress. Yoke is two pieces of buckskin, sewn together at shoulders with buckskin lacing. Flesh side in. Neck opening with piece of buckskin sewn on to serve as neckband. Neckband beaded with black, white, and green beads. Yoke skins have royal blue (3 rows) and white (4 rows) beading over shoulder seams down length of cape sleeves. Bodice: composed of two pieces of buckskin sewn together at sides with buckskin lace to yoke above, and to waistband skins below. Flesh side out. Waistband (not shown in Figure 34) consists of four pieces of buckskin sewn together with buckskin lace. There is 5 cm circle of stitching adjacent to waistband on back of dress on the right side which appears to be mending of a cut made in body skin. The circle is decorated with blue and white beads. Bodice and skirt seem to have been made from two buckskin pieces, each of which was cut for waistband insertion. Skirt is flesh side out, made of two skins sewn together at sides with buckskin lace. Skirt flares out at bottom with several layers of self-fringed buckskin pieces attached for greater amount of fringe. Length: 110 cm; width: (across shoulders and sleeves) 127 cm, (under arms) 67.5 cm, (waistband) 58.5 cm, (across bottom) 113 cm; sleeve length: (left) 36 cm, (right) 38 cm; neckband: (width) 2.3 cm, (length, dress front) 24 cm, (length, dress back) 25.5 cm; yoke width from neckband to mainskin: 11.5 cm; sleeve width at cuff: 21.5 cm.

Bottom of dress: four buckskin flaps attached to back of dress along bottom for purpose of addi-

tional fringe and perhaps to give impression of complete buckskin with forelegs which were not present on main skin. Two rectangular flaps added and sewn to main skin with buckskin. Most fringe along bottom of dress back is of double thickness, either two separate pieces of fringed buckskin sewn to main skin or one piece folded over buckskin, fringed on both sides. Dress front has essentially same flap arrangement as that for back, with five additional flaps added and sewn to main skin with buckskin. Fringe along dress bottom varies in length from 6 to 11 cm. There is occasional self-fringe along bottom, but most fringe layers are additional pieces of self-fringed buckskin sewn onto main skin with buckskin lace.

Side fringe: consists of self-fringe on both skins before sewn together and inserted piece of fringed buckskin between two skins further down, giving double and triple fringe layers. Average side-fringe length: 11 cm. Neckband sewn to yoke with sinew. Back of dress varies slightly from front of dress. Beading on both sides predominantly the same, waistband for back consists of two pieces of buckskin, thong ornamentation pattern basically same for back as for front. Thirty-four randomly spaced buckskin thongs on skirt. Five thongs under yoke beading on back. Yoke beading: 113 cm long and 7.5 cm wide consists of 3 rows white beading, 2 rows black, 1 row red. Shoulder beading: 2 rows white, 2 rows blue, 42.5 cm long and 3.5 cm wide. Front of dress has 15 sets of small holes (4 per set) that look like holes for buckskin thonging. Beading: all beading lazy-stitched with sinew. Beads: (black)  $0.2 \times 0.15$  cm, (royal blue)  $0.15 \times 0.1$  cm, (red)  $0.2-0.25 \times 0.15-0.2$  cm, (green)  $0.19-0.2 \times 0.1-0.15$  cm.

*USNM 14363*: Woman's dress, buckskin, made of two skins with foreleg skins extending out as parts of sleeve capes and self-fringed with fur on fringe. Main skins are self-fringed and stitched together along sides with buckskin. Yoke piece is made of two pieces of buckskin, yellow colored, and stitched along top seam with buckskin. Lower border of yoke, where it is stitched to main body skin pieces with buckskin, is left with fur on and in center border of each side there is larger fur strip as ornament. Neck slit is bordered with red and blue cloth stitched on with three-ply, S-twist cotton thread. Four buckskin fringes are tied to cloth border. Across yoke-body seam extending

out along cape sleeves, there are 14 fringes spaced about 6 cm apart. These fringes are buckskin thongs passed through skin so that two fringes hang down. Bottom of body skins extend out at sides where animals' hind leg skins form flaps which are self-fringed at edges, self-fringed with fur at ends, and two flaps on each side are stitched together on one side with buckskin. In from each legskin flap is a separate flap of buckskin stitched on with buckskin. Each of these flaps is two pieces stitched together with buckskin, with a buckskin fringe piece inserted in seam. Bottoms of flaps are scalloped. In from the scalloped flaps are smaller flaps, on the front skin. These are self flaps, self-fringed. On the back these flaps are separate, self-fringed pieces, stitched on with buckskin. In from these flaps, the bottom edge of the main body skins has a strip of fringed buckskin stitched on the border with buckskin. The strip borders two self-flaps on center bottom of each main skin.

The front side of the dress is decorated with alternating rows of buckskin thongs and beadwork. Eighty-four centimeters below the neck slit is a row of eight buckskin thongs, each thong passed through the main skin so that two fringes hang down. Three to four rows of beads are placed 0.5 cm above each thong attachment. Each row has 5 white and 5 black beads lazy-stitched with sinew. Fourteen centimeters below the top set of thongs and beadwork is a set of nine thongs with the same beadwork decoration as the top set. Seven centimeters below the second set is a third row of seven buckskin thongs passed through the main skin, each holding a small piece of red cloth hanging as a fringe. A fourth row of five thongs is placed 7 cm below the third set and a fifth row of four thongs is placed 7 cm below the fourth set.

On the back side of the dress 79 cm below the neck slit is a row of 10 thongs attached as on the front of the garment. Seven thongs attachments have three or four rows of beads lazy-stitched with sinew 0.5–0.7 cm above thongs, each row having 5 white and 5 black beads. Two thongs attachments have three rows of 5 white and 5 black beads stitched above them plus an additional bottom row of 6 white and 4 blue beads. One thong attachment has three rows of 5 white and 5 black beads above it plus a top row of 8 white and 4 blue beads. Thirteen centimeters below the top set of thongs and beads is a second set of eight

thongs with bead decorations above each thong. Six decorations are three or four rows of 5 black and 5 white beads; one decoration has three rows of 8 white and 4 blue beads and one decoration has two rows of 5 black and 5 white beads and a bottom row of 5 white and 3 blue beads. Nine centimeters below the second set of thongs and beads is a third row of eight thongs each holding in place a strip of red cloth fringe as on the front of the dress. The four center thongs each have two rows of beadwork above them, each row containing 6 or 7 white and 4 blue beads. Nine centimeters below the third row of thongs is a fourth row of 5 thongs. The center thong is plain; the others hold pieces of black cloth fringe at the thong attachments. At 8.5 cm below the fourth row of thongs is a fifth row of four thongs and black cloth fringes, two on each of the large center self-flaps.

Length: 132 cm; width: (across shoulders and sleeve capes) 148 cm, (top) 73 cm, (bottom) 128 cm; yoke across top: 121 cm; fringe: (side) 11–21 cm, (bottom) 4–6 cm, (bottom attached flaps) 11–13 cm, (bottom leg skin flaps, with hair on) 6–7.5 cm, (sleeve, self-fringe with no hair) 0.5–1.0 cm, (sleeve end self-fringe with hair on) 5–8 cm, (decoration) 12–33 cm; beads: (white) 0.15–0.2 × 0.1–0.15 cm, (black) 0.2 × 0.12 cm, (blue) 0.2–0.25 × 0.15–0.2 cm.

*USNM 14367*: Woman's dress. Body of dress made from two complete buckskins, flesh sides out. Yoke made from two partial skins, flesh sides in. Garment sewn together with buckskin lacing in overhand stitch. Sides of dress self-fringed before being sewn together. Sleeve ends self-fringed with hair left on fringes. Fur strips 3–5 cm wide have been left on yoke skins along seams joining yoke to body skins. At center of yoke in front and back, fur flares out to form a 6–7 cm wide × 19.5 cm high vertical ovoid decoration just below the neckband.

Neckband consists of a 2.5–2.8 cm wide strip of red wool cloth. The band is 23 cm long on front side of dress and 24 cm long on the back side, forming a continuous stand-up collar. The lower 1 cm of the neckband is decorated with green and white beads lazy-stitched with sinew in vertical rows. At the front and back centers of the neckband are 12-row bands of green beads, each row having 7 beads. The front band curves up-

ward, the rear band is straight. The remainder of the beaded strip consists of interlocked diamonds of green and white beads, 7 beads per row with white beading on the bottom and green beading on the top.

Strips of beadwork extend from the neckband across the tops of the shoulders and down the sleeves of the garment, 54–55 cm on each side, covering the seams of the yoke and the sleeves. The beadwork strips on each side are similar. Each strip consists of five contiguous rectangular panels of beadwork varying from 7.0 to 12.5 cm long  $\times$  2.8–3.0 cm wide. Each panel in turn is made up of three rectangular subpanels; each subpanel is 0.8–1.0 cm wide by the length of the panel in which it is placed.

For simplicity the beaded right strip, from the garment wearer's viewpoint is described. There are minor variations in the numbers of bead rows and dimensions on the left strip. Panel 1, 7.3–7.6 cm long  $\times$  2.8 cm wide, nearest the neckband, has two outer subpanels of royal blue beads, one with 33 rows and one with 37 rows, each with 8 beads per row. The center subpanel contains 31 rows of white beads, 8 beads per row. Panel 2, 12.5 cm long  $\times$  2.9 cm wide, has two outer subpanels of white beads, one with 55 and one with 56 rows, 8 beads per row. The center subpanel has 40 rows of green beads, 8 or 9 beads per row. Panel 3, 10.8 cm long  $\times$  2.8 cm wide, has two outer subpanels of royal blue beads, 47 rows each, 8 beads per row. The center subpanel has 46 rows of white beads, 8 beads per row. Panel 4, 10.9 cm long  $\times$  2.8 cm wide, has two outer subpanels of white beads, 48 and 49 rows, respectively, 8 beads per row. The center subpanel has 41 rows of green beads and 8 rows of white beads at the distal end, 8 beads per row. Panel 5, 9.2–12.2 cm long  $\times$  2.8 cm wide, has outer subpanels of royal blue beads, 45 and 47 rows, respectively, 8 beads per row. The center subpanel has 54 rows of white beads, 8 beads per row.

On the front and the back of the dress across the yoke are 3 touching parallel strips of beadwork which extends across the garment from sleeve end to sleeve end. At the center of the garment, front and back, the beaded strips curve under the ovoid fur decorations at the neck. The front strip is 116 cm across; the back strip is 110.5 cm across. The strips are beaded the same front and back. The

top strip is of navy blue beads, 7 beads per row; the center strip is of white beads, 9 beads per row; the bottom strip is of royal blue beads, 9 beads per row. The bead rows are vertical, 0.8–1.0 cm wide, lazy-stitched with sinew to the garment.

The dress has buckskin thong decorations passed through the body skin and knotted outside to form pairs of depending decorations. On the dress back along the yoke and body panel seam, there are seven thongs. Two of these have fur on. One thong in the center of the back has a 1.7 cm in diameter, four thread-hole, brass button tied to it. On the dress front there are 10 thongs attached to the yoke.

The skirt front has four rows of thong decorations. Each thong knot of the upper three rows is covered with a panel of three horizontally strung rows of beads, 10–11 beads per row, white-black-white, from top down. The beads are sewn to the dress and not to the thong knots. The first row of three thongs is 62 cm below the neckband, the thongs are 41–42 cm long; second row of four thongs is at 83.2 cm below the neckband, thongs are 29–30 cm long; there is beading for a fifth thong (now missing) on the row. The third row of thongs is 95 cm from the neckband, four thongs, each 18 cm long. At 108.4 cm from neckband is a fourth row of three thongs, each 16 cm long.

Sewn into the skirt bottom on the front and the back are four patches of red wool, two near the right seam and two near the left seam. The patches are 12.5–13.5  $\times$  8.5 cm in size. They are bordered with buckskin strips and sewn with buckskin lacing into scalloped-edged rectangles cut into the skirt.

As noted, the side fringe of the dress along the seams is self-fringe as is the bottom fringe on the skirt for approximately 12 cm on either side of the seams. The rest of the skirt bottom is trimmed with self-fringed pieces of buckskin sewn with buckskin lacing onto the main skins.

Length, from top to bottom including bottom fringe: 135 cm; width: (across arms and shoulders) 155 cm, (waist) 56 cm, (bottom before flaring) 99 cm, (across chest, under arms) 58 cm; sleeve length: (right, including fringe) 48 cm, (left, including fringe) 55.5 cm; side fringe (average length): 20 cm; bottom fringe, average length: 8 cm; sleeve fringe: 7.0 cm average; cuff fringe, 4.5 cm average length. Beads: (white) 0.15  $\times$  0.15 cm, (green)

0.15 × 0.15 cm, (royal blue) 0.10 × 0.15 cm, (navy blue) 0.2 × 0.2 cm.

*USNM 14369*: Woman's dress, buckskin. Body section is made up of two skins, flesh side out, stitched with buckskin to yoke at top and with animal hind leg skins extending out as cape sleeves. Along sleeves there is self-fringe and at ends of sleeves there is self-fringe with fur on. Sides are stitched together with buckskin, with buckskin fringe piece inserted in seam. Bottom of body section extends out at sides, the foreleg skins form flaps. In from these are separate buckskin flaps, stitched on with buckskin; each flap is of two pieces of buckskin stitched together with buckskin thong. The top piece is covered with red cloth sewed on with two-ply, S-twist thread and a buckskin thong laced through a strip of buckskin forming a border around sides and bottom of cloth piece. The lower half of the flap is self-fringed at the top where seam is and the fringe hangs down over this lower piece of buckskin. In from these flaps the dress has two self flaps and in from these at center bottom there are two larger self flaps. Lower border of dress has a buckskin fringe strip stitched to it with buckskin. Also along bottom of the two main body skins eleven small sections of buckskin are pieced in and stitched with buckskin to give a more consistent shape to lower border. Yoke is buckskin, flesh side in, with border with fur on, turning to self-fringe where cape sleeves begin. From yoke-body seam 12 fringe decorations depend from one side and 15 from the other side. (Stitch holes indicate that there were approximately 16 fringe decorations on each side originally.) Each fringe piece is passed through the garment to depend as two buckskin thongs. One thong has two pieces of glass tubing, with red coloring inside, threaded on it. At center bottom edge of yoke on each side part of skin is left with fur on to form decoration. Through each of these, two buckskin thong fringes are attached. Neck slit is bordered with two strips of alternating panels of black and white beads, with 11–24 rows of beads per panel, 7–9 beads per row, black and white beads on red cloth background on each side and with white bead panels stitched to buckskin of yoke at each end. Also at each end of neck slit are buckskin tie thongs. Further decoration on body sections consists of three rows of buckskin thong fringes on one side and four rows on the other. On the front

side, top row is 15 cm below neckband and has five thongs passed through the material to form two depending fringes each. Stitch holes indicate at least three additional thongs are missing; 17 cm down from this, a row of four thongs with at least four others missing. Down 12 cm a third row of seven thongs, with at least one missing. Above thongs of third row are triangular bead decorations lazy-stitched with sinew; top to bottom rows: 10 white, 9 white, 8 black, 7 black, 6 white, 5 white, and 4 white. Down 12 cm from third row series is another row of five bead-and-thong-fringe decorations, beads in pattern as above.

On the back side of the dress, 20 cm from neckband, the top row of thong fringe has seven thongs with at least five missing. Down 17 cm from this row is a row of nine thongs, probably none missing. Three of these have beads in pattern as on dress front. Two have two rows of white beads, probably other rows missing, and center thong has top row 7 white, 6 white, 6 black, 5 black, and 4 black at bottom, all lazy-stitched with sinew. Fifteen cm below is a third row of three thong fringe decorations with seven rows of beads in pattern described above for front side and two missing thongs with beads above stitch holes. One of these panels has three lower white bead rows with top four rows missing; the other only has two black rows and three bottom white rows of beads.

Length: 117 cm; width: (across shoulders and cape sleeves) 147 cm, (across yoke) 125 cm, (body top) 70 cm, (bottom) 119 cm; neck slit: 26 cm; yoke: (self-fringe) 0.5 cm, (thong fringe) 17–28 cm; fringe: (side) 8–9 cm, (bottom) 4–8 cm, (decoration) 15–36 cm, (self-fringe, fur on sleeve ends) 4–5 cm.

*USNM 17206*: Woman's dress, buckskin. Two skins, flesh side out, hind leg skins stitched to yoke with buckskin, forming cape sleeves. Bottom of skins are cut forming four shallow flaps, edges are scalloped. Yoke is two pieces of buckskin, flesh side in, top stitched except for neck slit. The top seam has come apart the width of the garment. On each side of the garment, five thong ornaments depend from yoke-body seam. These are buckskin pieces passed through garment to form two hanging thongs. Forty-eight cm below these on both front and back is a row of five thong decorations spaced across body width. From bottom of sleeve down 23 cm on each side, the main body skins are self-fringed and stitched together with buckskin. From

this point down on each side another section is inserted as a side panel or dart. Each section is made of two pieces of buckskin, flesh side in, stitched to body skins with buckskin lacing, self-fringed and stitched together down length with buckskin, and scalloped across bottom. Darts are 21 cm wide at bottom, tapering to a point up side of garment 66 cm.

Length: 115 cm; width across shoulder and sleeves (yoke width in this case): 124 cm; body width: (top) 68 cm, (bottom, less dart width) 110 cm; neck slit (as determined from stitch holes): 22 cm; fringe: (side) 6–14 cm, (dart) 10–12 cm, (ornament) 15–44 cm.

*USNM 17209*: Woman's dress, buckskin, yellow coloring over outside. Made of two pieces of skin, flesh side in, self-fringed on sides and stitched together with sinew, sleeve pieces inserted into this seam, seam extends down garment sides 28 cm below sleeves. From this point two body pieces are separated and scalloped along borders including bottom (animal's foreleg skins) flaps and bottom edges. Main body sections are stitched together with sinew and with double fringed buckskin strip inserted in seam; at each end of neck slit there is a buckskin draw thong. From neck slit, a buckskin flap, with buckskin stitched fringe piece around edge, is stitched to each side of slit with buckskin and depends from it. Each sleeve is a piece of buckskin with one length self-fringe stitched together along length with sinew, with one buckskin fringe strip inserted in seam. (Thus two fringe strips on each sleeve.) This seam runs along top of sleeve. Cuffs are plain.

Length: 70 cm; width across shoulders and sleeves: 119 cm; body width: (top) 50 cm, (bottom) 88 cm; neck slit: 23 cm; sleeve length: 36 cm; sleeve width: (base) 16 cm, (cuff) 12 cm; neck flap: (width) 16 cm, (length) 19.5 cm; fringe: (side) 12–21 cm, (top) 5–12 cm, (sleeve) 11–25 cm, (neck flap) 6–12 cm.

*USNM 17211*: Woman's dress, buckskin or tanned mountain goat skin. Tail end down, flesh side in, self-fringed on both sides for 27 cm beneath sleeve and stitched this length with sinew. Below this seam on each side garment extends out into animal hindleg skin flaps. Bottom border is cut plain. Sleeves are separate pieces of self-fringed skin, each brought around and stitched with sinew along upper length. Cuffs are scalloped. Each sleeve is stitched to main body section with sinew, with

double fringe strip inserted in seam. Top of main body sections are self-fringed, except for neck slit, and stitched together with sinew. Neck slit has a thong drawstring at each end and across each side a triangular neck flap is stitched to neck slit with thong lacing. Each flap has double fringe strip stitched to border with sinew.

Length including bottom flaps: 96 cm; width across shoulders and sleeves: 143 cm; body width: (top) 50 cm, (bottom) 106 cm; left sleeve length: 41 cm; right sleeve length: 52 cm; sleeve width: (cuff) 12 cm, (shoulder) 15 cm; neck slit: 28 cm; neck width: 28 cm; fringe: (side) 8–17 cm, (shoulder-sleeve seam) 28–43 cm, (sleeve) 29–42 cm, (shoulder) 16–25 cm, (neck flap) 7–11 cm.

*USNM 17217*: Woman's moccasins, pair, buckskin, dark brown in color, flesh side in. Rawhide soles with fur left on, but nearly worn off now. Holes in heel are plugged with what looks like cork (maybe from display or an exhibition). Each moccasin has a top piece open in front and stitched to upper with sinew. Upper is a piece of skin brought around in back, self-fringed, and stitched on vertical seam up back. A buckskin draw thong is laced around upper at ankle and ties in front after passing through top piece self flap at front on outer side of moccasin. Upper is stitched to rawhide sole with sinew with a buckskin strip inserted in seam. Height: 21 cm; rawhide sole flattened down: (width)  $\approx$  12 cm, (length) 27 cm; length of opening: 14 cm; height of top: 13 cm; self-fringe at back seam of upper: 5–7 cm.

Hatt (1916:201) lists these moccasins under his series XIX type: "footwear consisting of sole with turned up rim, upper, top, and, eventually, instep piece."

*USNM 17219*: Woman's moccasins, pair, buckskin, yellow coloring, flesh side in. Upper and rawhide sole with heel hole are one piece. Upper extends up into a high top, brought around at outer side and stitched up vertical seam with sinew so that one side extends into flap from seam. At top of flap is a hole and buckskin thong. Around area of ankle a buckskin draw thong is laced and ties in front. Upper is stitched to sole with sinew, with buckskin strip inserted in seam. Height: 28 cm; length: 19.5 cm; width: 8 cm; length of opening at top: 14 cm; side flap at widest: 7 cm.

Hatt (1916:200) lists these moccasins under his series XVIII type: "footwear consisting of sole with turned up rim, and upper, generally of one piece."

*Goose Creek Shoshoni*

MEN'S CLOTHING.

*USNM 19829*: Man's shirt or tunic. Main body is single piece of buckskin, flesh side in, folded in half at top and stitched with sinew down sides where a strip of buckskin fringe is inserted in seam on each side. Bottom is cut straight across and has a strip of buckskin fringe stitched to edge with sinew. Neck slit is cut in top fold, has buckskin thong draw strings on each side, and has buckskin flaps depending from front and back. Flaps have buckskin fringe strips on edges stitched with sinew. Flaps are stitched to neck slit with sinew and are made of heavier skin than main body. Each sleeve is made of a separate piece of buckskin stitched to body with sinew and along lower length with sinew. Buckskin double fringe strip is inserted in seam. Each cuff has buckskin fringe stitched to it with sinew. Sleeves are overly long in comparison to length of tunic body.

Length: 47 cm; width across shoulders and sleeves: 144 cm; body width: (top) 57 cm, (bottom) 54 cm; sleeve length: 43.5 cm; sleeve width: (shoulder) 79 cm, (cuff) 14 cm; neck slit: 28 cm; neck flap length: 20 cm; fringe: (side) 10–13 cm, (sleeve) 10–24 cm, (cuff) 4–6 cm, (neck flap) 4–6 cm, (bottom) 5–7 cm.

*USNM 19832*: Man's breechcloth, 114 × 22 cm, buckskin, narrow ends are cut zig-zag on border, sides plain. At one end corner an insert piece of buckskin is stitched on with sinew to complete general rectangular shape of garment.

*USNM 19834*: (Figure 35a): Boy's tunic, beaver skin (*Castor canadensis*), tanned with fur on, flesh side in. One piece folded over at top with neck slit cut in fold. At each end of neck slit are draw straps of buckskin and along each side depend triangular flap pieces with fur on, stitched to neck slit with sinew. Fringe with fur on is attached to bottom, a strip of fringe on front side and individual fringe pieces on the back, stitched with sinew. Right side of tunic is stitched 10 cm down from sleeve; below this seam tunic has become unstitched on side. Left side is stitched to bottom. Sleeves, separate pieces of skin with fur on, are brought around and stitched along bottom length with buckskin. Sleeves and cuffs are self-fringed with fur on. Sleeves are attached to body section with buckskin lace.

Length: 39 cm; width across shoulder and sleeves: 103 cm; body width: (top) 46 cm, (bottom) 45 cm; sleeve length: 61 cm; sleeve width: (cuff) 11 cm, (shoulder) 14 cm; neck slit: 25 cm; neck flap: 19 cm long; fringe: (sleeve) 8–12 cm, (cuff) 8–9 cm, (bottom) 6–13 cm.

*USNM 19835*: Boy's leggings, pair, buckskin, flesh side in. Each legging is a piece of buckskin brought around and stitched with sinew along one side length. A piece of buckskin is inserted in seam which (from bottom to top) is fringed along 17 cm and from there to top is a scalloped edge flap. Flap is wide at bottom and narrows to a point 4 cm from top. At top a piece of buckskin is stitched on with sinew and extends out 21 cm as a tie strip. It is decorated at the end with four strips of beaver skin with fur stitched on with sinew. Around top of legging, skin is folded and stitched inside with sinew to form a border. Bottom of legging is scalloped.

Length: (seam side) 58 cm, (outside) 42.5 cm; width: (bottom) 16 cm, (top) 17 cm; flap length × widest width: 35 × 16 cm; fringe: 4–6 cm.

*USNM 19837*: Breechcloth, 83 × 15 cm, buckskin; zig-zag scallops cut into each end of skin; sides cut plain. Hole, 2 × 1.3 cm, cut 0.7 cm in from side and 23.5 cm in from one end.

*USNM 19842*: Breechcloth, fawn skin with fur on; seven pieces stitched together with sinew, taking overall rectangular shape; 88 × 29 cm.

*USNM 19876*: Man's tunic, poncho-shape with sleeves attached and large U-shape neck flaps, front and back. Body section: one piece of skin folded over and inside stitched down sides, with a self-fringe strip inset in seam. Waist or bottom of tunic is scalloped on edges, front and back. Two holes on front have patches sewn on from outside. Sleeves are separate pieces of skin stitched to shirt with a self-fringed strip inset in shoulder seam; seam along underside of sleeves is stitched on inside and also has self-fringe strip sewn inside cuff edge. Neck slit cut into fold of body section. Collar pieces are folded over neck slit, front and back and stitched to neck slit with the two triangular neck flaps. The flaps are separate pieces and are scalloped on the edges. In each set of holes, 3 cm from each end of neck slit, is a draw thong.

Width across shoulders and sleeves: 108 cm; length: 68 cm; body width: (top) 46 cm, (bottom) 49 cm; sleeve width: (cuff) 10.5 cm, (upper arm) 12 cm; sleeve length: 31 cm; neck opening: 26 cm;

fringe: (sleeve, average) 12 cm, (shoulder, average) 12 cm, (cuff average) 4.5 cm, (side average) 13 cm; triangular flap: (length) 20 cm, (width at seam) 14 cm.

#### WOMEN'S CLOTHING.

*USNM 19828*: Woman's dress, buckskin, yellow coloring, flesh side out. Main body made of two pieces of buckskin, self-fringed and stitched together on sides with sinew. Bottom expands out either side with hind legs skin flaps. Bottom border is ornamented with strip of buckskin fringe stitched on with sinew. Body sections are stitched across top with sinew except at neck slit. Where animal foreleg skin extends out at shoulder of garment, one side has a separate, rectangular flap stitched to it with sinew. This flap forms cape sleeve and is scalloped on edges. Other side has two triangular dart inserts stitched in with sinew to yield a straight edge where rectangular flap is attached to main body skins. This flap is stitched with sinew and scalloped on the edges also. Neck slit has a draw thong at each end and is bordered on each side with a separate piece of buckskin stitched on with buckskin. These flaps depend 1.5 cm and are scalloped. On the front side, 10 cm down from neck slit, there are four rows of decoration. The first row is of eight buckskin thong ornaments spaced across body width. Each is a thong passed through garment so that two thongs depends on outside. An obsidian arrow point is attached to the fourth thong from the right side. The second thong in from the left side has a bird's bill attached and the second thong in from the right side has a bird's foot attached. Row 2, 35 cm below, has five thong ornaments, and row 3, 23 cm below, has five thong ornaments. On the back side, 10 cm down from neck slit, row 1 has seven thong ornaments; row 2, 37 cm below, has five thong ornaments, and row 3, 23 cm below, has six thong ornaments. The decorative arrow point on the front side is of obsidian, end notched, bifacially flaked, stem expanded, excurvate sides, 6.5 cm length  $\times$  2.9 cm width  $\times$  0.5 cm thick; one tang is broken off.

Length: 82 cm; width across shoulders and sleeves: 107 cm; body width: (top) 49 cm, (bottom) 93 cm; neck slit: 22.5 cm; rectangular sleeve flap length: 19 cm; fringe: (side) 14–24 cm, (bottom) 10–18 cm; thongs: 18–38 cm.

*USNM 19847*: Woman's dress, buckskin. Body

section in two pieces of skin, flesh side out, self-fringed on sides and stitched on sides with sinew. Yoke piece is two pieces of skin, flesh side in, stitched to body section with buckskin thong and to each other along top seam, except for neck slit. Neck slit has buckskin thong laced along edges as a border. Sleeves are formed by two flaps extending out from two body sections, joined at the top to the yoke section. Sleeve edges have self-fringe. Bottom has a buckskin fringe border stitched around circumference with buckskin thong. Front side has four rows of decoration. The first row has 13 pairs of thongs laced through garment at yoke-body seam across top and spaced about 7 cm apart. Each thong has a small deer toe ornament attached and the seventh pair of thongs (counting from the left) has chipmunk tails (*Eutamias* sp.). At the point of attachment of this pair of thongs, the top bill of a bird, part of the bird head, and two whole blue feathers are attached. Twenty-five centimeters left of this center ornament in row 1 is another bird top bill and part of a bird head. Row 2, 53 cm below row 1, has seven pairs of thongs with small deer toe ornaments; row 3, 16 cm below, has seven pairs of thongs without ornaments, and row 4, 11 cm below, has seven pairs of thongs, also without ornaments.

The back side of the dress has four rows of decoration. The first row has 13 pairs of thongs spaced about 8 cm apart across the yoke-body seam. Each pair has small deer toe ornaments. Counting from the left, pairs 6 and 8 also have chipmunk tails in addition to the toe ornaments. Pair 5 has two tails of pine squirrel (*Tamiasciurus hudsonicus fremontii*); pair 9 is plain and has no tail ornaments, and pair 10 has one tail of pine squirrel. Two bird heads and top bill ornaments are attached with sinew to sleeves at the yoke-body seam. Row 2, 50 cm below the yoke-body seam, has seven pairs of thongs with small deer toe ornaments. Row 3, 13 cm below, has eight pairs of thongs without ornaments, and row 4, 10 cm below, has seven pairs of thongs without ornaments.

Total length, less bottom fringe: 95 cm; width across yoke, including sleeves: 113 cm; neck slit: 32 cm; body width: (top) 52 cm, (bottom) 78 cm; sleeve length: 30 cm; fringe: (sleeve) 0.8–1 cm, (side) 12–14 cm, (bottom) 8–9 cm; thong ornament length, average: 14 cm.

*USNM 19848*: Woman's moccasins. Uppers of

buckskin; each moccasin consisting of two pieces of skin, flesh side in. Major part of upper consists of one piece of buckskin, wrapped around and stitched up at approximately back of leg with sinew. Other piece sewn to main skin and sole with sinew and covers forward or front part of foot. Soles, made from thick rawhide with hair still on left moccasin. Buckskin strip inset in seam between upper and sole and sewn with sinew. Buckskin thongs attached to inside of right moccasin, 20 cm down from top of upper, and to outside of left moccasin, 21.5 cm down from top of upper. Thongs are slipped through two holes, knotted, and hang in two separate pieces. Buckskin drawstring around ankle of moccasin. Threaded through series of holes. Sinew stitching is split in backs of moccasins near where sole attaches to upper, probably from pull on stitching while walking. Tear in front of left moccasin stitched with sinew for distance of 5 cm. Length of upper (along back seam): 55 cm; top parts of upper extend as much as 4.5 cm above this; width of upper: (at top) 20.5 cm, (at ankle) 11 cm; length of buckskin footpiece: 13 cm; width of buckskin footpiece: 9 cm; sole: (length) 27 cm, (width, at ball of foot) 12 cm.

*USNM 19849* (Figure 36b): Woman's belt, squirrel skin (*Tamiasciurus hudsonicus fremontii*) (spruce or pine squirrel) tanned with fur on, backed with buckskin; fur side is made up of twelve individual squirrel rear quarter dorsal sections with tails depending. Buckskin backing is overlapped along top of belt making a border on fur side of zig-zag. Backing is two pieces sewn together at center, one 43 cm long and one 41.5 cm long. At each end additional pieces of buckskin are attached. These are belt width with three zig-zag cuts on end stitched to belt. They then extend out from belt with zig-zag border, one 18.5 cm and the other (with a buckskin fringe piece sewn with sinew to end) 30 cm including fringe. Total length of belt is 131 cm; width is 5 cm at center, 14 cm including longest squirrel tail, and 3 cm wide on end strap pieces. Parts of tails have been torn off.

*USNM 19852*: Woman's skirt. Made from two skins, sewn together at sides with sinew using overhand stitch. Skirt bottom cut in W-shape with two pieces of self-fringe buckskin sewn with sinew along bottom, making a double row of fringe on both the front and back of skirt. Fringe on skirt sides consists of piece of self-fringe buckskin sewn

into seam connecting two pieces of buckskin with sinew. Ornaments: thongs attached to skirt by inserting each thong through two small holes punched in skin and knotting them once through holes. Three rows of buckskin thongs on both skirt front and back; first row 9 cm from top of skirt, has 7 buckskin thongs, 6 of which have feathers or remnants of feathers on them. Second row, 37.5 cm from top of skirt, has 13 thongs with 14 elk toes (one thong has 2 elk toes) attached to it. Elk toes fastened by making hole in top of toe, slipping through and knotting of buckskin thong. Third row has buckskin ties with elk toes attached. Front of skirt also has a large patch (19.5 × 9.5 cm) of buckskin sewn with sinew around border and to left seam, reinforced with second row of sinew stitching at a distance of 2 cm from border of patch. Fringed buckskin tassels attached to drawstring (buckskin) on skirt front for securing skirt in place. Self-fringe tassel encasing ends of drawstring is 9 cm long. Top of skirt folded over for 2.5 cm and sewn with sinew as encasement for buckskin drawstring. Slit made in skirt front where ends of drawstrings come out and tassels attach. Ornament on back of skirt: First row, 12 cm from top, has 7 ties with feathers attached; second row, 35.5 cm down from top, has 15 ties, and each with elk toes; third row, 48 cm down from top, has 20 ties, each with elk toes. In first row only two large brown feathers remain on ties. Back of skirt also has small buckskin tie put through top of waistband and knotted.

Length: 65 cm; width: (waist) 46 cm, (bottom) 72.5 cm; average length of fringe: (bottom) 6 cm, (side) 12 cm.

*USNM 19855*: Girl's dress, buckskin, flesh side out. Made of two pieces stitched along length of sides with two fringe strips inserted in each side seam. Around bottom edge two fringe strips are stitched to main garment. The top is folded over 2 cm and stitched, forming a tube through which a buckskin drawstring runs. This drawstring has a fringe tassel attached at the two ends, which extend out from hole. The half from which the drawstring extends is probably the front. Three feathers are attached 8 cm below top center of dress front with three identical feathers 9 cm to the right and one feather (2 probably missing) 9 cm to the left. These feathers are whole. Twelve cm below are 5 bunches of feathers equally spaced

about 10 cm apart across garment front. Powell's (1878:3) catalog lists the feathers as "*Butno* sp. [Buzzard hawk], *Circus* sp. [Marsh hawk], and *Colaptes Mexicanus*" [*sic*; probably *C. cafer*, Red-shafted flicker]. Each bunch has about 20 half (or split quill) feathers with bases wrapped together with sinew and tied to garment with a buckskin thong. The thong passes through garment skin, and two loose ends hang down 15 cm including feathers. Seventeen centimeters below these attachments are 11 thongs attached about 5 cm apart and spaced across garment. These thongs pass through skin and the two ends hang down in front, each passing through a small deer toe piece, and from each toe a small animal tail hangs. These tail tips are of pine squirrel (*Tamiasciurus hudsonicus fremontii*); the others are of chipmunk (*Eutamias*). On the back of the garment there is one whole feather attached with sinew and a buckskin thong 9 cm below top left. Ten cm below this are five bunches of split feathers as on front of dress. Row 3, 17 cm below, are 11 pairs of thongs, with deer toe and chipmunk tail decorations, as on front of garment.

Length: 94 cm; width: (bottom) 93 cm, (top, waist) 49 cm; fringe: (side) 8–11 cm, (bottom) 5–6 cm; average thong length: 13 cm; average deer toe: 2.8 × 2.3 × 1.3 cm; fringe, drawstring tassel: 5–6 cm.

*USNM 19856*: Girl's moccasins, pair, buckskin, flesh side in. Uppers made of one piece of buckskin, wrapped around and sewn together up back of upper. Before being sewn together, narrow buckskin strip inserted up back and sewn with sinew to each side of upper. Top of upper cut in V-shaped scallops and buckskin thong inserted through two holes to form two hanging buckskin strips on inside of lower leg. Both moccasins have small 1.5 cm diameter holes on outside of uppers near top. Buckskin patches sewn with sinew onto inside of moccasin to cover holes. Eight holes made in moccasins around ankle for insertion of buckskin ties. Sole also made of buckskin, probably roughened from wear. Sewn to uppers with sinew. Buckskin strip inset in seam and sewn to upper and sole with sinew. Length of sole: 22.6 cm; width of sole (across ball of foot): 8.0 cm; height of upper (along back seam): 34.7 cm; width of upper: (at top) 16.5 cm, (at ankle) 13.5 cm; thong, 1 side: 30.5 cm.

*USNM 19858*: (Figure 35*b*): Girl's dress, fawn skin, tanned with fur on; tails left on and depend

from bottom of gown. Two skins stitched together at sides with sinew; double fringe buckskin strips inserted in seams. Foreleg skins extend out as sleeves (with one small piece of fur on skin stitched on with sinew to complete cape sleeve), which are self-fringed at ends. Top of garment is stitched across with sinew except for neck slit, which is laced around edges with buckskin lace. On each side a buckskin fringe strip is stitched across bottom with sinew. Each side has eight buckskin thong decorations spaced across width 8 cm below top of gown. These are passed through material so that two lengths depend from each attachment. Thongs 3–5 (counting from left) on each side have deer toe ornaments on each length.

Length: 64 cm; width across shoulders and sleeves: 64 cm; body width: (top) 41 cm, (bottom) 70 cm; neck slit: 21 cm; fringe: (side) 11–19 cm, (bottom) 9–11 cm, (sleeve self-fringe) 4–5 cm; thongs: 11–14 cm.

*USNM 19859*: Girl's moccasins, pair, buckskin, flesh side in. Each one is made of two pieces of buckskin. Sole piece is roughened, possibly from wear, has a hole cut in heel, and is stitched with sinew to upper. Upper is brought around and stitched with sinew down back length. All seams have a buckskin strip insert. Top of upper is scalloped and has strip of buckskin passed through two holes in back at seam. Around ankle a buckskin draw thong is laced. Height of upper at back seam: 21 cm; width of sole: 6 cm; length of sole: 15 cm; width of opening at top: 11 cm.

*USNM 19860*: Girl's belt, mink skin (*Mustela vison*) tanned with fur on. Two pieces stitched together with sinew. One piece is 44 cm long × 2 cm wide; the other is 58 × 8 cm; total length: 102 cm long.

*USNM 19877*: Woman's moccasins, pair, buckskin, dark brown coloring, flesh side in. Upper and buckskin sole with heel hole. Upper extends into a high top, brought around and stitched up back with sinew with buckskin strip inserted in seam. Top edge is scalloped and has a hole with a piece of buckskin strap tied to it. Around ankle area, a buckskin draw thong is laced and ties in front. Upper is stitched to sole with sinew with inserted buckskin strip in seam. Height along back seam: 44 cm; length of sole: 23 cm; width of sole: 8 cm; width of opening at top: 18 cm.

*USNM 19878*: Woman's belt, mink skin (*Mustela*

*vison*), tanned with fur on. Two pieces stitched together with sinew. Each piece is 59 cm long; total: 118 cm long and 6 cm wide at center of belt. From center, ends taper out to a point.

*USNM 19880*: Woman's belt, mink skin (*Mustela vison*) tanned with fur on. Two pieces, 34 cm and 37 cm long, each 4 cm wide. Stitched together at center of belt with sinew. Each end cut back 8 cm to form three strips each. Three cm in from strip cuts another cut is made on each piece to tie buckskin thongs 27.5 cm and 24 cm long, respectively.

### *Bear Lake Shoshoni*

#### MEN'S CLOTHING.

*USNM 19865*: Man's leggings, buckskin, yellow coloring. Each legging is a single piece of skin brought around and with two lengths of fringe inserted between, stitched together along vertical length with sinew. Bottom edge is zig-zag scalloped. Up 3.5 cm from bottom edge are two buckskin bands; one plain edge overlaying the other which is fringed on both edges, both stitched with sinew to legging proper. Top is bordered with a strip of buckskin folded in half over top edge of legging and cut on outside with zig-zag scallops. A tie strap of buckskin is stitched onto top with sinew. This strap is stitched to form a cord, which has a buckskin fringe piece stitched with sinew to the end of it. Length: 80 cm; width: (bottom) 25 cm, (top) 34 cm; cuff band fringe: 3-6 cm; cuff band: 4.5 cm wide; fringe: (side) 16-21 cm, (tie strap) 12 cm; tie strap: 32 cm.

*USNM 19867*: Man's breechcloth, buckskin. General flair out from center to ends; 112 cm long, 17 cm wide at center; 25 and 24 cm wide at ends, which are cut zig-zag on border. Hole 2 × 1 cm near one side.

*USNM 19869*: Man's shirt or tunic. Made of one buckskin, folded over at top end with sinew stitched neck slit. Skin stitched with sinew up sides and on undersides of sleeves. Self-fringed buckskin pieces inserted in seams. V-shaped scallops cut along bottom of shirt; two inverted V-shaped slits up sides of shirt with scalloped edges, slits being approximately 11 cm long. Sleeves of single pieces of self-fringed buckskin folded into tubes and sinew stitched to body of shirt and sleeve ends scalloped. One sleeve decorated with bunch of unidentified

feathers sewn in at juncture of sleeve and body; opposite sleeve decorated with inset of three strips of mink fur, 7 cm long. Length: 56 cm; width: (bottom) 65 cm, (across chest area) 64 cm, (waist) 57 cm, (across shoulder) 70.5 cm.

*USNM 19870*: Man's leggings, buckskin. Each legging is a single piece of skin brought around and stitched with sinew along length. Bottoms of leggings are cut in zig-zag scallops. Tops run 45 degrees to length of leggings and are also zig-zag scalloped. On one side of the vertical length seam, the material extends along top edge into a tie strap. On the other side along the vertical seam, the lower third of the material is self-fringed and the upper two-thirds extend into a triangular flap, which is also zig-zag scalloped along edges. The scallop edges in general on leggings have yellow coloring forming a border about 1.5 cm wide. Length: 45 cm angling up to 60 cm; width: (bottom cuff) 16 cm, (top) 20.5 cm; fringe: 3 cm; length of border that is self-fringed: 20 cm; length of border extending into triangular flap: 36 cm; width of flap: 19 cm; length of tie strap: 22 cm.

*USNM 19871*: Boy's moccasins, buckskin, pair, flesh side in. Each one is made of two pieces of skin. The basic piece is a rectangle cut straight on three sides and double-lobed on the fourth side to form the toe end of the moccasin. The construction is of Hatt's (1916:179-180, fig. 31) series XII type: "Moccasins of one piece . . . having a T-shaped heel seam and a side seam, running from a point near the middle of the heel seam, along the outer side of the foot and around the toe." In other words, the piece is cut and folded over to form the sole, a tongue, and the upper of the moccasin, as well as a decorative flap at the heel. A second piece of scalloped buckskin is stitched to the top edge of the self-formed upper to add height to the moccasin. Height: 13 cm; length: 20.5 cm; width: 8 cm; length of opening: 11 cm; tongue: 10.5 cm long × 2.5 cm wide.

*USNM 19872*: Boy's breechcloth, buckskin, 71.5 × 20 cm. Top and bottom of cloth plain cut, scalloped sides. Two oval shaped holes, 3.7 cm long × 2 cm wide; 1.0 × 0.5 cm. General rectangular shape.

#### WOMEN'S CLOTHING.

*USNM 19851*: Woman's dress, buckskin. Made of three pieces of skin. Two nearly whole skins are

flesh side out, with hind leg skins to bottom. These skins are stitched with buckskin thong to a third piece of flesh side in skin which form yoke piece. The yoke piece is folded across top and cut for neck slit. Ends are stitched to buckskin strips, which are self-fringed; stitching is buckskin. Main body skins are self-fringed along sides and stitched together with buckskin. Across bottom border a buckskin self-fringed strip is stitched with buckskin to main body skins. Buckskin thong decorations are laced through main skin so that two thongs hang down. These are placed in three rows, the same on each side: row 1, five thongs across yoke-body seam; row 2, 45 cm below row 1, five thongs across body; row 3, 69 cm below row 1, six thongs across body.

Length: 105 cm; length across yoke: 73.5 cm; width of yoke: 28 cm; body width: (top) 57 cm, (bottom) 101 cm; neck slit: 27 cm; fringe: (yoke ends) 6–9 cm, (side) 9–13 cm, (bottom) 8–14 cm; thongs: 28–35 cm.

*USNM 22001* (Figure 29): Woman's moccasins, pair, buckskin, flesh side in. Sole is flat rawhide piece stitched to upper with sinew with buckskin strip inserted in seam. Upper is stitched up back with sinew and laced around with buckskin draw thong tied in front. Top is stitched to upper with sinew and has scalloped edges. A buckskin thong is tied to hole at upper-top seam and depends in loop. Height: 48 cm; length: 23 cm; width: 8.5 cm; opening at top upper seam: 13 cm; opening at top: 17 cm.

*USNM 22002*: Woman's belt, mink skin (*Mustela vison*) 128 cm long × 7 cm wide at center seam. Two back strips of mink with fur on, including tail, stitched together at center of belt with sinew. At each end mink, with fur on, fringe is stitched on with sinew.

### *Wind River Shoshoni*

#### MEN'S CLOTHING.

*USNM 22007*: Man's shirt, buckskin, flesh side in. Body sections are two pieces of buckskin stitched together with sinew at the top and along sides with double fringe strips inserted in seams top and sides. At neck slit, flaps are stitched on with buckskin lace and are fringed with a buckskin strip stitched to border with sinew. Bottom of shirt is

bordered with buckskin fringe strip stitched on with sinew. Sleeves are separate pieces of skin brought around and stitched with sinew, with fringe buckskin strip inserted in seams. Cuffs have buckskin fringe strips stitched on with sinew. Sleeves are sewn to main body section with sinew, with buckskin fringe strip inserted in seam.

Length: 48 cm; width across shoulders and sleeves: 184 cm; body width: (top) 62 cm, (bottom) 64 cm; sleeve length: 61 cm; sleeve width: (cuff) 15 cm, (shoulder) 19 cm; neck slit: 28 cm; neck flap: (across) 22 cm, (length) 24 cm; fringe: (side) 9–10 cm, (sleeve) 24–27 cm, (cuff) 6–6.5 cm, (neck flap) 4–7 cm, (around shoulder) 30–33 cm, (top) 6–7 cm, (bottom) 6–7 cm.

*USNM 22015*: Boy's shirt, buckskin, flesh side in. Main body section is two pieces of skin, each folded over one side of the top of the garment and stitched down center front, center back, and down each side with sinew and with buckskin fringe strip inserted in each of the four seams. Bottom of garment is scalloped on border. On back side neck slit is cut, half in each main skin fold. On front side the center vertical seam stops 7 cm below neck slit. Here a piece of buckskin is stitched with sinew across neck slit, curving down to top of vertical seam. Neck slit is bordered with buckskin fringe strip stitched on with buckskin lace. Sleeves are separate pieces of skin, brought around, self-fringed and stitched with sinew along bottom, stitched with sinew to main body section, with buckskin fringe strip inserted in seam. Cuffs are scalloped on edges.

Length: 58 cm; width across shoulder and sleeves: 114 cm; body width (top) 48 cm, (bottom) 54 cm; sleeve length: 33 cm; sleeve width: (cuff) 11 cm, (shoulder) 14 cm; neck slit: 23 cm; fringe: (side) 7–9 cm, (around shoulder) 13–20 cm, (sleeve) 18–23 cm, (center vertical seams) 7–8 cm, (neck slit) 3–4 cm.

*USNM 22016*: Man's leggings, pair, buckskin, flesh side out. Each legging is a piece of buckskin brought around, self-fringed and stitched with sinew along length of one side. At top of seam a buckskin strap is stitched and extends out 31 cm. Top and bottom edge are scalloped. Length: 44 cm; width: (top) 23 cm, (bottom) 15 cm; fringe: 11–17 cm.

*USNM 22017*: Breechcloth, buckskin, lenticular shape, 99 × 19 cm. Irregular 8 cm tear stitched up with sinew.

*USNM 22018* (cf. Hatt, 1916, fig. 31): Man's moccasins, buckskin, pair, flesh side in. Each one is made of one main piece of skin with sinew-stitched seam running down back of heel, around outside of sole and stopping on inside of sole at toe. Heel has buckskin fringe strip inserted in vertical seam and a small strip of self-fringe across base of heel. Upper edge is plain and a thong is laced around outside edge, terminating at front in two drawstring pieces. Tongue of buckskin, square, with plain sides, is stitched to front of upper edge with sinew.

Height: 6 cm; length: 19.5 cm; width: 8 cm; length of opening: 11 cm; tongue: 4.5 cm long  $\times$  3.5 cm wide; fringe: (vertical) 8 cm, (self-fringe at base of heel) 1–1.5 cm.

Listed and illustrated by Hatt (1916:180–181, fig. 31) as examples of his series XII moccasin types: "Moccasins of one piece . . . having a T-shaped heel seam and a side seam, running from a point near the middle of the heel seam, along the outer side of the foot and around the toe." (See also *USNM 19871*.)

*USNM 27818*: Man's shirt, buckskin, flesh side in. Main body section is one piece of buckskin folded over at top, neck slit cut in fold, sides stitched together with sinew and buckskin lacing. Fringe strip inserted in seams. Sleeves are separate pieces of skin brought around and stitched with sinew along lower edge. Buckskin fringe strip is inserted in sleeve seams. Cuffs are scalloped and bordered around edges with strips of beaver (*Castor canadensis*) skin with fur on, stitched with sinew. Sleeves are stitched to main body section with sinew, with buckskin fringe strips inserted in seams. At tops of sleeves at shoulder, three beaver thongs with fur on are tied on each side. Bottom edge of tunic is scalloped. Neck slit has buckskin draw thong at each end with a strip of beaver skin with fur on tied next to each hole through which the thong passes (four holes; two each side). Neck flaps are stitched to neck slit with sinew and depend front and back. These are rectangular with scalloped edges and each have three buckskin strips depending from lower edge. The ends of these strips are expanded and cut zig-zag. Strips are stitched on with sinew. On front flap, 8 cm down from top, 12 buckskin thongs, colored red, with a claw (probably beaver) attached to each, are tied with thong to flap. On other flap, 8 cm down

from top, seven unidentified feathers (red colored quills and clipped tips) are attached by folding and sinew wrapping quills over a thong laced to flap. Approximately 3 cm on each side of this feather ornament is a squirrel (*Tamiasciurus hudsonicus*) tail attached with a buckskin thong to flap. All fringe expands slightly at tip and is forked.

Length: 46 cm; width across shoulder and sleeves: 113 cm; body width: (top) 66 cm, (bottom) 58 cm; sleeve length: 47 cm; sleeve width: (cuff) 12 cm, (shoulder) 12 cm; neck slit: 26 cm; neck flap: 16 cm long  $\times$  20 cm wide; neck flap, buckskin strips at bottom: 9–11 cm; fringe: (side) 7–12 cm, (sleeve) 11–15 cm.

*USNM 27819*: Man's leggings, pair, buckskin, flesh side in. Each legging is a piece of buckskin, stitched along length of one side with sinew and with a buckskin fringe piece and flap inserted in length of seam. At top of seam, flap extends into a buckskin strap 47 cm long, stitched on with sinew. Fringed at end and decorated at end with a thong of beaver skin (*Castor canadensis*) with beaver fur on. Top of each legging is bordered with a strip of beaver skin with fur on, stitched on with sinew, and terminating at seam side of legging in a 12-cm-long depending strip, which is self-fringed. Another strip of beaver skin with fur on approximately 84 cm long is passed through a hole cut in flap inserted in seam. This strip is knotted and forms a ring depending from flap. Edge of flap is scalloped and a small patch of beaver skin fur is sinew stitched to bottom end of it. Bottom edges of leggings are scalloped. Length: (seam side) 68 cm, (other side) 55 cm; width: (top) 24 cm, (bottom) 18 cm; flap length: 74 cm; flap width at bottom: 15 cm; fringe, side: 12–15 cm.

*USNM 27820*: Man's moccasins, pair, buckskin, flesh side in. Each is one piece of skin, seam running down back of heel, around outside of sole and stopping on inside of sole at toe. Heel has buckskin fringe strip inserted in vertical seam and a small strip of self-fringe across base of heel. Upper edge is scalloped and a thong is laced around outside edge, terminating at front in two draw string pieces. A buckskin tongue scalloped on edges is stitched to front of upper edge. All stitching is sinew. Height: 7 cm; length: 26.5 cm; width: 8 cm; length of opening: 15 cm; tongue: 7 cm long  $\times$  4 cm wide; fringe: (vertical) 10 cm, (self-fringe at base of heel) 2 cm.

## WOMEN'S CLOTHING.

USNM 22019: Woman's dress, buckskin, flesh side out. Two pieces of buckskin, self-fringed and stitched together with buckskin lace along sides. Bottom bordered with buckskin fringe strip stitched on with buckskin lace. The two halves are folded in around top and stitched with sinew. Inside of fold a buckskin drawstring is threaded and protrudes at the middle of one side. One end of this drawstring has two lengths of beaver (*Castor canadensis*) skin strips with fur on as ornament. Below are three rows of decorations. Row 1, 10 cm down from waist, has eight buckskin thongs, each laced through main skin so that two thong pieces depend from garment. On each thong a deer toe ornament and a doubled strip of beaver skin with fur on is tied. Row 2, 25 cm below these, has 15 thong ornaments each with one thong piece plain and one with a deer toe ornament attached. These are spaced across width of garment. Row 3, also spaced across body width, has 15 ornaments the same as row 2. On the back side of dress, row 1, 9 cm down from top of waist, has seven buckskin thongs each passed twice through garment skin so that there is a loop at center and a thong piece depending from each side. At each loop there are two unidentified red-quilled and one black-quilled feathers. Each feather is attached by bending end of quill around thong and wrapping it with sinew. Row 2, 21 cm below row 1, has 13 thongs passed through skin, each with one thong piece plain and one with a deer toe ornament attached. Row 3, 14 cm below row 2, has 13 thong-and-deer-toe ornaments in the same pattern as row 2, spaced across width of dress.

Length: 76 cm; width: (waist) 52 cm, (bottom) 75 cm; fringe: (side) 8–14 cm, (bottom) 5–6 cm; thong decoration length: 6–19 cm.

USNM 27822: Woman's dress, buckskin, flesh side out. Made of two pieces of skin, self-fringed, and stitched with buckskin along sides. Buckskin fringe strip stitched to bottom with sinew. Top stitched with buckskin to yoke. Yoke is a single piece of skin cut for neck slit in middle and folded in half across top; at each end an extra piece of skin is attached with sinew to form cape sleeves. At each sleeve edge and around outside of neck slit are furred pieces of skin stitched on with sinew. At each end of neck slit is a draw thong. Across front side of garment at yoke-body seam there are

nine buckskin thongs, which depend in two pieces. Thongs 3–7 each have a piece of duck bill and two deer toes attached; thongs 2 and 8 each have two deer toes attached. Thongs 1 and 10 each have 10 short thongs attached to their ends, each short thong having one unidentified animal tooth (from at least 3 different species) attached by sinew wrapping. Row 2, 24 cm below, has 7 thongs spaced across body width with two deer toe ornaments each. On the back side of the garment, row 1, at the yoke-body seam, there are 7 buckskin loops passed through drilled elk teeth ornaments. Also at seam are nine pairs of thongs, each with a deer toe ornament attached. Pairs 2 and 8 also have a piece of duck bill attached. The outside thong of pair 1 (left side) has no deer toe ornament, but instead has 16 short thongs attached at the end, each having an unidentified animal tooth wrapped on with sinew. Row 2, 28 cm below row 1, has eight pairs of thong and deer toe ornaments spaced across body width of garment.

Length: 166 cm; yoke width across shoulders and sleeves: 79 cm; body width: (top) 48 cm, (bottom) 61 cm; neck slit: 21 cm; fringe: (side) 13–20 cm, (bottom) 5–11 cm, (ornamented) 12–19 cm.

USNM 27823: Two women's belts. Belt A: mink, tanned with fur on. Two pieces, 61 × 3 cm and 59 × 3 cm, are stitched to a center piece 4 × 3 cm with sinew. Total length: 124 cm. Both ends are split into four strips 19 cm long on one end and 11 cm on the other end. Belt B: mink, tanned with fur on. Two pieces stitched together with sinew. One piece is 82 cm long including 22 cm cut back to form three strips on the end. The other piece is 41 cm long, cut back 24 cm to form two strips, one of which in turn is cut back 19 cm to form two strips, making a total of three strips on that end.

USNM 27824: Woman's moccasins, pair, buckskin, flesh side in. Construction is basically the same as USNM 19871 (p. 49). The right moccasin top has a triangular patch stitched with sinew to the top piece to fill out desired shape. Top piece is open vertically in front and has four sets of buckskin tie thongs. Total height: 21.5 cm; length of sole: 16 cm; maximum width of sole: 7.5 cm.

## MISCELLANEOUS.

USNM 27825: Rabbit skin blanket. Rabbit skin with fur on, cut into continuous strips approxi-

mately 1 cm wide. These are pierced and threaded together with buckskin thongs at seven positions along length. Length is axis along which skin strips lay and is approximately 118 cm. Width is perpendicular to the axis along which buckskin thongs are threaded and is approximately 32 cm. In several areas, the skin strips have yellow discoloration. Buckskin thongs extend out an average of 25 cm from blanket, possibly indicating missing fur strips.

## Headgear

### *Kaibab Southern Paiute*

Some of the headdresses described here are probably among those shown in Figure 23.

*USNM 14575*: Man's headdress. Feathering: 2 golden eagle tail feathers (*Aquila chrysaetos*), 34 cm long; approximately 17 great horned owl feathers (*Bubo virginianus*), range from 11–28 cm in length; 7 Swainson's hawk (*Buteo swainsoni*) tail feathers, 15–22 cm in length; 3 red-tailed hawk feathers (*Buteo jamaicensis calurus*), 17 cm long. Feathers attached to buckskin band with two rows buckskin lace stitching. Shaft slipped through one stitch in each row. Band sewn together with buckskin lace. Length: 49 cm; width: 5–6.5 cm.

*USNM 14578*: Man's headdress. Buckskin band with overlay of red cloth strip on outside of band, stitched on with buckskin thong, which is lower one of two thongs which lace through band to inside, seizing feathers. Seventeen tail feathers of Swainson's hawk (*Buteo swainsoni*) and four wing feathers of red-tailed hawk (*Buteo jamaicensis calurus*), base tip of quills cut off. At least 15 additional feathers are missing. Band is tied together at ends with buckskin thong. Length: (of feathers) 17–30 cm, (band) 45 cm long, approximately 12 cm diameter; width: (of band) 2.5 cm, (of red cloth) 1 cm.

*USNM 14579*: Man's headdress. Feathering: 4 red-tailed hawk (*Buteo jamaicensis calurus*) 24 cm average length. Fourteen feathers of red-shafted flicker (*Colaptes cafer collaris*),  $\approx$  12 cm long, alternating and placed between feathers of other species. Ten Swainson's hawk (*Buteo swainsoni*) tail feathers, 25 cm long. Two wing feathers, *Buteo jamaicensis*,  $\approx$  30 cm long. At point where buckskin headband is sewn together, cluster of seven tail feathers of *Buteo jamaicensis* and buckskin fringe is attached. Feathers are secured to buck-

skin band by insertion through slit and then sinew stitched through end of shaft to band. Band itself is sewn together with buckskin lace and buckskin self-fringe strip with fringe 10 cm in length is attached at this point. Buckskin band is tanned with hair on inside; 61 cm long  $\times$  3.0–3.5 cm wide.

*USNM 14581* (Figure 37a): Headdress; buckskin band, flesh side out, band folded in half at top edge and stitched together with buckskin around bottom edge. Band is brought around in a loop and stitched with buckskin. At this seam are two bunchings of red-tailed hawk (*Buteo jamaicensis*) down feathers tied together and to band with buckskin. Also at this seam is a buckskin thong tied through a hole cut in quill of a single depending golden eagle feather (*Aquila chrysaetos*), 31 cm long. Two small strips of small animal skin with fur on are glued to tip of this feather. Base of quill is wrapped with a piece of red cloth which serves as a background for beading. Beads are strung on sinew as follows, bottom to top: one string blue beads wrapped around three rows, one string pink beads wrapped three rows, one string blue wrapped around three rows. Each string ties to red background at each end. Two buckskin thongs lace around upper and lower edges of band. These serve as attachment points for feathers. Some feathers have hole at base of quill through which lower thong laces. Upper thong loops around quill. Feathers are: 8 red-tailed hawk (*Buteo jamaicensis*) tail feathers, 12–14 cm; 1 Cooper's hawk (*Accipiter cooperii*) tail feather, 17 cm; 6 Swainson's hawk (*Buteo swainsoni*), 30–36 cm; 10 tail feathers (*Buteo swainsoni*), 22–30 cm; 2 red-tailed hawk tail feathers (*Buteo jamaicensis*), 25 cm. Band ranges from 5.5 to 7 cm wide and is approximately 16 cm in diameter. Beads: (blue) 0.18–0.2  $\times$  0.15–0.2 cm, (pink) 0.15–0.2  $\times$  0.17–0.2 cm.

*USNM 14584*: Headdress. Feathering: twelve tail feathers and two clusters of white down feathers from immature Cooper's hawk (*Accipiter cooperii*). Individual feathers are 24.5 cm long and are beige, white, and dark brown in coloring. White downy feather clusters are 12 cm long. Buckskin band is self-fringed on top where feathers are and scallop-cut on bottom. Sewn together with buckskin lace. Approximately 47 cm long, 4.5 cm wide at widest point, tapering to 1.8 cm; average length self-fringe: 11 cm; seven slits made in buckskin band for insertion of feathers.

USNM 14588: Man's headdress. Feathering: of immature birds, very small feathers, average length of 12 cm. Feathers of *Colaptes cafer collaris*, *Bubo virginianus*, *Buteo jamaicensis calurus*. Buckskin band: one piece buckskin, folded over at both top and bottom and sewn down with buckskin lace. One end of band self-fringed for 9 cm; bird claws, 4 cm long, attached to some of fringe with S-twist, two-ply thread. Length: 56 cm; width: 6.5 cm.

USNM 14589: Feather cluster. Group of seven feathers, bound together with sinew and S-twist *Apocynum* cord. Six raven (*Corvus corax*) feathers, each 16 cm long, 1 golden eagle feather (*Aquila chrysaetos*), 32 cm long.

USNM 14593: Headdress. Feathering: clusters from great horned owl (*Bubo virginianus*), cut from bird with skin on. Feathers reinforced on skin with sinew stitching, in crown-like formation. Crown of feathers sewn to buckskin band with buckskin lace. This runs for distance of 22 cm along buckskin band. Average heights of feather clusters: 13 and 10 cm. Buckskin band: 1 piece buckskin, folded over on itself and sewn with buckskin, also sewn together at ends of band with buckskin. Length: 49 cm; width: (average) 3.5 cm, (range) 3–4 cm. Red pigment is lightly rubbed on toward middle of headband for decorative purposes.

#### Moapa Southern Paiute

USNM 14580: Headdress. Feathering: one tail feather of *Buteo swainsoni*, 22 cm long; ten feathers of *Bubo virginianus*, 23 cm average length; two rows of buckskin lace sewn around band; feathers are attached by slipping them through two stitches, one in top and one in bottom row. Buckskin band: 52 cm long,  $\approx$  5 cm wide. Sewn together with buckskin lace.

USNM 14582 (Figures 37c, 39): Headdress. Feathering: 3 *Corvus corax* feathers, 21–28 cm long; 17 feathers each of *Buteo jamaicensis calurus* and *Buteo swainsoni*, average length: 23–25 cm. Buckskin band: single piece of buckskin, tied together on ends with buckskin thongs. Two edges folded down around headband and sewn with buckskin lace. Buckskin stitches also serve to hold feathers in place by slipping shaft of feathers through two

rows of stitches. Band is 48 cm long and 4.5 cm wide.

USNM 14583: Headdress. Buckskin band; folded in at top and at bottom and stitched at each fold with buckskin lace. Band is brought around and stitched together with buckskin. At this seam two buckskin straps are tied. Each strap is fringed and on each fringe a feather is wrapped on with sinew. Sixteen fringe pieces with 19 feathers of *Colaptes cafer collaris*, 7–12 cm long. Fourteen feathers are attached to headband by passing quills through two rows of buckskin lace. Possibly as many as 20 feathers are missing as indicated by laces. Feathers: one tail feather of *Buteo jamaicensis*, 25 cm; seven tail feathers of immature small *Buteo swainsoni*, 15 cm; two secondary feathers, probably also *B. swainsoni*, 12 cm; four feathers, unidentified, dark gray to black color, 17–20 cm.

USNM 14585: Headdress. Feathering: 23 feathers of *Accipiter cooperii*, 15–22 cm long, and 1 *Buteo jamaicensis* tail feathers, 22.5 cm long. Buckskin band: 1 piece buckskin, brought around and sewn with buckskin; 47 cm long, 11 cm wide, tapering to 5 cm. Feathers attached to headband by one row slits and one row buckskin lace stitching. Feathers slipped through slits and sewn in place with buckskin.

USNM 14586: Headdress. Feathering: 4 feathers of *Corvus corax*, two of 23 cm length, two of 20 cm; four feathers of *Buteo jamaicensis*; two tail (24 cm), two wing (28 cm); five feathers of *Buteo jamaicensis calurus*, 18–23 cm; five feathers of *Buteo swainsoni*, average 32 cm long. Buckskin band: made of one piece of buckskin, folded up from bottom and down from top and sewn with buckskin lace. Two rows of stitches on band also used to hold feathers in place. Tied together on ends with buckskin thong. Length: 49 cm; width: 6 cm.

USNM 14597: (Figures 37d, 38f, 40, figure standing on right): Man's cap. Buckskin, flesh side in. Oval shape with one end brought together and stitched with two-ply, Z-twist cotton thread. At peak of cap a buckskin thong is tied which depends in three lengths, each passed through a hole in a quill of *Buteo jamaicensis* tail feathers, 21 cm, 27.5 cm, and 23 cm long. Buckskin strip is tied across bottom of cap. Decoration is painted on in red and black lines converging at peak of cap. One side

of cap is 23 cm bottom to peak and the other side is 12 cm. Diameter is  $\approx$  16 cm.

*USNM 14601* (Figures 37e, 40, figure standing on left): Man's cap. Buckskin, flesh side in, oval shaped with flap at back; front laced with a buckskin drawstring. Decoration of painted red and black lines. Two ornaments of wrapped rawhide colored black with red tips are stitched to front of cap with sinew. Three rows of small holes alternate with red lines on front of cap. Length: 45 cm; width: 26 cm; rawhide ornaments: 5 cm high, 1 cm diameter.

*USNM 14614* (Figure 68g): Hair ornament. Thirty-seven male Gambel's quail (*Lophortyx gambelii*) top knots and attached scalp feathers wrapped with cotton three-ply, S-twist cord to a shaved piece of hardwood pointed at one end. Total length: 18.5 cm; length of wood: 15 cm; width of wood: 0.5 cm.

#### *Las Vegas Southern Paiute*

*USNM 14594* (Figures 38g and 41, figure second from left): Man's cap. Buckskin, flesh side in, rectangular piece folded in middle and stitched down sides with sinew. At top of each side seam buckskin is bunched and wrapped with buckskin thong giving effect of two ears or horns. At center top of fold twelve two-ply, S-twist wool threads are tied to cap and seized around six tail and wing (*Buteo jamaicensis*) feathers. A buckskin thong is tied at each seam edge at bottom of cap. Around one-half of bottom edge (seam to seam) cap skin is folded up, scalloped on edge, and stitched with sinew. Cap is 25 cm across, giving  $\approx$  17 cm diameter. Scalloped flap folded up 3 cm. Tie straps 23 and 36 cm long. Feathers 17–25 cm long.

*USNM 14595* (Figures 37f and 42): Man's cap. Buckskin, flesh side in, brought in conical shape and stitched up side with sinew. A buckskin strap is laced through a loop of sinew attached to each side of cap. Between these two tie points on one side around bottom edge is painted decoration. This consists of eleven red triangular designs, apex down, lined up across a red line. Black line parallels red line beneath it. Formerly had feathers attached at peak, but are now missing. Height: 18 cm; width across bottom: 27 cm; approximate diameter when worn: 19 cm.

The buckskin caps *USNM 14594* and *14595* are similar to the simple Navajo caps illustrated by Kluckhohn, Hill, and Kluckhohn (1971:273, fig. 184a).

*USNM 14602* (Figures 37b, 41, man on left): Man's cap. Two tanned deer face skins. These are laced together through nostrils at nose ends with buckskin lace. At other end is a buckskin strap laced on with buckskin thong; has expanding sides, each with a slit in it. Shown worn with nose ends over forehead in Figure 41. Total length of two skins laced together: 51 cm; width at expanding sides: 31 cm; width at nose: 4 cm; length of buckskin straps (not shown in Figure 37b): 15 cm.

#### *Uintah Ute*

*USNM 11068* (Figure 43): Head band. Piece of rawhide with buckskin thongs attached at either end. Thongs attached through two holes at ends of rawhide band and then knotted. Band ornamented with strip of red wool cloth sewn to band with sinew and beading. Beads are lazy-stitched onto band with sinew. Beads are black, violet, turquoise blue, and regular blue in color. Length of rawhide band: 27 cm; width: 4 cm; lengths of buckskin thongs: 27.5 cm, 29 cm; length of red wool strip: 24.5 cm; average width, red wool strip: 1.5 cm; width of beading above and below red wool strip: 1.2 cm; beads: (black)  $0.15 \times 0.2$  cm, (violet)  $0.1 \times 0.2$  cm, (turquoise blue)  $0.2 \times 0.1$  cm, (regular blue)  $0.1 \times 0.15$  cm.

*USNM 12014*: Braid of human hair. Black hair, braided and passed through a bone tube 5.2 cm long  $\times$  0.8 cm wide. Hair is then passed through reed tube 2.9 cm long  $\times$  0.7 cm wide. End of hair is wrapped with three-ply, Z-twist green wool thread. Green thread has a piece of red flannel tied to it and after extending out approximately 20 cm threads through a black bead, three olivella shells, and one white bead. Then knots at end. Black bead:  $0.68 \times 0.52$  cm; shells:  $0.53 \times 0.92$  cm; white bead:  $1.09 \times 0.92$  cm; total length: 38 cm; hair length: 23 cm.

*USNM 17227*: Flat disk hair ornaments. Each disk made of two pieces of rawhide, held together with five buckskin thongs, four along circumference and one in middle, which is longer than others

and tied to corresponding thong on other disk, perhaps to serve as headband when disks are worn. In center of disk is metal tack, which is stuck through two pieces of rawhide and serves to fasten two pieces together and as part of design on disk. Beading is done on outer layer of rawhide and is lazy-stitched in rows with thin sinew thread, forming circular pattern. Beads used to form pattern are blue, pink, and black. Disk diameter: 8.3 cm; disk thickness, rawhide layers: (without beading) 0.15 cm, (with beading) 0.35 cm; average length buckskin thongs: 6–7 cm; combined length of two thongs, attaching 1 disk to other: 18 cm; bead sizes: (blue)  $0.1 \times 0.15$  cm, (pink)  $0.15 \times 0.8$  cm, (black)  $0.18 \times 0.1$  cm.

#### Deep Creek Gosiute

USNM 14842: Head ornament. One large golden eagle wing feather (*Aquila chrysaetos*), beaded with blue, white, and transparent red beads at the bottom. Beads are lazy-stitched with sinew around bottom of feather. Feather is attached with buckskin thong to cap-like structure consisting of unidentified hide tanned with very dark brown fur on. Piece of red wool cloth sewn around bottom of series of blue and white beads. Red cloth goes completely around cap and up cap for distance of 4 cm. Lazy-stitched with sinew onto front of red cloth is pattern of blue and white beads. Buckskin thong attached to bottom of cap. Feather: (length) 28 cm, (width) 7 cm; beading at bottom of feather for  $\approx 2$  cm; cap: (length) 9 cm, (average width) 5.5 cm; length of buckskin thong: 10 cm; beading on red cloth for distance of 3.5 cm; bead sizes: (white)  $0.15\text{--}0.2 \times 0.1\text{--}0.15$  cm, (blue)  $0.1 \times 0.2$  cm, (red)  $0.15 \times 0.1$  cm.

#### Goose Creek Shoshoni

USNM 19833 (Figure 55d): Cap of deer scalp and horns with feathers, with cape of beaver skin, fur on, ornamented with feathers. Cap: deer scalp of "forked horn" or "four point" (Eastern count) spread probably about 40 cm; antler curves forward indicating *Odocoileus virginianus*. Ears remain attached. Scalp is lined with buckskin secured around edge with a buckskin band, scalloped on outside edge with sinew. Cap feathers consist of two bunchings of split quill feathers, *Buteo*

*swainsoni*, 10–14 cm long, each bunch tied at base of antler with sinew and stitched to scalp.

Cape is stitched to rear of cap with buckskin lacing. It is made of beaver skin (*Castor canadensis*) with fur on, although much fur is either scraped off or has fallen away. Lower half of cape is a second, separate beaver skin with fur on (soft, ventral fur) which is stitched to the end of top cape, half with sinew. Top half of cape is decorated with part of unidentified bird skin and attached down. This is sinew stitched at cap-cape seam area where also a buckskin thong depends, laced with six red-shafted flicker (*Colaptes cafer*) wing feathers, 11 cm long, and two outer white tail feathers of Clark's nutcracker (*Nucifraga columbiana*), 11 cm long. Across cape further down is a tail feather of red-tailed hawk (*Buteo jamaicensis*), 24 cm long, tied with sinew at middle of quill length. Below this on cape on each side is another bunching of split quill tail feathers of Swainson's hawk (*Buteo swainsoni*). The bunching is 10–17 cm long and is attached with sinew. Below this, nine tail feathers still attached to small piece of bird skin are tied on with buckskin by lacing buckskin thong over middle of quill of one feather. Feathers are similar to Cooper's hawk (*Accipiter cooperii*), 23 cm long, but may be Marsh hawk (*Circus cyaneus*). Next is a grouping of feathers tied together with S-twist, two-ply cotton thread and to a buckskin attaching to cape. Six tail feathers, 17 cm long, and at least eight secondary and down feathers about 8 cm long of ruffed grouse (*Bonasa umbellus umbelloides*). Near bottom of cape a piece of buckskin thong is tied across part of length with three tail feathers of *Circus cyaneus*, 23 cm long, quills bent over thong and wrapped with sinew. At bottom tip of cape a tied buckskin thong has quill bent over a wrapped golden eagle tail feather (*Aquila chrysaetos*), 27 cm long.

Cap: (across) 18 cm, (height of scalloped band) 2.5 cm. Cape: (upper length  $\times$  width)  $61 \times 19$  cm, (lower length  $\times$  width)  $35 \times 12$  cm.

#### Bear Lake Shoshoni

USNM 19873: Headdress. Feathering: downy breast feathers and upper back feathers from red-tailed hawk (*Buteo jamaicensis*). Feathers are all small and soft. Lengths of these feather clusters are 12 cm, 15 cm, 18 cm. Also, two distinct tail

feathers of Swainson's hawk (*Buteo swainsoni*), 28 cm long. Feather shafts are inserted into part of buckskin band, which is folded over and sewn into band with sinew. Feather clusters are held together with actual skin of bird, apparently removed along with feathers for holding them in place.

Buckskin band: consists of two pieces of buckskin, sewn together with sinew and folded over on itself and stitched with sinew. Folded over for 1.5 cm. One piece is 17.5 cm long and the other is 32 cm long. Width: 7–8 cm.

#### *Wind River Shoshoni*

USNM 22011 (Figure 36a): Headband. Made of complete dorsal side of a mink skin (*Mustela vison*). Skin has eye and nose holes, whiskers and tail. A cluster of feathers, probably *Buteo* sp., attached to mink skin tail with sinew and buckskin lace. Feathers split in half down shaft to produce effect of more feathers than there actually are. Length (nose to end of tail): 70 cm; width (middle of skin): 10 cm; (tail) 2.5 cm, (of head) 7 cm; feathers: (average length) 20 cm, (range) 15–23 cm.

### Necklaces, Bracelets, and Ornaments

#### *Kaibab Southern Paiute*

USNM 11295: Bird bone bracelet. Bones strung on two-ply, S-twist, white cotton thread. Length of bracelet: 22 cm; average length of beads: 2 cm; average width and thickness of beads: 0.3 cm.

USNM 11986: (Figure 38c): Necklace. *Olivella* shells strung on two-ply, S-twist, cotton thread. Small holes drilled through one end of shell. Necklace length: 47 cm; average shell length: 1.5 cm; average shell width: 1 cm; thickness: 0.8 cm. All shells left in plain natural state, no ornamentation. The strand is mentioned by Stearns (1889:326), who also lists a second strand of "*Olivella biplicata*," USNM 14621, not now found in collection.

USNM 11991: Bone or claw necklace. Bones are very light in weight and transparent; could be bird claw sections instead of bones. Strung on buckskin lace, which is knotted in two places. No ornamentation on beads. Necklace length:  $\approx$  50 cm; lengths of beads: 2–3 cm; width: 0.5 cm; average thickness: 0.3 cm.

USNM 11992: Birdbone necklace. Bones strung on two-ply, S-twist *Apocynum* cord, knotted in two places. Beads are of varying sizes and thicknesses, with no ornamentation. Necklace length:  $\approx$  50 cm; average length of beads: 1.5 or 2 cm; width of beads: all are 0.3 cm with exception of 1 bead, 0.5 cm wide; thickness: 0.3 cm.

#### *Shivwits Southern Paiute*

USNM 11998 (Figure 38a): Necklace. Buckskin, ornamented with bone. Self-fringe on bottom border. On one side along base of fringe red colored band extends across length. One side edge shows stitch holes indicating probable missing part(s). A tubular bird long bone piece is threaded on each of 34 self-fringe strands. Ten of the larger bones are decorated with incised rings around them. Twenty-seven additional strands are without bone ornaments.

Length: 16 cm; width: 4.2 cm; fringe: 3–10 cm; large bones:  $2.2 \times 0.8$  cm to  $4.0 \times 0.6$  cm; small bones:  $2.6 \times 0.3$  cm to  $3.6 \times 0.4$  cm.

USNM 12003: Bone necklace and bracelet. Necklace is strung on two-ply, S-twist sinew. Thread of necklace appears to be knotted in three places. Bones are undecorated except for a few carved lines on some of them. Bones: (average length) 3 cm, (width) 0.3 cm, (thickness) 0.3 cm; length of necklace: 80 cm.

Bracelet is strung on two-ply, S-twist, beige thread. All beads without ornamentation. Length: 22 cm; beads: (length) 3 cm, (width) 0.3 cm, (thickness) 0.3–0.4 cm.

USNM 12004 (Figure 38d): Birdbone necklace. Bones strung on S-twist, two-ply, beige cotton thread. Necklace knotted in two places. From one of knots, the original thread depends and two bones are strung on. Tied to this thread is extension piece of brown thread with one bird bone strung on it. Length: (necklace) 66 cm, (original thread) 6 cm, (brown thread) 9 cm; bones: (average length) 1.5 cm, (average width) 0.3 cm, (thickness) 0.2 cm. Some of the bones are carved at either end with straight lines going around bone. Not well carved and no other ornamentation.

USNM 14342: Pendant ornaments. Three tips of lower jaws of young antelope (*Antilocapra americana*) pierced with holes for hanging. Two are further reinforced at hole and rear half with

covering of resin. Lengths: 3.0 cm; 2.8 cm; 3.0 cm; widths: 2.0 cm; 1.7 cm; 1.9 cm.

USNM 14494: Snakeskin necklace. Unidentified snake skin, tied together at ends, 70 cm long, 2.5 cm wide at widest point. Tan and brown in color.

USNM 14622 (Figure 38b): Birdbone necklace. Thinner bones of necklace strung on two-ply, S-twist cord and thicker ones strung on buckskin lace. Buckskin lace for distance of 19.5 cm and cord for distance of 29 cm. Ornamentation: small lines scratched on most of beads. Scratched in groups of 3 rows with 7–9 scratches per row on thicker beads. Thinner beads have one continuous row of lines going around entire bead. Thicker bones: (length) 1.5–2.0 cm, (width) 0.7 cm, (thickness) 0.5–0.7 cm; thinner bones: (length) 2 cm; (width) 0.3–0.5 cm; (thickness) 0.3 cm.

USNM 14623: Gorget. Buckskin, self-fringed across bottom of band. On three of the self-fringe strands a bird bill of wood ibis (*Mycteria americana*) is tied. Band: (average width) 5 cm, (length) 29 cm, (fringe) 19–22 cm; bird bills: (lengths) 10.3, 13, 12.5 cm, (widths) 2, 1.4, 1.8 cm; (thicknesses) 1.2, 1.3, 1.7 cm.

USNM 14626: Necklace. Woven cloth strip band, tan color, cotton, approximately 5.5 cm wide and 48 cm long, ornamented with bird scalps and chipmunk tails. Strip tied together with three-ply fiber cord wrapping, which may have been added later. A small buckskin thong is tied in a ring hanging on cloth band. This thong passes through holes in two bills and scalp pieces of a male and a female Gambel's quail (*Lophortyx gambelii*). Three chipmunk tails (*Eutamias* sp.) are tied with sinew at one place and one tail tied with sinew at another place on thong. Tails are 4.5–5 cm long.

#### Moapa Southern Paiute

USNM 11993: Necklace. Made of porcupine quills (*Erethizon dorsatum*). Five separate strands. Each is made by wrapping quills over two strands of cordage, which is secured at each end where quill work stops by knotting or by wrapping quills over buckskin strip split down center, but left whole at each end where quillwork stops to form tie straps (Figure 44): (1) Quills over buckskin strip: total length: 142 cm; length with quillwork: 86 cm; width with quillwork:  $\approx$  1 cm. (2) Quills over buckskin strip: total length: 151 cm; length with quillwork:

117 cm; width with quillwork:  $\approx$  1 cm. (3) Quills over buckskin strip: total length: 73 cm; length with quillwork: 61 cm; width with quillwork:  $\approx$  1 cm. (4) Quills over buckskin strip. Near one end, feather ornament and a small buckskin pouch are attached with buckskin thong. Pouch has an unknown yellowish substance inside. Seven chipmunk tails (*Eutamias* sp.) also attached to thong with two-ply, S-twist cotton thread. Main buckskin strip is two pieces stitched together in the middle of the strand with sinew. Total length: 80 cm; length with quillwork: 64 cm; width with quillwork:  $\approx$  0.8 cm; pouch diameter:  $\approx$  2 cm; tails: 4–5 cm. (5) Quills over cotton cordage, three-ply, S-twist tied at middle of total strand length to two narrow strips of woven cotton cloth (tan color) with quill work over these in same manner as other strands. Total length: 138 cm; length with cordage: 76 cm; length with woven cloth: 62 cm; length with quillwork: 132 cm; approximate width with quillwork: 1.7–1.8 cm. Specimen is listed as Moapa Paiute but probably is of Ute manufacture.

USNM 12005: Birdbone necklace. Strung on two-ply, S-twist, beige cotton thread. Knotted in two places, probably two pieces of thread tied together. Beads are mostly plain; a few have ornament of lightly scratched lines. Necklace length: 107 cm; beads: (length) 2.5 and 3 cm; (width) 0.3 cm, (thickness) 0.3 cm.

USNM 12010: Necklace. Bird long bones cut into 22 separate pieces ranging from  $2.9 \times 0.3$  cm to  $1.4 \times 0.4$  cm. These are strung on yucca fiber strands and copper wire (the latter may have been added at the museum due to fiber falling apart). Length of strand: 64.5 cm.

USNM 12011: Necklace. Bird long bones strung on two-ply, S-twist bark fiber thread. Bones used vary in size from small and thin to medium-sized to relatively large and thick. Most of the larger bones are ornamented with thinly scratched lines, while medium and small are plain. Small bones:  $1 \times 0.2 \times 0.15$  cm; medium bones:  $1.5\text{--}2 \times 0.3 \times 0.3$  cm; larger bones:  $2\text{--}2.5 \times 0.5 \times 0.6$  cm; necklace length: 65 cm.

USNM 14747: Birdbone necklace. Strung on buckskin lace, knotted in two places. Most bones are plain, some ornamented with small scratched lines. Necklace length: 48 cm; beads: (length) 1.5–2 cm; (width) 0.3 cm, (thickness) 0.3 cm.

USNM 14975 (Figure 45b): Necklace of human

phalanges. Leather strip  $31 \times 2.7$  cm made up of six strips, each average  $15 \times 1$  cm, stitched together with sinew in pattern of three strips wide, two strips long. Leather tie thongs are attached at each end by passing through hole in top strip and knotted. Around border 125 white beads are spot stitched to edge with sinew. Bead hole is placed at right angle to border. Across center of leather strip, 19 human phalanges are attached by threading thong through dried fleshy underpart just forward of a joint and spot stitching each to leather strip. Possibly a 20th was included originally, but is now missing as indicated by stitching.

Each phalange has a small ring of leather around rear at joint which is stitched together underneath with sinew. This ring forms a background for three rows of lazy-stitched beads. Phalanges were cut off at last joint and include nail, bone, and dried flesh. Red translucent beads,  $0.20 \times 0.15$  cm in outer rows and white beads,  $0.20 \times 0.10$ – $0.15$  cm on inner rows; five orange beads,  $0.18 \times 0.18$ – $0.15$  cm placed randomly on two ornaments. Four light blue and one dark blue bead are placed in a mostly red row on one ornament. One ornament has outer rows white and inner row light and dark blue. Light blue beads:  $0.20 \times 0.5$  cm; dark blue beads:  $0.20 \times 0.12$  cm. Specimen is possibly of Ute manufacture.

#### *Deep Creek Gosiute*

*USNM 11996*: Birdbone necklace. Strung on two-ply, S-twist sinew, knotted in several places, and remainder strung on two-ply, S-twist cord. Cord:  $\approx 19$  cm long, sinew:  $\approx 40$  cm long; length of necklace: 59 cm; beads: (average length) 3 cm, (average width) 0.3 cm, (thickness) 0.3 cm. Beads are plain with no ornamentation.

#### *Bear Lake Shoshoni*

*USNM 19874* (Figure 45a): Necklace. Buckskin strip, single piece folded in half lengthwise and self-fringed on one bottom edge. Ends extend out in self-tie straps. Ornamented with feathers, at least three tail feathers of *Colaptes cafer collaris*, at least four secondary feathers of *Buteo jamaicensis calurus*. Unknown number of feathers missing. Feathers are attached to buckskin with sinew and depend from top fold on side with fringe. Six bird claws from birds of order *Raptores* are laced with buck-

skin thong each through top of tarsus and tied to inside of fold of buckskin. These depend so that tarsus is concealed behind fringe and toes extend below. Length, including tie straps: 59 cm; width, including fringe: 7 cm; feathers: all damaged, measurement not appropriate; Bird claws: average total length of tarsus to top of middle toe: 12 cm; length, middle toe: 5.5 cm; length, hind toe: 3 cm.

*USNM 22003*: Necklace. Buckskin, lunate-shaped piece with scallops on lower edge and self-tie straps at each end. In the center, a bird scalp with feathers now worn off depends from sinew stitching and has attached upper bill of bird of order *Raptores*. Stitching of sinew remaining on band indicates that other items were stitched on, but now are missing. Length with tie straps: 73 cm; width: 6 cm; length of bird bill: 3 cm.

#### *Wind River Shoshoni*

*USNM 22006*: Necklace. Bird claws, bird of *Raptores* order. Strung on buckskin thong, through hole made at base of each claw. Sixty-six claws probably representing hind, inner, middle, and outer members. Size ranges: 1.7–3.6 cm long; thong: 73 cm long.

*USNM 22012*: Necklace. Eagle claws (*Aquila chrysaetos*); 40 separate toes and claws including hind, inner, middle, and outer toes. These are pierced at dried fleshy part beneath and strung on a buckskin thong. Thong length: 71 cm; length range of claws: 1.8–3.2 cm; claws and toes: 2.5–5.5 cm.

*USNM 22021* (Figure 46): Necklace. Eagle claws (*Aquila chrysaetos*) and claws of smaller birds of *Raptores* order strung on two buckskin thongs, spaced between sections of bird long bones. Bone sections vary from 3.9–6.7 cm in length. Claws and feet are attached to thongs by holes pierced in dry fleshy parts. Primary thong: 81 cm long; secondary thong: 34 cm long. Two bones, 6.7 and 7.0 cm, depend from thongs at bottom of necklace.

#### Cradleboards and Accessories

There are five cradleboards in the collection, including one miniature or doll's cradleboard. One of the cradleboards, USNM 14646, was illustrated twice by Mason 1889:190, figs. 22–24; 1896:527, fig. 217).

A Kaibab Southern Paiute cradleboard collected by Powell and now in the Peabody Museum, Harvard University, is illustrated by Kelly (1964, pl. 5a). A description of cradleboard manufacture recorded by Sapir (1910:65) indicates techniques essentially the same as those described herein.

The cradleboards are all listed as made by the "Colorado" Ute and the Moapa Southern Paiute; the doll's cradleboard by the Kaibab Southern Paiute.

#### *Moapa Southern Paiute*

*USNM 11225* (Figure 47a): Cradleboard. Willow stick frame, *Salix* sp., buckskin covered with cedar bark padding inside and hood of twigs twined together. Framework: 16 willow sticks laced together near top with sinew, each half turn of lace taking in two sticks. Slat sticks further bound together by sinew cord lacing across them and tying off at each side of elliptical hoop. Hoop is of willow and is placed on back side of slats.

Awning or hood is formed by weaving small willow rods as warp held in place by continuous coarse twining back and forth of a flat tough strand of split willow. Each half turn of twine takes in two warps. Top end of hood has (now broken) willow stick twined to border. Although this is broken, it probably served to attach hood to frame. Other end or base of hood rests on top of frame and is not presently tied to it. Evidence of splint wrapping about 12 cm below top. Probably the attachment of hood base to frame.

Cradle is covered with buckskin, which is laced up in the front with a buckskin thong. Buckskin extends over hood and laces to hood border stick with buckskin thong. A wide buckskin carrying strap passes through holes on each side at back of cradle, passes over cross bar of hoop inside and knots to its standing part. Entire cradle is padded inside with cedar bark between frame and buckskin cover.

Total length: 74 cm; total width: 29 cm; hood: (length) 27 cm; (width) 16 cm; carrying strap: 88 cm long  $\times$  3.4 cm wide; wooden hood rods: (length) 26–27 cm; (diameter) 0.35–0.45 cm; wooden slats: (length) 68–69 cm; (diameter) 0.6–0.8 cm; elliptical hoop: (length) 58 cm; (diameter) 1 cm.

*USNM 11909* (Figure 47b): Cradleboard. Framework of willow sticks, *Salix* sp., tied together with sinew and cedar bark, two-ply, S-twist fiber cord with cross bar and elliptical hoop attached.

Seventeen slats held near bottom with fiber laced over and under from each side to form continuous twining. Slats are further bound by fiber cord and sinew lacing around bottom arc of hoop.

Hoop is willow stick bent into elliptical shape and seized together at ends with sinew. Midway on hoop a willow stick forms a cross piece attached to hoop by bending around it, then seized with sinew. Cross bar also is laced to slats with fiber cord. Near top and bottom of hoop a sinew cord is stretched across and tied to each side of the hoop. The cord is in turn laced to slats with fiber cord.

Total length: 87.5 cm; slat diameter: 0.5–0.9 cm; slat length: 83–87.5 cm; elliptical hoop: (length) 57 cm, (width) 26 cm.

*USNM 14646* (Mason, 1889b, figs. 22–24; 1896, fig. 217): Cradleboard. Willow stick frame, *Salix* sp.; buckskin covered with hood of sumac twigs. Framework is made of 16 sticks overlaying an elliptical hoop and its associated cross bar. Sinew is twined across width and around cross bar to edge of hoop, each half turn of sinew takes in two sticks. Similar twining binding on frame sticks is of rawhide, one near base and one near top. Hoop is on backside slat sticks.

Rectangular hood is formed by weaving small twigs of *Rhus trilobata* as warp with half of the weft sinew and half split strands of twigs. Weft is twined back and forth with each half turn taking two warp sticks. Bottom of hood is tied to frame with buckskin thong. Top of hood is twined to one larger loop stick, which is tied to frame with buckskin thong. Cradle, with exception of hood, is covered with buckskin and laced up back and bottom edge tightly with thong. Front is laced up back and bottom edge tightly with thong. Front is laced with buckskin thong up front slit opening. In back near top buckskin cover is cut across with self-fringe. Tie or carrying strap of buckskin tied through cover to the elliptical cross piece.

Total length: 95 cm; width: 28 cm; hood: (length) 25 cm, (width) 11–18 cm; carrying strap: 62 cm long  $\times$  2.5 cm wide; wooden hood twigs: (diameter) 0.3 cm, (length) 91–95 cm; elliptical hoop: (length) 63 cm, (diameter) 1.3 cm.

#### *Kaibab Southern Paiute*

*USNM 14647* (Mason, 1896:536–537): Doll's cradleboard. Made of twigs of *Rhus trilobata*. Twigs act as warp with split strand of twigs twined, each

half turn of twine taking in two warps. Border is two twigs forming one-half ellipse and wrapped together with split strand at apex of cradle. This is a toy board with no covering or further elaboration. Length: 25 cm; width: 10.5 cm; twigs, average diameter: 0.4 cm.

#### *Ute, Colorado Territory*

*USNM 10797* (Figure 48): Cradleboard. Frame of hewn cottonwood plank, with twig hood and buckskin cover. Framework is a plank of wood carved to taper slightly around edges and form general shape of curved wide top with slight excurvate taper to square end at bottom.

Hood is made of willow, *Salix* sp., twigs bending at each end over two main willow pieces and seized at each end to these with buckskin thong. Base willow sticks bend around in a curve and are tied through two holes cut on each side of frame board. At this point of attachment, the forward or top willow stick also is seized after curving to support awning hood.

Buckskin cover is laced up front with buckskin thong. A hole is left open where hood is placed and then lacing continues at top. Across top of cradle, buckskin is stitched together with two-ply, S-twist cotton thread with fringe strip inserted in seam.

At back of cradle a buckskin strap passes through two holes in plank frame and knots at ends to form carrying strap. Total length: 93 cm; width: (top) 27 cm, (bottom) 9.5 cm; hood: (width) 16 cm, (length) 20 cm; carrying strap: 50 cm long  $\times$  2.5 cm wide; fringe length: 34–37 cm.

#### **Cradle Swaddling**

There are seven whole wildcat (*Lynx rufus*) skins, listed in the accessions catalog as "robes," or "child's robes," which are probably cradle swaddling and are so categorized herein.

#### *Moapa Southern Paiute*

*USNM 11239*: Wildcat skin, *Lynx rufus*; tanned with fur on. Complete skin less paws. Slit down ventral side and opened out. Length including tail: 86 cm; width: 37 cm.

*USNM 11913*: Wildcat skin, *Lynx rufus*; tanned with fur on. Includes tail leg skins less paws, and head skin cut forward of ears. Below tail a flap is cut extending to ventral skin of animal. A slit is

cut on one side of head skin through which a cloth strap is passed and knotted to itself. This cloth is woven of tan to yellow three-ply, S-twist thread and green one-ply, Z-twist thread. Length: 88 cm; body width: 35 cm; width with legs: 76 cm; strap: 42 cm long  $\times$  2.5 cm wide.

#### *Kaibab Southern Paiute*

*USNM 11908*: Wildcat skin, *Lynx rufus*; tanned with fur on. Complete skin with paws, but not claws. Cut lengthwise and opened out. Beneath tail, skin extends into triangular flap of ventral skin. Length including ventral flap: 84 cm; width: 35 cm.

*USNM 14506*: Wildcat skin, *Lynx rufus*; tanned with fur on. Complete skin less claws. Skin was turned hair side in (probably for tanning) and is nearly turned fur side out now except for three leg skins. Skin is complete and not cut lengthwise, so forms a sack. Length: 64 cm; width: 26 cm.

#### *Uinkarets Southern Paiute*

*USNM 14632*: Wildcat skin, *Lynx rufus*, with fur on. Complete skin less paws and head skin forward of ears. Not opened lengthwise and forms a sack. Length: 52 cm; width: 18 cm.

#### *Deep Creek Gosiute*

*USNM 14631*: Wildcat skin, *Lynx rufus*; tanned with fur on. Complete skin without claws. Not cut open lengthwise, but top is cut across at neck, extending down forelegs on either side, opening up skin on top end. Length: 70 cm; width: 15 cm.

*USNM 14633*: Wildcat skin, *Lynx rufus*; tanned with fur on. Skin cut at head just behind ears, forelegs missing, hind paws missing. Otherwise skin is not cut and forms sack, open at head. Length: 47 cm; width: 11 cm.

### **Weapons and Manufacturing Tools**

#### **Bows**

The earliest detailed ethnohistoric report of bows among the Southern Paiute from the 1850s speaks of 6-foot [183 cm] juniper wood bows and 3 to 4 foot [91–121 cm] long reed-cane arrows with fire hardened wooden heads and a compound sheep horn bow with a quiver of iron and obsidian-tipped arrowheads (Euler, 1966:114).

Bow manufacturing processes are described by Sapir (1910) and Kelly (1964). Sapir's (1910:83-84) description comes from Tony Tillohash, a young Shivwits Paiute. He indicates that various woods were used for bows, including serviceberry (*Ame-lanchier scopulorum*), "drooping willow" (*Salix* sp.), oak (*Quercus* sp.) and "wood of bush or tree with thorns on branches and big, useless orange-like flowers" (*Robinia neomexicana* [?]). But, "serviceberry is best of all, most use being made of it."

A branch or stalk "growing from [the] roots," was used.

The bark was removed and the bow shaped immediately before the wood dried. The arms were tapered in thickness and width, producing elliptical cross-sections of grip and arms. Two ¼ inch [0.6 cm] notches were cut in the ends of each arm. If the bow was to be single-curved, it was dried without being bent, the curve being imparted when it was strung. If a double curve was wanted, the curves were formed by bending the wet bow around five pegs driven into the ground and so placed to produce the double curved effect. The bow was left pegged for a week or until completely dry [Sapir, 1910:84].

Sinew backed bows were called "kickbows" with "sinew laid down with gum."

Bow strings were made of leg sinew of deer, twisted into strands. The bow string was looped around one pair of notches, "then carried over to the other pair and looped around as often as desired, carried round and round on [the] bow inwards from [the] end, and, when the last coil is done, [the] end is tucked under: when bow is not in use, latter end is loosened" (Sapir, 1910:84).

Kelly (1964:73, fig. 10) reports for the Kaibab Paiute that "locust" wood was preferable for wooden bows, although juniper was sometimes used. Sinew-backing was laid on with deerhorn glue and tapped gently with a stone to make a wide, flat strip. Her informants thought that sheep horn bows shot farther, but were less often made. Horn bows were made of two overlapped horns. The horns were set against a fire to soften them. When hot, they were pounded gently between two large stones to flatten them. The juncture of the two pieces was secured with pinyon pitch and a buckskin wrapping. The bows were sinew-backed. Often red pigment paint was applied to the belly of the bow over a layer of pinyon pitch.

Stewart (1942:266-267) reports the use of "hardwood," 2 to 3 foot [61-91 cm] long bows for boys; 3 to 4 foot [91-121 cm] long double-curved, sinew-

backed bows, made of serviceberry or "oak," with one or more layers of sinew laid on with horn glue, and buckskin-wrapped grips. He also reports sinew-backed sheep horn bows for the Shivwits, but not for the Kaibab. The one sheep horn specimen in the collection indicates that it was made by, or traded to, the Kaibab.

Information on Gosiute bows (Steward, 1943: 313-314, 369-370) indicates the use of 3 to 4 foot [91-121 cm] long self bows of unspecified woods, sinew-backed double-curved bows of mountain mahogany (*Cercocarpus* sp.) or juniper, with the sinew laid on with horn glue, the arm ends sometimes recurved and reinforced with sinew wrapping, and grips made of wrapped buckskin strips. Two-piece sinew-backed sheep horn bows were also made. The number of layers of sinew varied. Sheep horn bows were observed in Skull Valley in the early 1850s (Beckwith, 1855:22). For the Deep Creek Gosiute, Stewart (1942:266-67, 340) reports that chokecherry (*Prunus melanocarpa*) self bows, ≈ 2 ft. [61 cm] long, were used aboriginally, and that the manufacture of unbacked sheep horn bows and sinew-backed double-curved bows was "learned from other Indians after white men arrived."

Self, sinew-backed, and horn bows are reported for other Numic groups, although not all bands manufactured all three types (Lowie, 1924:245-246; Mason, 1894:644; Stewart, 1941: 298, 1943: 313-314; Stewart, 1941: 384, 1942: 266-267; Drucker, 1937: 15, 1941: 118; Driver, 1937: 70-71). Materials and techniques of manufacture vary slightly from band to band, depending on the local availability of various woods, horn, and glues. Several of the bows collected by Powell appear in the Hillers photographs (Figures 23, 39, 40-42).

The collection contains 22 bows, 6 identified as Kaibab Southern Paiute, 4 as Moapa Southern Paiute, 1 as Shivwits, 3 as Uinkarets, 6 as Southern Paiute only, and 2 as Deep Creek Gosiute. The nomenclature below follows Mason (1894: 635-637); measurements given are length of bow by maximum width of arms by thickness (belly to back) of arms. "Hemp" under type of string refers to *Apocynum cannabinum*.

#### *Kaibab Southern Paiute*

USNM 10739: Wood, sinew-backed bow, 103 × 2.5 × 1.9 cm. Reverse curves at arm ends; arm ends

sinew wrapped. Grip: two sinew wrappings, each 2 cm wide and spaced 13 cm apart. String: hemp, two-ply, S-twist. Possibly of Ute manufacture.

*USNM 11219*: (Figure 49a): Sheep horn, two pieces, glued and sinews seized at center; sinew backed,  $72 \times 2.7 \times 1.3$  cm. One arm partly traverse wrapped with sinew. No grip; no string. The specimen has been partially disassembled for inspection, possibly by Mason.

*USNM 12040*: Wood, sinew-backed, single curve bow,  $93.5 \times 2.5 \times 2$  cm. Grip: 10 cm wide sinew band. End of each arm reinforced with sinew. String: hemp, two-ply, S-twist.

*USNM 12044*: Wood, sinew-backed bow,  $93 \times 2.4 \times 1.5$  cm. Sinew wrapping at nocks. Grip: sinew wrapping, 10 cm wide. No string.

*USNM 12048*: Wood, sinew-backed double curved bow,  $87.8 \times 2.5 \times 1.6$  cm. Grip: 6 cm wide wrapped band of rawhide, reinforced with sinew band at one end. String: hemp, two-ply, S-twist.

*USNM 14525*: Wood, single curve, self bow,  $88.5 \times 3.4 \times 1.5$  cm. Sinew laid along belly side of arms. Five transverse sinew bands along length of arms. Buckskin wrapped band at end of one arm. Grip: buckskin wrapping, 14 cm wide. String: hemp, two-ply, S-twist.

#### *Shivwits Southern Paiute*

*USNM 12034*: Wood, sinew backed bow,  $98 \times 2.3 \times 1.9$  cm. Sinew wrapped nocks. Grip: sinew wrapped, 9 cm wide. String: hemp, two-ply, S-twist.

#### *Uinkarets Southern Paiute*

*USNM 14513* (Figure 49e): Wood, sinew backed bow,  $101 \times 3.7 \times 1.7$  cm. Reverse curves at arm ends; buckskin wrapping at curves. Grip: wrapped buckskin band, 16 cm wide. String: hemp, two-ply, S-twist.

*USNM 14516*: Wood bow, sinew belly,  $96.5 \times 3.6 \times 1.7$  cm. Buckskin bands near nocks. Grip not wrapped. String: hemp, two-ply, S-twist.

*USNM 14519*: Wood, sinew backed, double curved bow,  $101.5 \times 2.5 \times 1.6$  cm. Arm ends reinforced with sinew and wrapped cloth strip. Grip not wrapped. String: hemp, two-ply, S-twist.

#### *Moapa Southern Paiute*

*USNM 12025*: Wood, sinew-backed bow; slight double curve,  $93 \times 2.7 \times 1.7$  cm. Sinew wrapping at nocks. Grip: sinew wrapping, 19 cm wide. No string.

*USNM 14511*: Wood self bow,  $144 \times 3.2 \times 2.4$  cm. No grip. String: hemp, two-ply, S-twist. Possibly the bow on far left in Figure 40 [Steward, 1939, pl. 1b, #1640].

*USNM 14520* (Figure 49c): Wood, sinew backed, double curved bow,  $84.3 \times 2.5 \times 1.3$  cm. Eight 0.6–1.0 cm wide bands of sinew reinforcement along arms. Grip: 12.6 cm wide band of sinew. String: hemp, two-ply, S-twist, attached to and reinforced by continuous band of buckskin on each arm end.

*USNM 14526* (Figure 49d): Sheep horn, sinew backed, double curved bow,  $83.5 \times 2.6 \times 1.5$  cm. Transverse sinew wrapping. Grip: buckskin, with buckskin stitching, 7 cm wide. String: hemp, two-ply, S-twist.

#### *Southern Paiute, Southern Utah*

*USNM 14510*: Wood, sinew backed, double curved bow,  $99.5 \times 2.7 \times 1.9$  cm. Sinew reinforcement near nocks. Grip not wrapped. String: hemp, two-ply, S-twist.

*USNM 14514*: Wood, single curve, self bow,  $95 \times 2.5 \times 1.7$  cm. Grip not wrapped. String: hemp, two-ply, S-twist.

*USNM 14518*: Wood, sinew backed, double curved bow,  $98 \times 2.8 \times 1.6$  cm. Buckskin over sinew wrap at arm ends. Grip: two-ply, S-twist wrapped hemp band, 7 cm wide. String: hemp, two-ply, S-twist.

*USNM 14521* (Figure 49b): Sheep horn, single curve, sinew belly,  $74.2 \times 2.5 \times 1.7$  cm. Reinforced with sinew wrap at ends of arm. Grip: wrapped band of buckskin, 9.4 cm wide with 2-cm-wide sinew reinforcement at one end of grip. String: two-ply, S-twist hemp.

*USNM 14886*: Wood, sinew backed, slightly double curved bow,  $109.5 \times 2.5 \times 1.7$  cm. Seven bands sinew reinforcement along arms. Grip: buckskin wrapped band, 10 cm wide. String: hemp, two-ply, Z-twist.

*USNM 16417*: Sheep horn, single curve, sinew belly,  $80.7 \times 3.3 \times 1.2$  cm. Grip: wound cloth strip, 12 cm wide. Buckskin reinforcement at top of one arm. No string.

*Deep Creek Gosiute*

USNM 19910: Wood, sinew backed,  $101 \times 3.9 \times 1.7$  cm. Reverse curves at arm ends. Buckskin wrapping just inside nocks. Grip: wrapped buckskin strip, 18 cm wide. String: hemp, two-ply, S-twist.

USNM 19912: Wood, sinew backed bow,  $101.5 \times 3.8 \times 1.8$  cm. Reverse curves at arm ends, buckskin wrapping at curves. Grip: wrapped buckskin band, 17 cm long. String: hemp, two-ply, S-twist.

## ARROWS

There are 174 arrows in the collection, the majority from Kaibab, Moapa, and Southern Paiute of Southern Utah; 20 are listed as Gosiute and two as Bear Lake Shoshoni.

The arrowheads are of chipped stone, bottle glass, brass rod, and iron, the latter including both trade heads and worked barrelhoop iron. The simultaneous use of stone, glass, and metal reflects the transition stage through which the Southern Paiute cultures were passing during the 1870s, although iron arrowheads were reported in 1854 and glass heads in the late 1850s (Euler, 1966:114–115). Table 1 (p. 87) and Figure 50 give the dimensions, construction details, and decoration of the arrows. Nomenclature follows Mason (1891b:46–48, 1894:653–657; cf. Pope, 1962: passim, and Rogers, 1940:274–278).

As Table 1 indicates, both "hardwood," usually squawbush (*Rhus trilobata*) or serviceberry (*Amelanchier scopulorum*), and reed-cane (*Phragmites* spp.) were used for arrow shafts. With one exception (USNM 14609/2), all specimens with a reed-cane shaft also have foreshafts except USNM 14539/10, 12, 13; none of the hardwood specimens have foreshafts. The hardwood shafts vary from 509–815 mm long and average 7 mm in diameter. The reed-cane shafts vary from 422 to 745 mm long and average 8 mm in diameter. The reed-cane arrows are generally longer since they have 90–240-mm-long foreshafts.

Foreshafts are of greasewood (*Sarcobatus* spp.). They are inserted into the hollow reed-cane shafts and seized with 15–40-mm-wide bands of sinew and sometimes further cemented with resin over sinew.

Only one style of feathering was found on all the arrows in the collection; since the style was uniform, no notation on feathering is made in Table 1. All

arrows have three feathers, stand-off, perpendicular to the shaftment; feathers cut parallel to the shaftment and mounted in straight lines, attached by 10–25-mm-wide bands of sinew seizing at each end of the feathers (Figure 51). The seizing at the distal ends usually extends to the notches in the nocks.

Notches are V- or U-shaped in cylindrical, expanded, or spread nocks. One specimen (USNM 14534/5) has only a very slight shallow groove and may not have been finished. The reed-cane shafted specimens have hardwood plugs in the nock-ends with the notches cut into them.

Shaft decoration includes straight or wavy incised lines, and some red or black ribbands on a few specimens (Figure 50). Shaftment decoration includes a wide variety of ribbands using one or more of five mineral pigments, red, blue, white, green, and yellow, and a black vegetable dye staining.

*Arrowhead Types*

The forms of the stone points on the arrows are of interest since they are of types found widely in levels of Great Basin archeological sites attributed to late-Prehistoric and early Historic Numic occupations.

Three main "types" of stone points are distinguished, although in some cases the forms of the bases could not be clearly distinguished due to hafting.

DESERT SIDE-NOTCHED ("d" in Table 1).—These are small equilateral to isosceles triangular forms, bifacially pressure flaked, with straight sides (some serrated); deep, high side notches and concave bases produce down-raking to square tangs wider than the blades (e.g., Figure 52*b-e*, *g-o*, *s-t*, *w-bb*). Due to hafting, it could not be determined whether the points have a third basal notch as do some archeological and ethnographic specimens (Baumhoff and Byrne, 1959; Aikens, 1970, fig. 18*b-c*; Fowler, 1968: 10; Steward, 1941, figs. 2*c*, 3*q*).

SMALL ISOSCELES TRIANGULAR FORM ("c" in Table 1).—Bifacially pressure flaked, straight sides (a few specimens with slightly incurvate sides), straight to slightly convex bases (e.g., Figures 51*c*, 52*f*, *p-r*; 53*o-t*, *y-cc*). The single point made of green bottle glass (Figure 53*w*) is placed in this class.

SMALL TRIANGULAR FORMS ("t" in Table 1).—Bifacially pressure flaked, straight sides (some

specimens with serrated edges), straight to slightly convex bases, shallow sides notches (e.g., Figures 51*d*, 52*u*, *v*, 53*c*, *e*, *m*). Some of these appear to be "unfinished" Desert Side-notched forms.

**LARGER TRIANGULAR FORMS.**—"n" in Table 1; Figure 53*k*, *n*).—Two points are classed separately. They are slightly larger, 36 and 31 mm long, than the other points in the collection, have sinuous edges and concave bases.

**ASYMMETRICAL TRIANGULAR FORM** ("a" in Table 1; Figure 51*e*).—A single asymmetrical form with one deep and one broad concave side notch distinguished.

Of the 93 stone points in the collection, six (USNM 12045/5, 14536/1, 14537/3, 14610/4, 11220/3, 14534/4) are made of obsidian; the remainder are chert or chalcedony, as defined by Spock (1953:14–16, 219) and are gray, white, tan, brown, or reddish brown in color.

**METAL POINTS.**—These include one blunted brass rod, measuring 58 mm long and 3 mm in diameter, and two forms of iron points, triangular and diamond-shaped. The former type (e.g., Figure 51*a*) is isosceles in form with straight to convex shoulders. Shanks of unknown lengths are visible on three specimens (USNM 11219/6, 9, 10) and are probably present on others. The diamond-shaped form is asymmetrical with the distal ends longer than the proximal ends.

Iron points are seized to shafts or foreshafts with 40–45 mm-wide bands of sinew; stone heads are set in V-shaped notches in matrices of resin. Some stone points are further bound with sinew (Figures 51–53), especially those with side-notches. Mason (1894:662), citing Palmer (1878:595), indicates that resin for attaching arrowheads was derived from *Prosopis juliflora* (mesquite) and *Larix mexicana* (creosote), both hot desert plants. Some Kaibab Southern Paiute specimens have pinyon pitch (*Pinus monophylla*) for attaching resin, rather than mesquite or creosote, which do not grow in traditional Kaibab territory.

No bunt or "bird bolt" arrows, with carved or cross-sticked wooden heads and often no feathering, are in the collection, although they are widely reported from Numic groups (Mason, 1894, pl. 54: fig. 5; Steward, 1941:236–237, 1943:314; Stewart, 1941:384, 1942:267).

Stewart (1942:267–268) reports that serviceberry

and "hardwood" but not squawbush, were used by Shivwits and Kaibab Southern Paiute for arrows without foreshafts; cane and rosebush were used for shafts of arrows with foreshafts and "hardwood" for foreshafts. He also reports "corner-notched base" (?) stone points for both groups and "stemmed base" and "convex base" points for the Shivwits. He verifies the three feather, straight mounting, sinew seized feathering and reports the use of stone slab shaft smoothers and mountain sheep-horn perforated wrenches, with three graduated holes, to straighten arrows.

For the Deep Creek Gosiute, Steward (1943:314–315) reports "hardwood" arrows without foreshafts, cane arrows with hardwood foreshafts, and the use of wooden arrow points, as well as stone forms, feathering the same as that reported above and the use of stone shaft polishers, and two or three hole perforated horn wrenches made of mountain sheep or antelope horns.

Sapir (1910:80–83) reports that for the Shivwits Southern Paiute,

an arrow-making outfit includes a piece of antelope horn with various holes in it of different diameters that are used to straighten out arrows of various thicknesses; two grooved pieces of sandstone used to polish the arrow; a flint-headed arrow-scraper for notching zig-zag lines (different from the ordinary flint knife); pinyon gum to pitch the sinew wrappings, and other things.

Sapir (1910:80–83) also collected an excellent description of arrow manufacture:

Service-berry branches used for arrows. Bark peeled off with knife. Wood put away to dry in house or sun until dry enough, but not all dried up, say about 2 or three days. Then straightened by means of antelope horn straightener. Then put away to dry again; when completely dried straightened out again. Two pieces of sandstone used to scrape (not grooved, but hollows formed by wearing out) arrow-sticks smooth. Then shaped and cut to right size (generally measured as long as arm; maker goes by own arm, does not make different-sized arrows for different persons). When first cut, arrows are cut straight in circular cross-section. Nock whittled out with two horns coming to outward points and with slight spaces between them where they join main shaft; nock cut at switch end of branch, so as to give equal balance to arrow when feathers attached. Arrow beveled by cutting to about 1 inch [2.5 cm] up from end of nock to allow for feathering and sinewing. Nock may be squarecut at points instead of pointed. Beveled part "sandpapered" after cut away. Eagle or hawk (red-tailed) feathers used; hawk feathers used chiefly for small game; eagle makes better arrow for big game, not used to

play with . . . [Feathers] taken out of bag and split through quill (tail feathers and wing feathers generally used). Piñon gum (after heating) smeared around end of arrow at nock; quill side of feather shaved at one end and fitted on to arrow (first blue or red earth has been painted around arrows for  $\frac{1}{2}$  feather distance; feathers have been trimmed evenly down toward nock, bare space of  $\frac{1}{2}$  inch to inch [1.3–2.5 cm] left for sinew wrapping, small tuft left at end to come out between nock and wrapping). Then open space is wrapped around with sinew which has been soaked in water. Then arrow is put away to dry its sinew, upper end of feathers (3 have been put down at equal distances) being now loose. Then next arrow is thus half-feathered. After as many arrows as desired are thus feathered and sinew has dried, upper ends of quills are shaved so as to fit wood tightly as this is butt end of quill there are no feathers to be cut away (at nock end sometimes feathers are cut away if whole feather is too long). Gum applied and wrapping of sinew takes place for somewhat greater length than at nock. Little red paint has been applied to shaft below this wrapping, leaving clear space between itself and paint on nock side.

Length of butt of arrow including feathering is about 7 inches [18 cm]. With knife other end of arrow split to depth of  $1\frac{1}{2}$  or 2 inches [3.8 or 5 cm]; generally a very few thin slivers are cut out. Arrow point has barbs (on each side and serrated edges on shaft part). Shaft of arrow point fits closely into shaft of arrow and sinks down as far as above barbs: about 1 inch [2.5 cm] of point fits into wood. Gum smeared on arrow and sinew wrapped for distance of about 3 inches [7.6 cm], reaching as far into space between barbs as one can reach. Instead of barbed point one may have rounded head. Head originally flint, now iron.

After "sand-papering" snake-like lines are run down arrow-shaft by means of point or butt end of blade (formerly there was flint implement with point for this purpose); in scratching, shaft is lightly twirled in left hand, while point is run perpendicularly down, it being held firm to either side of point. Generally 3 small such lines run down: they are supposed to be good in shooting, arrow would not be complete without them; lines run down from one end to the other, so that later part will be covered by sinew wrapping.

Wavy lines do not seem to represent snakes.

If necessary, arrows are repaired from time to time by refeathering or putting in another point. Attempts always made to recover arrow; if there are several along, each can always tell his own by any of several characteristics.

In arrow making "currant"-bush may also be used. Serviceberry is superior. Currant arrow cracks easily and has to be greased when it gets dry. Also cane that grows in swamps is used for arrow shaft. If cane arrow is used, serviceberry foreshaft about 8 or 9 inches [20 or 23 cm] long is stuck into hollow cane for distance of about 3 inches [7.6 cm], lower end of foreshaft being whittled off so as to fit closely. Then wrapped around with sinew; arrow point as before. Nock is cut out of one of cane-joints, feathered as usual, or, less commonly, not feathered. Cane arrows are swiftest of all but break too easily; best used for small game; are swiftest when not feathered. Feathering is put

on straight, not curved, in order to give straight direction; serviceberry and currant arrows would whiz right out of direction if not feathered. No painting in scratching on cane arrows.

Powell (1895*b*:2–3) reported seeing stone arrow points being manufactured by a band of Shoshoni north of the Uintahs in 1869, and in the 1870s by the Pahvant and Uintah Ute and the "Pagu" Southern Paiute. He notes that the Shoshoni were quarrying moss agate in large lumps. Then, the

masses were broken with rude stone hammers. . . . The fragments were held in one hand protected by a piece of untanned elk skin, and wrought with a hammer held in the other hand. [The flintknapper] gave the implement final shape by using a deer-horn tool 8 to 12 inches [20 to 30 cm] in length, with a diameter of  $\frac{5}{8}$ " [1.5 cm] [and] applying sudden pressure on the edges. . . .

Holmes (1891:56, fig. 11) illustrates flaking of arrow points by pressure, the "manner of holding as observed among many tribes by J. W. Powell and others."

#### *Arrow Manufacturing Tools*

**HORN SHAFT STRAIGHTENERS.**—Made on flattened, smoothed sections of Mountain sheep horn (*Ovis canadensis*). One tool, USNM 14340, Kaibab Southern Paiute, is triangular, with slightly excurvate sides, and is 7.2 cm long, 2.6 cm wide at the base. It has 4 holes of graduated diameters: 1.1, 1.0, 0.6, and 0.4 cm. The second implement, USNM 14427, also Kaibab Southern Paiute, is flat and ovoid in outline, being 10.6 cm long, 0.8 cm thick, and 3.1 cm wide, tapering to 2.3 cm. It has three holes of graduated diameters, 1.5, 0.9, and 0.8 cm.

**ANTLER ARROW POINT FLAKERS.**—One set, USNM 14495, from Moapa Southern Paiute, of two tapered flakers made on deer antlers (*Odocoileus hemonius*). One tool is 45.5 cm long and tapers from 1.1 to 0.8 cm in diameter; the second tool is 45 cm long and tapers from 1.0 to 0.6 cm in diameter. A third implement, USNM 14346, Shivwits Southern Paiute, is also of deer antler; it is 11 cm long and tapers from 1.7 to 0.6 cm in diameter. There are wear marks on the tip.

**ARROW SMOOTHER.**—A single smooth egg-shaped stone of a whitish chalky material, USNM 14341, Southern Paiute, Southern Utah, is listed in the catalog (Powell, 1873) as a "stone for smoothing bows and arrows." It is 6.4 cm long, 4.7 cm in diameter, tapering to 2.6 cm.

## QUIVERS

*Kaibab Southern Paiute*

USNM 14482 (Figure 54d, e): Bowcase; buckskin, flesh side in, folded over and stitched with sinew along side seam; self-fringe along seam. Attached to arrowcase with two buckskin thongs. Length: 95 cm; width: (top) 14 cm (bottom) 5 cm. Arrowcase: made of wildcat (*Lynx rufus*) skin. No seam, but at bottom of case, along lower jaw area, a piece of buckskin is stitched over opening with two-ply, S-twist sinew thread. Length: 70 cm; width at top: 26 cm. Baldric: two straps, buckskin tanned with fur on tied to thongs attaching bowcase to arrow case. Quiver contains three iron-headed arrows, USNM 14483/1-3.

USNM 14483/4 (Figure 55b): Arrowcase: made of mountain lion (*Felis concolor*) skin, tanned with fur on outside. Stitched from bottom along length for 63 cm with sinew. From this point upward the case is laid apart in two flaps, semilunate with one hole cut in each flap. Length: 95 cm. Baldric: strip of mountain lion skin, tanned with fur on, 89 cm long, attached to case with buckskin thongs. No bowcase.

USNM 14483/5: Arrowcase: made of mink skin (*Mustela vison*), tanned with fur on outside. Hind leg skins at bottom have 5-cm-long wood stiffeners placed in foot parts with skin drawn over and held in place with red cloth wrapping. Length of case: 60 cm. Baldric: two cloth strips tied together to form 66-cm-long strap. Attached to case with three-ply, S-twist thread and what appears to be brown woven shoe laces. No bowcase.

USNM 14484: Arrowcase: made of beaver hide (*Castor canadensis*) tanned with fur on, outside. Stitched up one side with two-ply, S-twist *Apocynum* cord. Length: 89 cm. Baldric: buckskin strap, 89 cm long, stitched to arrowcase with buckskin. Quiver contained arrows, USNM 14538-6 (Table 1, Figure 52q,r).

USNM 14485: Bowcase: buckskin, with self-fringe. Stitched up one side with buckskin thongs, attached to arrowcase with buckskin thong. Length: 75.5 cm. Arrowcase: made of fox skin (*Vulpes velox*) tanned with fur on, outside. Length: 49 cm. Self-fringed buckskin strap sewn with sinew stitching into hind end for ornament. Baldric: buckskin, 92 cm long, attached to thong connecting bowcase and arrowcase.

USNM 14490: Arrowcase: made of small wildcat skin (*Lynx rufus*) tanned with fur on, outside, seam stitching up belly. Length: 74 cm. Baldric: rawhide thong, 40 cm long. No bowcase.

*Moapa Southern Paiute*

USNM 12035: Bowcase: buckskin, self-fringed, stitched along length with sinew. Length: 96 cm. Attached to arrowcase by three buckskin thongs. Arrowcase: buckskin, tanned with fur on, fur outside. Stitched along length with sinew. Wooden rod stiffener inserted length of case. Length: 73 cm. Baldric: stiff, 108 cm long, attached to arrowcase and stiffener rod.

*Shiwits Southern Paiute*

USNM 14488: Arrowcase: buckskin, self-fringed, stitched along length with two-ply, S-twist thread. Two red pigment lines painted along one side of seam. Baldric: continuous, 106 cm long loop of buckskin running through two loops of thongs tied to case. No bowcase.

USNM 14489 (Figure 55a): Bowcase: buckskin, self-fringed, stitched along length with sinew; wooden rod stiffener loose in case. Length: 96 cm. Attached to arrowcase and baldric with buckskin thong. Arrowcase: made of two pieces of buckskin, self-fringed along side seam. Baldric: two buckskin straps, each 72 cm long, ends joined and tied to bowcase-arrowcase attachment points.

*Uintah Ute*

USNM 14886: Bowcase, made of mountain lion skin, tanned with fur on, fur outside. Stitched along length with sinew. Length: 127 cm. Attached to arrowcase with buckskin thong. Arrowcase: mountain lion skin, tanned with fur on, fur outside. Length: 72 cm. Wooden rod stiffener stitched into case with buckskin thong laced around red and blue cloth. Baldric: strip of buckskin attached to bowcase.

*Goose Creek Shoshoni*

USNM 19843 (Figure 55c; cf. Mason, 1894:674, pl. 89): Bow case, beaver skin, tanned with fur on; fur outside. Stitched with sinew along length and

around bottom and top holding fur fringe strips on. Attached to arrow case at three points with sinew, 86 cm long. Arrowcase: tanned beaver skin with fur on, fur outside; wooden rod stiffener held in with buckskin thong. Small wooden ring stiffener around mouth of case held with buckskin thong. Skin pendant attached to top of case; also bunch of coarse hair gathered in a buckskin cup and attached with buckskin thong. Case stitched along length with sinew; 70 cm long. Baldric: 100 cm long; tanned beaver skin with fur on, tied to arrow case-bowcase attachments with buckskin thong. Several feathers tied to baldric with buckskin thong.

#### OTHER WEAPONS AND INSTRUMENTS

##### *Moapa Southern Paiute*

USNM 14424 (Figures 69c, 70): "War club," made from single solid piece of reddish wood, probably juniper. Shaped into a handle with knob on one end and bludgeon head on the other. A buckskin thong is attached to end of handle. Piece of self-fringed buckskin, fringed on both edges and folded over on itself is attached to juncture of handle and head. Red pigment was rubbed on buckskin fringe. Total length: 22.3 cm; handle length: 8.5 cm; length of head: 12.5 cm; head circumference: 31.5 cm; length of buckskin thong: 75 cm.

USNM 14447 (Figure 69a): "War club," made from bottom part (near roots) of unidentified young tree trunk sawn off at bottom. Carved from single piece of wood into bludgeon and pointed handle. Buckskin thong for wrist knotted through hole made through handle at 9.5 cm from tip. Total length: 39 cm; handle length: 28 cm; bludgeon circumference: 28.5 cm; circumference at mid-shaft of handle: 8.5 cm; thong length:  $\approx$  50 cm.

##### *Goose Creek Shoshoni*

USNM 22004: "War club," made of deer antler (*Odocoileus hemonius*); mink skin strap and buckskin band with deer toe ornaments. At one end of horn a hole is drilled and a buckskin thong is passed through tying to ends of a mink skin wrist band, tanned with fur on and self-fringed at ends. At other end a band of buckskin, stitched together with buckskin thong, has 14 buckskin pieces with deer toe ornaments on each, depending

from band. Antler: (length) 32 cm, (width) 2.7–6.6 cm, (thickness) 2.2–3 cm; mink skin strap: (length) 53 cm, (width) 4 cm; buckskin band: (length) 14 cm, (width) 1.5 cm; ornament thong length: 9–15 cm; deer toes:  $\approx$  2.3 cm long  $\times$  2.5 cm wide.

##### *Southern Paiute, Southern Utah*

USNM 11892/1 Powder horn. Made of hollowed out *Bison bison* horn. Hole pierced near edge of opening with two-ply, Z-twist, 75 cm long rawhide strap laced through it. Length: 27 cm; diameter: 7.7–2.2 cm; hole diameter: 1.0 cm.

USNM 11892/2: Powder horn. Made of hollowed out *Bison bison* horn. Carved wooden cap with carved self-knob on top. Toward tip, horn is split, leaving an expanded nozzle at the end opening to a hole at the tip. Total length: 23 cm; diameter: 5.1–1.9 cm; wood cap height: 2.3 cm; knob diameter: 2.5 cm; expanded tip: (length) 4 cm, (diameter) 1.6–2.3 cm; hole diameter: 0.9 cm.

USNM 11893: Powder horn. Made of hollowed out *Bison bison* horn. Has carved wooden cap fitted accurately in top. Horn carved to taper near tip and then expanded to form nozzle which is wrapped with sinew. Tip opens to hole. Total length: 21 cm; diameter: 5–1.7 cm; cap height: 1.5 cm; nozzle: (length) 2.5 cm, (diameter) 2–1.4 cm; hole diameter: 1 cm.

USNM 14531 (Figure 64a): Wooden sword. Consists of handle and main shaft or blade carved from single piece of wood. Blade, covered with bands of red and bluish black pigments, tapers to a point. Total length: 64 cm; handle: (length) 15 cm, (diameter) 4.5–6 cm; blade: (length) 49 cm, (greatest width) 5.5 cm.

##### Hafted Stone Knives

There are 20 hafted stone knives (USNM 14329/1–20) in the collection, 19 of which are complete and are illustrated in Figure 56. One of the knives may be shown also in Figure 57 in the hands of its maker. The provenience of the specimens in Southern Paiute, Southern Utah; probably most specimens are of Kaibab manufacture.

The construction of all the implements is similar: stone blades set in a resin matrix in wooden handles. The handles are of cottonwood (*Populus fremontii*) and willow (*Salix* sp.). They vary from

6.6 to 15.5 cm long and from 1.0 to 3.0 cm in maximum diameter. Some of the handles (e.g., Figure 56*n, o, r*) are oval in cross-section. With the exception of one obsidian blade (Figure 56*i*) the blades are of chert or chalcedony. The unnotched blades are bifacially pressure-flaked, with straight to slightly convex sides and straight to convex bases. They vary in size from 2.0 × 3.9 cm to 4.0 × 8.5 cm. The two notched blades (Figure 56*e, f*) resemble Elko-series projectile points found in Great Basin archeological collections (Fowler, 1968:16).

Two of the knives (Figure 56*f, m*) have sinew seizing below the blade, and a third (Figure 56*q*) is seized with a cord of unknown material, which is resin-covered.

Some of the knives have been previously illustrated (Wilson, 1890: fig. 14; Hoffman, 1896:281, figs. 52, 53); Hoffman also describes the manufacture of similar knives by the Chemehuevi Southern Paiute, which he observed in southern Nevada in 1871:

The triangular pieces of chert, chalcedony and jasper used were somewhat larger than the average arrow point and were set in a notch cut into the anterior portion of a piece of wood about an inch [2.5 cm] in diameter and from 5 to 6 inches [13 to 15 cm] in length. The gum or resin of *Larrea mexicana* [creosote bush] was utilized to set the stone blade.

Colville (1892:361) reports that the nearby Panamint Shoshoni mixed pulverized rock with creosote resin for hafting points and blades. The grittiness of the resin on some of the present specimens suggests that the Southern Paiute of Southern Utah did the same.

### Gaming Implements

Included under this heading are cane dice, hand-game bones, implements for the four-stick game, and a set of bark "playing cards," with their counter or tally sticks. Some of the specimens in the collection were previously described by Culin (1907) in his classic study of North American Indian games.

#### CANE DICE

The collection contains seven sets of reed or cane dice. An eighth set, not now in the collection, is illustrated by Culin (1907:166, fig. 204). The sets vary from two to eight pieces, the smaller numbers

probably due to losses and attrition though time. All sets are made of split reed-cane, *Phragmites* sp. Five of the seven sets have red ocher staining on the inner, concave surfaces of the pieces; the other sets are unmarked. The pieces vary from 24 to 35 cm long and 0.6 to 1.0 cm in diameter, but within sets the variation in length is only 2–3 cm. One piece is partially split and was repaired with a length of sinew wrapped around the break. *Provenience*: Southern Paiute, Southern Utah: USNM 14649, 14651, 14653, 14657, 14658; Moapa Southern Paiute: USNM 11984, 14459.

Culin (1907: 31, 44–45) regards dice games as one of the basic North American Indian games:

The essential implements consist, first, of the dice, and, second, of the instruments for keeping count. The dice . . . have two faces, distinguished by colors or markings, and are of a great variety of materials—split canes, wooden staves or blocks, . . . walnut shells, . . . pottery disks. They are either thrown by hand or tossed in a bowl or basket, this difference giving rise to the principal types of the game. Both are frequently found among the same tribe, and the evidence goes to show that the basket-dice game, which is most commonly played by women, is a derivative from the game in which the dice are thrown by hand. In the latter the dice are cast in a variety of ways—tossed in the air against a hide or blanket, struck ends down upon a stone or a hide disk, struck ends down upon a stone held in the hand, or allowed to fall freely upon the earth or upon a hide or blanket.

Stewart (1942: 287–288) lists both 4-dice and 16-dice games played by the Northern Ute, but no such games were observed among the Southern Paiute. Possibly by the time of his survey in the 1930s, the dice game was no longer played by the Southern Paiute.

#### FOUR-STICK GAME

There are two sets of wooden billets, one incomplete, for the four-stick game, together with three sets of tally sticks for the game. The complete set of four billets (Figure 58*a*) is made of willow (*Salix* sp.) sticks and consists of two larger sticks, each 16 cm long and 2.2 cm in diameter with red pigment rings ≈ 4.5 cm wide around the middle of the sticks, and two smaller sticks, 15 cm long and 1.5 cm in diameter with the ends painted red, leaving ≈ 5 cm wide unpainted bands in the middles of the sticks. The incomplete set has one larger stick missing and the three remaining are unpainted. These are the same sizes as the complete

set. The complete set (Figure 58a) is illustrated by Culin (1907:334, fig. 442). *Provenience*: Southern Paiute, Southern Utah, USNM 14661.

The associated tally sticks are all of willow. They vary from 28 to 35 cm long and 0.7 to 0.8 cm in diameter; all are pointed at one end. One set has five pieces, the other seven. *Provenience*: Southern Paiute, Southern Utah, USNM 14654, 14655, 14660.

Culin (1907:44, 327–28) describes the four-stick games as “those in which four sticks, marked in pairs, are hidden together, the object being to guess their relative position.” He notes that the game was “confined to a very limited number of tribes,” the Klamath, Modoc, Achomawi, the Northern and Southern Paiute, and possibly the Chinook. Later surveys by Steward (1945:275) and Stewart (1942:287) would include the Northern Shoshoni and the Northern Ute as practitioners of the game.

The game had at least two variations in the Great Basin. In one variation, the two large and two small sticks were arranged under a basket or blanket in one of six possible combinations XXxx, xxXX, xXxX, XxXx, xXXx, XxxX (Culin, 1907:329, fig. 434) by one player while an opposing player guessed which combination was arranged, with various points won or lost depending on the combination. The tally sticks were used to keep score. The other variation had sticks arranged in odd or even combinations under the basket, with the opposing player guessing odd or even. Culin (1907:335) quotes J. K. Hillers as saying that the latter variation was played on the “Muddy” (Moapa) reservation in southern Nevada. Figure 41 is a Hillers photograph of the game being played in 1873.

#### HAND-GAME BONES

There are seven pairs of hand-game bones in the collection, plus one single bone. All specimens are bi-pointed, varying from 5.5 to 10 cm long, 1.0 to 1.7 cm maximum width, and 0.3 to 0.6 cm maximum thickness. One of each set has a band of sinew or a rawhide thong wrapped around the middle (Figure 59). Culin (1907:311–312) describes the bones, but assigns incorrect catalog numbers to them, using 10,000 series number instead of the correct 11,000 series numbers.

The hand-game was played throughout the Great Basin and widely, although not universally,

throughout North America (Culin, 1907:36–42). It is one of the few aboriginal games still played by Great Basin Indian peoples at “fandangos,” dances, and festivals, often for very high stakes, and sometimes with teams from different reservations or colonies playing in round-robin tournaments.

Culin (1907:312) quotes J. K. Hillers, who described how the game was played among the Kaibab Southern Paiute:

It is called *ne ang-puki*, meaning to kill the bone (*pu-ki* means to kill; *ang* or *ong* being the bone, and *ne* probably a personal prefix for my, the whole name being equivalent to “my bone to kill”). The “banker” takes two bones, one with a string wound round the middle and the other plain, and places his hands behind his back. His side then chants for a minute or two, during which time he shifts the bones from one hand to another. On “call” he brings both hands to the front, and crosses them on his breast. The callers now begin their chant. Suddenly one will extend his arm and point to the hand in which he thinks the banker holds the marked bone, at the same time hitting his breast with the other hand. If the guess is correct, the guesser takes the bones after the “rake down,” and the game continues until one side or the other has all the counters.

Figure 60 is a Hillers’ photograph of a hand game in progress among the Kaibab Southern Paiute near Kanab, Utah, in 1873.

Sapir (1910:18–19) describes the more common version of the hand game using four bones as played by the Shivwits and others throughout the Great Basin. The game uses two marked and two unmarked bones (in the following, X = the marked, and O = the unmarked bones):

Hand game, Played for any stakes, such as blankets. These are piled up in back of winners. Horses may be wagered but need not be around; people remember who bet horses. Gamble with two pair [sic] of bones. Sometimes they have little log in front, on which playing side beats time with sticks [and] . . . sings gambling songs. Guessing side does not sing. [Two players on the “playing” side hold the bones, each with a marked and unmarked bone; object for “guessing” side is to guess positions of unmarked bone, there are four possible positions: (1) OXXO; (2) XOOX; (3) XOXO; and, (4) OXOX].

If both bones are guessed right, guesser says . . . “kill both.” As players gamble man who guesses looks carefully and experiments with his motions before finally deciding on where bones are; meanwhile playing side keeps changing bones. Player not allowed to show both bones in one hand. If bones are in position

- (1) It is known as /wixaʔvʔ/, “summit”;
- (2) it is between, center;
- (3) it is “down”;
- (4) it is “up.”

For (1) [guesser] Puts right fist on breast and extends left hand out with left index finger and thumb distended and other three fingers together. For (2) Right fist as above, and left arm extended straight forward with fingers together in plane with his body and to ground and thumb bent down to right. For (3) Right fist as above; with index [finger] of left hand extended (thumb loosely resting on three other fingers) he describes [an] arc to the right. For (4), like (3), only sweep to left.

Words above are not regularly used by guesser. He exclaims, "A", or "i" or "oi" when he finally guesses.

Every time both are guessed, bones are handed over to other side. If only one is guessed, playing side takes away one counter; if neither, two are taken away. Each side has its counters standing in front of it. Gambling men may be changed, kept going if [they] have good luck. Guesser changed if he has not good luck, but generally kept through single game anyway.

Guessers think that if they put mirror of any kind secretly behind opponents, they can guess pretty good.

This form of the game is essentially the same as those described for other Numic groups (Stewart, 1942:287; Stewart, 1943:328; Culin, 1907:307-16). *Provenience*: Deep Creek Gosiute, USNM 11968; Uinkarets Southern Paiute, USNM 11959, 11962, 11963; Shivwits Southern Paiute, USNM 11956; Kaibab Southern Paiute, 11970; Moapa Southern Paiute, 11975; Southern Paiute, Southern Utah, 11965.

Two lots of willow tally sticks for the hand game are in the collection. Powell's catalog lists them simply as "gambling sticks." One lot contains 46 sticks ranging from 9.5 to 13.5 cm long and 0.6 to 0.8 cm in diameter. The second lot contains 44 tally sticks peeled in the middle with 2-3-cm-wide bark "caps" left on the ends (Figure 58*b*). Four of the sticks have incised rings cut into the bark caps at both ends. The sticks range from 9.2-12.7 cm long and 0.9 to 1.7 cm in diameter. *Provenience*: Southern Paiute, Southern Utah, USNM 14569, 14663.

#### BARK PLAYING CARDS

A set of ten juniper bark (*Juniperensis* sp.) "playing cards" (USNM 11217) is included in the collection. The pieces are flat and rectangular, with partially rounded corners (Figure 61). They range from 13 to 25.6 cm long and 3.0 to 5.8 cm wide. They have 3 to 13 red mineral pigment markers on one face, applied with a brush.

In one study, Culin (1890:749-750, pl. 11) de-

scribes these specimens as dice, based on information provided by Powell, who is quoted as follows:

They were used as dice, but the method of counting I do not now remember. In fact, there were peculiarities in the count which I never quite mastered, but I remember that I was satisfied that every piece represented a region. The bark cards were shuffled by tossing them in a little tray basket, or *kaichoats*, sometimes used by the women as caps, but having a more general use as gathering baskets. They were shaken up under the concealment of a blanket and tossed upon another blanket, and different arrangements produced different numbers, which were counted upon little sticks. Each party in the game started with a definite number of these sticks, and the final winner was the one who accumulated all in his pile.

Powell's description of the game played with the implements sounds essentially like that for the cane-dice games described above. In a later work, Culin (1907:791, pl. 21) changed his mind and classed the specimens as "copies of playing cards. The games played by the Indian with cards are easily recognizable as common Spanish and American games." Given the conflicting views of Powell and Culin, the question as to whether the specimens are "cards" or "dice" must remain unresolved. There are no other reported implements like them from the Numic area. *Provenience*: "Southern Paiute, Southern Utah."

#### Musical Instruments

##### RASPS

The collection contains one complete and three partial notched-stick or musical rasp instrument sets. One complete set (USNM 22027) from the Wind River Shoshoni (Figure 63*b*) consists of a 67 cm long, 2.9-3.4 cm wide juniper wood passive element with twelve  $\approx$  1-2-cm-deep notches cut along one edge, leaving a 16-cm-long, shaped handle on one end. The active element is a rectangular juniper wood stick with smoothed edges and ends, measuring 29.5 cm long, 3 cm wide, and 1.4 cm maximum thickness. It has a 29 cm long buckskin thong tied through a hole in one end.

A second passive element (USNM 22026), also from Wind River, consists of a rectangular juniper wood stick 66 cm long, 3.2-3.5 cm wide, and 2.6 cm thick with 17 notches along one edge, leaving a 14-cm-long shaped handle on one end. The active element is missing.

Two passive elements (Figure 62*b,c*), both of juniper wood, are attributed to the Kaibab Southern Paiute (USNM 10773/2-3). One specimen (Figure 62*b*) is 44 cm long, 4.5 cm wide, and has 16 notches along one edge, leaving a 22 cm long tapered handle. The second specimen is 43 cm long, 3 cm wide, tapered at both ends, and has 14 notches on each of two opposing edges.

Notched-stick rasps were used by many Numic groups (Hawley, 1898:344; Steward, 1941:251; 1943:278; Stewart, 1941:403) although some Northern Paiute groups reportedly did not have them (Kelly, 1932:195). Sapir (1910:94) reports that the rasp was used by the Shivwits Southern Paiute in the Bear Dance, both the dance and the rasp apparently being post-contact diffusions to them from the Northern Ute.

Resonators, such as drums, upside-down baskets or a hide over a hole in the ground were sometimes used with rasps (Densmore, 1922:27) and, in post-contact times, metal wash tubs or pans were similarly used (Sapir, 1910:94).

#### BULLROARER

There is a single bullroarer (Fig. 62*a*) in the collection, USNM 10773/1, attributed to the Kaibab Southern Paiute, but possibly of Ute manufacture. It is made of a 67.5 cm long  $\times$  3 cm in diameter *Rhus trilobata* stick (not illustrated) to which are attached a 76-cm-long, four-ply, S-twist sinew cord and a 69-cm-long buckskin thong. Attached to the cords are two  $9 \times 4$  cm and  $7 \times 3$  cm "whirrers," notched along three sides. Lowie (1924, fig. 36) illustrates a model of a somewhat different bullroarer from the Shivwits.

Among some Numic groups bullroarers were thought to be weather-control devices, as well as toys. They might be used, variously, to bring warm winds, clear away clouds, or stop the wind. Some groups thought that the devices were most effective in the hands of persons born in the summertime (Steward, 1943:333, Stewart, 1942:291; Sapir, 1910:8). On the other hand, some Shivwits Southern Paiute thought that the buzz of the instrument called evil spirits or *unupits* (Sapir, 1910:9).

#### DRUMS

Two one-headed tambourine or hand drums are in the collection. One (USNM 17220) is from the

Uintah Ute (Figure 64*b*). The frame is a 5-cm-wide piece of wood bent into a circular shape, 130 cm in circumference and 32 cm in diameter, with lacing holes spaced at intervals of 7 cm. A circular piece of buckskin is stretched over the frame and laced to it by buckskin lace through the lacing holes and knotted on both the inside and the outside. Four S-twisted buckskin self-thongs are crossed across the bottom side of the instrument to provide a handle. The drumstick is a 32.3 cm long, 3.5 cm in diameter willow stick, wrapped with a buckskin strip forming a 7-cm-diameter head, which is 12.5 cm long. The drum is quite similar to another Uintah Ute specimen figured by Densmore (1922, pl. 6).

The second drum (USNM 22013), from the Wind River Shoshoni (Figure 63*a*), is also made of a bent wooden frame, 46 cm in diameter, with lacing holes along the outer edge. The drumhead is a piece of rawhide stretched over the frame and laced to it by rawhide thongs. Rawhide thongs cross diagonally along underside of drum to form a handle, which in turn has a 105-cm-long buckskin strap tied to it. The drumstick is 30.5 cm long, 3.1 cm wide, and 3 cm thick, a rectangular stick with carved blunt ends and a rawhide thong passing through a hole in one end. A second hole is 18.5 cm from the end hole. The stick does not have a leather or rawhide head.

Drums are reported for those Numic peoples who early adopted horses and other Plains elements, i.e., the Ute, and the Northern and Eastern Shoshoni. Those who did not adopt horses, such as the Southern Paiute, the Gosiute, and the Western Shoshoni, apparently lacked drums during the aboriginal period (Stewart, 1942:295; Stewart, 1943:278). Some Northern Paiute groups, however, may have acquired drums from Plateau groups to the north (Kelly, 1932:195).

#### Pipes

The collection contains a number of whole pipes, bowls, stems, and blanks, including tubular and elbow forms. A few of the specimens were studied by McGuire (1899:601, fig. 204).

#### *Kaibab Southern Paiute*

USNM 11301 (Figure 65*a*): Stone lunate shape carved from a coarse grain stone resembling pot-

tery. Stem piece shows no evidence of teeth marks, but stem orifice indicates that no further stem was attached. Total length: 8.3 cm; bowl: (depth)  $\approx$  3.2 cm; inside diameter) 2.1 cm, (outside diameter) 0.4 cm, (outside diameter) 1.0 cm.

USNM 11889 (Figure 65c): Pale green soapstone carved in tubular style. Has center constriction with a carved band encircling pipe. Bowl has a chip broken off. Total length: 5 cm; bowl: (length) 2.5 cm, (outside diameter) 2 cm, (inside diameter) 1.8 cm; center constriction: (outside diameter) 1.3 cm, (inside diameter)  $\approx$  0.3; stem piece: (length) 2.5 cm, (outside diameter) 71.6 cm, (inside diameter) 1.2 cm.

USNM 14331: Pale green soapstone, carved in 45° elbow shape, with wooden stem inserted and seized with blue and tan thread which is covered with a translucent glue substance. Bowl: (height) 4 cm, (outside diameter) 2.3 cm, (inside diameter) 1.9 cm; stem piece: (length) 3.9 cm, (outside diameter) 1.7 cm, (inside diameter) 1.2 cm; wooden stem (length)  $\approx$  11.5 cm, (outside diameter) 1 cm, (inside diameter) 0.6 cm.

USNM 14332: Tan soapstone carved in 90° elbow shape. Bowl: (height) 3.9 cm, (outside diameter) 2.8 cm, (inside diameter) 2.5 cm; stem piece: (length) 3.1 cm, (outside diameter) 1.6 cm, (inside diameter) 1.2 cm.

USNM 14334: Pale green soapstone carved in 90° shape with wooden stem. Bowl: (height) 5.8 cm, (outside diameter) 2.5 cm, (inside diameter) 2.2 cm; stem piece: (length) 3.5 cm, (outside diameter) 1.7 cm, (inside diameter) 1.3 cm; wooden stem: (length) 20.5 cm, (outside diameter) 1 cm, (inside diameter) 0.5 cm.

USNM 14335 (McGuire, 1899:601, fig. 204): Translucent pale green soapstone carved in 90° elbow shape. Bowl: (height) 4.8 cm, (outside diameter) 2.5 cm, (inside diameter) 2.1 cm; stem piece: (length) 2.2 cm, (outside diameter) 1.2 cm, (inside diameter) 1.0 cm.

USNM 14336: Pale green to tan soapstone, carved in 90° elbow shape. Stem piece has six flat sides. Bowl: (height) 4.4 cm, (outside diameter) 2.6 cm, (inside diameter) 2.2 cm; stem piece (length) 3.5 cm, (outside diameter) 1.2 cm, (inside diameter) 1.1 cm.

USNM 14337: Soapstone blanks for making pipes. One is unshaped pale green stone: 7 × 5.8 × 1.8 cm. The other is a roughed in pipe, unpolished with bowl and stem hole only started. Holes are both cone-shaped and extend no further

than 1 cm into stone. Bowl: (height) 6.4 cm, (diameter) 3.4 cm; stem piece: (length) 4.5 cm, (diameter) 2.5 cm.

#### *Deep Creek Gosiute*

USNM 16765 (Figure 65b): Black slate carved in a 90° shape with rounded point extending from bowl-stem intersection. Stem orifice indicates pipe designed for additional stem piece. Bowl: (height) 4.5 cm, (inside diameter) 1.8 cm, (outside diameter) 2.5 cm; pipe stem: (length) 6.7 cm, (inside diameter) 1.1 cm, (outside diameter) 2.3 cm.

USNM 16781 (Figure 66c): Black slate carved in 45° elbow shape with extended piece at bowl-stem intersection. This extension is cross-incised on front plane. A wooden stem piece is cut down in diameter at each end for insertion into stem orifice and possibly for insertion at other end into an additional stem piece. Bowl: (height) 5.8 cm, (outside diameter) 3.4 cm, (inside diameter) 1.8 cm; pipe stem: (length) 8.5 cm, (outside diameter) 3.3 cm, (inside diameter) 1.4 cm; wooden stem: (length) 14.5 cm, (outside diameter) 2 cm, (inside diameter) 0.4 cm.

USNM 16782 (Figure 65e): Black slate carved in a 45° elbow shape with an extended, pointed, 8-sided, decorative piece at bowl-stem intersection. Stem indicates that pipe was designed for additional stem piece. Bowl (height) 5.5 cm, (inside diameter) 1.3 cm, (outside diameter) 1.9 cm; stem: (length) 7.6 cm, (inside diameter) 1.0 cm, (outside diameter) 1.6 cm.

USNM 16783 (Figure 66b): Black slate carved in 45° elbow shape. Wooden stem cut down in diameter at both ends. One end is inserted into stem orifice. Bowl: (height) 4.2 cm, (outside diameter) 2.4 cm, (inside diameter) 2.0 cm; stem: (length) 14.2 cm, (outside diameter) 2.1 cm, (inside diameter) 0.6 cm.

USNM 16784 (Figure 66d): Black slate carved in 90° elbow shape with slight forward extension at intersection of bowl and stem. Wooden stem piece cut down in diameter at one end to fit into stem orifice and tapered down on one side at other end to make mouthpiece. Bowl: (height) 4 cm, (outside diameter) 2.4 cm, (inside diameter) 1.5 cm; stem: (length) 4.8 cm, (outside diameter) 2 cm, (inside diameter) 1 cm; wooden stem: (length) 12.5 cm, (outside diameter) 1.5 cm, (inside diameter) 0.5 cm.

*USNM 16785*: Hardwood pipe stem, drilled (off center) through length. One end diameter is cut down to 1 cm and then tapered to end; the other is tapered off on one axis only, forming mouthpiece. Length: 12.4 cm; outside diameter: 1.5 cm; inside diameter: 0.4 cm.

*USNM 16786*: Hardwood pipe stem, drilled (nearly on center) through length. One end diameter is cut down to 0.9 cm and then tapered to end; other end is tapered off on one axis only, forming mouthpiece. Length: 9.4 cm; outside diameter: 1.4 cm; inside diameter: 0.4 cm.

*USNM 16787* (Figure 66a): Black stone carved in 100° elbow shape, slight extension at bowl-stem intersection; inlaid metal (silver?) band around bowl and around stem remaining flush with pipe surface. Wooden stem piece tapered to fit stem orifice and tapered on one axis at other end to form mouthpiece. Bowl: (height) 3.3 cm, (inside diameter) 1.2 cm, (outside diameter) 1.8 cm; stem: (length) 3.9 cm, (inside diameter) 0.9 cm, (outside diameter) 1.6 cm; metal band width (around bowl) 0.9 cm, (around stem) 1.5 cm; wooden stem: (length) 11.8 cm, (outside diameter) 1.2 cm, (inside diameter) 0.4 cm.

*USNM 16788* (Figure 65d): Tubular, black slate, carved in "old style," resembling cigarette holder, with stem piece decorated with incising. Total length: 6.3 cm; bowl: (length) 3.8 cm, (inside diameter) 1.5 cm, (outside diameter) 2 cm; stem: (inside diameter) 1.1 cm, (outside diameter) 1.4 cm.

### Fire-making Apparatus

There are four complete and three partial sets of fire-making apparatus in the collection. Most of the implements were previously described by Hough (1890:538-540, figs. 7-9). He notes that the compound drills are made only among Numic groups and by the Klamath of southern Oregon, to which Spier (1928:158) later added the Modoc, Snohomish, and Snuqualmi of the Plateau and Northwest Coast.

#### *Kaibab Southern Paiute*

*USNM 11976*: Hearth and compound drill. Hearth of yucca stalk (*Yucca* sp.) with three fire holes all charred from use; 52 cm long, 1.4 cm in width; firehole diameters: 0.8-1.0 cm. Straight

drill spindle of tule reed with short bit of greasewood (*Sarcobatus vermiculatus*) inserted in reed-cane and seized with glue and sinew. Shaft: 55 cm long, 1.0 cm in diameter; point: 55 cm long, 0.9 cm in diameter.

*USNM 11978*: Hearth and compound drill. Hearth of yucca stalk with three fire holes charred from use: 28 cm long, 1.7 cm wide, 1.2 cm thick; fire hole diameter: 1 cm. Tule reed spindle; one end broken, no bit. Length: 43.5+ cm; diameter: 1 cm.

*USNM 11979*: Hearth of cottonwood (*Populus fremontii*), drill missing; 18.6 cm long, 2 cm wide, 1.5 cm thick. One 1-cm diameter firehole, charred.

#### *Moapa Southern Paiute*

*USNM 17228*: Compound drill; hearth missing. Spindle of willow (*Salix* sp.) with greasewood bit. Bit hafted to split end of spindle by seizing of cotton five-ply S-twist thread and cotton two-ply Z-twist thread. Spindle: 49 cm long, 1 cm diameter; head: 12.5 cm long, 1.2 cm diameter.

*USNM 17229*: Hearth of unidentified hard wood, drill missing. Hearth, 23 cm long, 2.3 cm wide, and 1.3 cm thick, is notched at one end and tied with 19 cm long buckskin thong. One 1-cm diameter charred fire hole.

*USNM 17230*: Hearth and compound drill. Hearth is sapwood of juniper (*Juniperensis* sp.); it measures 17.5 cm long, 2.8 cm wide, and 1.5 cm thick. There are two fireholes, each 1.1 cm diameter. Hearth is notched at one end and tied with 35 cm long buckskin thong. The drill has a 38-cm-long, 1-cm-diameter willow spindle, split on one end for hafting of greasewood bit. Bit is 12.5 cm long and 1.1 cm diameter.

#### *Wind River Shoshoni*

*USNM 22022*: Hearth and compound drill. Hearth is a 47.5 cm long, 6.3 cm wide, and 2.1 cm thick piece of unidentified hardwood with eight 1.0-1.3 cm diameter fire holes along one edge; only one hole charred. There is a 34-cm-long rawhide thong tied to the hearth. The drill has a 58-cm-long, 1.1-cm-diameter spindle of willow to which is hafted an 11.5-cm-long, 1.3-cm diameter greasewood bit. The spindle is split and the bit inserted and seized with sinew.

Hearths and drills similar to those in the collection are reported throughout the Great Basin area. Dellenbaugh (1906:250) illustrates a compound drill that he collected in southern Utah in 1872 while with the Powell expedition. Figure 67 shows a Kaibab Paiute man using a palm drill.

Tony Tillohash (in Sapir, 1910:91) reported the use of slow matches by the Southern Paiute:

Slow match. Outside bark of cedar [juniper] was taken and wrapped tied with same fiber (perhaps thin strip of bark) into long bundle. This was carried along when traveling and glowed without burning quickly. Whenever required for fire, was waved or blown at.

Similar slow matches also have been found in archeological contexts related to Numic occupations (e.g., Wheeler, 1973:6, fig. 23e).

### Hide Processing Tools

There are four hide processing tools in the collection. Two others are listed by Mason (1891a: 589).

#### *Uintah Ute*

*USNM 19883* (Figure 68c): Hide scraper. Handle of unidentified bone, possibly horse or bison. Bone sawed off at both ends, notched at one end for iron blade; blade now missing, but apparently was present when Mason (1891a:589) studied the implement. Two holes drilled through the top and side of the handle for insertion of buckskin thong wrist support. Criss-crossed lines incised into handle. Length: 28.5 cm; diameter at mid-shaft: 4.5 cm; buckskin thong: 34 cm long.

*USNM 19894* (Figure 68b; cf. Mason, 1891a, pl. 90, fig. 2): Graining tool. Made of deer tibia. Shaft cut diagonally with 0.5 cm long serrated teeth cut along bottom edge. Buckskin band, 3.5 cm wide, sewn with buckskin stitching around head of handle; 21-cm-long buckskin thong wrist support stitched to band with buckskin. Listed by Powell (1873) as "bear skin grainer."

#### *Goose Creek Shoshoni*

*USNM 11226* (Mason, 1891a, pl. 92, fig. 1): Not found in collection. Illustrated and described by Mason as

scraper, adze type. Handle of the antler of the elk, the grip being the principal column, and the blade attached to a short section of a branching prong. The blade of the modern tool is of iron, seized loosely with a thong of buckskin so as to be removed easily for sharpening. . . . Paiutes of Utah. J. W. Powell.

Mason also lists, but does not describe, a similar implement, *USNM 19882*, as of "Ute" manufacture.

Tony Tillohash (Sapir, 1910:37-39) described two types of hide processing tools and a method of tanning deer skins for the Southern Paiute:

[The] scraper for fat and blood vessels on flesh side [is] a wooden handle with groove to sides of which iron blade is now riveted; old type was probably deer bone . . . hair scraper of foreleg of deer. . . For scraping, hide thrown over slanting stick in ground. Then hide soaked in warm water for about two hours and rinsed over same stick by means of [rinsing] stick. . . .

Skin is pulled taut from slanting stick and rising stick held in hand under skin, which is twisted around and around with stick in hand. Water and blood are thus rinsed out. Rinsing done twice generally. Then skin stretched on frame and kept there for about one or two days until thoroughly dry and limber. . . . Then hide spread out and deer's brains in water (thick like glue or mush) sprinkled over on original hair side (not smeared or rubbed in); allowed to stay about 1 week, when another application is made; generally three applications made of brains. [Sometimes] when hide has had first application of brains it is rolled away and kept for perhaps a whole month; then taken out and soaked, rinsed, and then tanned, or simply holding the skin stretched out by feet in hand and pulling at it and working it over by rubbing part against part. When all dry, second and last application of brains put on; put away for a couple of weeks, [then] soaked, rinsed, and again tanned to make softer yet. . . . Only when moccasins were made was it customary to smoke a hide. Just so much of the hide was taken as was convenient or necessary.

*USNM 19891* (Figure 69b, cf. Mason, 1891a, pl. 90, fig. 1): Beaming tool. Made from horse tibia/fibula. Buckskin thong, 43 cm long, knotted through hole in head of fibula. Polish on edge of fibula indicates use. "There has been little or no modification of the bone. The fibula furnishes a most excellent natural edge for the tool" (Mason, 1891: 589); erroneously listed by Mason as "Paiute, Southern Utah." Length: 36 cm; diameter at mid-shaft: 4.5 cm.

*USNM 19893* (Figure 68a): Hide scraper. Handle made of unidentified bone, possibly horse or bison. Bone sawn on both ends and notched in proximal end for iron blade; blade now missing. Zig-zag

lines incised on back of handle. Buckskin thong wrist support, 28 cm long, attached to top of handle through three holes. Length 22.3 cm; diameter at midshaft: 4.5 cm. USNM number has been changed at some past time from 19883 to 19893; hence this implement is probably the "adze-shape scraper with iron blade" listed by Mason (1891a: 589) as USNM 19883 and assigned by him to "Ute" manufacture.

### Culinary Equipment

The collection contains a variety of culinary implements made from wood, sheephorn, and tortoise shell.

#### LADLES

There are five wooden ladles, e.g., Figure 71c,d, in the collection. All are made of a single piece of wood; some are formed by carving out a knot to form the bowl and leaving a protruding branch to form a handle. Others are carved out from a larger straight piece of wood. Materials are pinyon, juniper, and cottonwood. The bowls vary from 13 to 18 cm long, 8 to 12 cm wide and 5 to 6 cm deep. The handles range from 4 to 23 cm long. *Provenience*: Kaibab Southern Paiute, USNM 10745, 10746, 11232, 14455; Ute, Colorado Territory, USNM 10807.

#### WOODEN BOWLS

There is a circular, 37-cm-diameter carved wooden bowl (Figure 71e) with two 2-cm-wide extensions carved out from the bowl rim, which serve as handles. The bottom of the bowl is flattened. There is also a smaller, 13-cm-diameter, 6-cm-deep carved wooden bowl (Figure 68h) with a chipped rim and two small holes along the rim, possibly for a carrying thong. *Provenience*: "Paiutes," USNM 14452; Kaibab Southern Paiute, USNM 11233.

#### WOODEN TRAY

A 22-cm-diameter carved wooden tray has a handle extending from one edge. The bottom of the tray is flattened. The catalog lists the article as a

"meat tray" (Figure 71b). *Provenience*: Kaibab Southern Paiute, USNM 10747.

#### HORN SPOONS

There are thirteen large spoons or dippers in the collection, all made of mountain sheep horn (*Ovis canadensis*). The horns have all been steamed, scraped on both surfaces and carved to form bowls up to 21 cm long, 13 cm wide, and 6+ cm deep, and handles up to 45 cm long. *Provenience*: Kaibab Southern Paiute: USNM 11229, 11230, 11231, 11902. Moapa Southern Paiute: USNM 11228, 14457; Uinkarets Southern Paiute: USNM 11894, 11895; Shivwits: USNM 11900, 11905; "Paiute": USNM 144455, 14458; Ute, Colorado Territory: USNM 10808, 10809.

#### TORTOISE SHELL BOWLS

There are ten bowls made from the top shell of the desert tortoise (*Testudo agassizii*). All the bowls have been scraped to remove the inside structural formations (Figure 71a). The bowls range up to 25 cm long, 15 cm wide, and 4–5 cm deep. The desert tortoise is found in the lower, warm Mohavian deserts of extreme southwestern Utah, southern Nevada, and southeastern California (Connolly and Eckert, 1969). Hence the specimens collected from the Kaibab Southern Paiute and from the Gosiute were probably obtained by them in trade from other groups. *Provenience*: Kaibab Southern Paiute, USNM 11907, 14471, 14472, 14473, 14474, 14475; Moapa Southern Paiute: USNM 14465; Deep Creek Gosiute: USNM 14477, 14478, 14481. USNM 14475 is illustrated by Hough (1922, pl. 9, fig. 3).

#### Leather Pouches

##### *Kaibab Southern Paiute*

USNM 14491 (Figure 38e): Pouch. Tanned squirrel skin (*Sciurus kaibabensis*), with some fur not worn off. Two skins cut oval shaped and stitched together with sinew with double buckskin fringe strips inserted in seam. Top of skins are stitched with sinew to buckskin piece, self-fringed at seam

and folded over above seam to form passage for draw string of buckskin. Total length (less fringe): 19 cm; skin length: 16.5 cm; width: 11 cm; fringe: 7–10 cm; thong draw string: 98 cm.

#### *Ute, Colorado Territory*

*USNM 10782* (Figure 64d): Tobacco pouch. Buckskin, brought around and stitched on one side and across bottom with sinew. Self-fringe depends from bottom and larger self-strips are cut into top border. Holes are cut just below these strips. These two may constitute a closure system for top of pouch by lacing a strip on one side through a hole in the other side.

At the base of pouch on one side, four series of beaded bands are lazy-stitched with sinew to main buckskin piece. Top series is made up of black and white beads with 10–14 beads in each row. Second series is made up of blue and translucent red beads in each row. Third series is made up of blue and translucent red beads with 10–15 beads in each row. Fourth or bottom series is made up of yellow and black beads with 17–25 beads in each row.

Length: 32 cm; width: 15 cm; fringe: 17–23 cm; eight top self strips: 1.5–3.0 cm wide, 9–18 cm long; beads: (black)  $0.2 \times 0.15$ – $0.18$  cm, (white)  $0.2$ – $0.18 \times 0.1$ – $0.18$  cm, (blue)  $0.22$ – $0.19$  cm  $\times$   $0.12$ – $0.15$  cm, (red translucent)  $0.2 \times 0.12$  cm (uniform); (yellow)  $0.18$ – $0.2 \times 0.12$ – $0.18$  cm.

*USNM 10786/2*: Rawhide pouch with two triangular rawhide flaps and four rows of beading attached to pouch bottom. Wooden stopper inserted in top of pouch. Dark green and white beading lazy-stitched with sinew thread in rows to form pattern on pouch and on flaps. White beads around circumference of pouch and white and black beads depending in four rows from pouch. Two pieces of rawhide compose pouch itself and are stitched together with sinew. Two of beaded rows depending from pouch bottom are done with lazy-stitch and other two rows are done with overlay stitch. Two buckskin ties are attached to back of pouch through holes and are then knotted. It was probably at these two points that a necklace was attached at one time for the pouch to be a breast ornament.

Length of pouch: 10 cm; pouch neck: (length) 3 cm, (width) 1.5 cm; pouch bowl: (length) 7 cm,

(width) 6.8 cm; stopper: (length) 7.5 cm, (width, from widest to narrowest points) 1.2–0.6 cm; flaps: (length) 6.5 cm, (widths) 1–4.3 cm; lengths of beaded rows: 9, 7.5, and two are 5 cm; white beads: (on circumference and bottom rows of pouch)  $0.15$ – $0.2 \times 0.3$  cm, (on pouch)  $0.15$ – $0.2 \times 0.5$  cm; green beads:  $0.2 \times 0.1$  cm; black beads:  $0.4 \times 0.3$  cm.

#### *Uintah Ute*

*USNM 12015* (Figure 38h): Cap pouch. Buckskin, two pieces, self-fringed at bottom and stitched together with buckskin thong. One piece extends longer at top to form a flap, which is scalloped on three edges. Flap has two button holes through which buttons protrude to fasten flap; main body piece has buttons attached with buckskin thong. Buttons are ceramic with metal eyelets, similar to 19th century shoe buttons. Buttons: (diameter) 0.9 cm, (thickness) 0.55 cm; pouch: (length, less fringe) 9 cm, (width): 6 cm; flap length: 7 cm; fringe length: 3–3.5 cm.

*USNM 14782*: Paint pouch. Brown buckskin pouch made from single piece of buckskin, folded in half and stitched up both sides with two-ply, S-twist brown or gray cotton thread. Tied together near top with buckskin thong of lighter color. Gray earthen pigment inside pouch and more of the same in glass specimen bottle to which pouch is tied. Total length:  $\approx 30.5$  cm; width:  $\approx 7.5$  cm.

*USNM 17223*: Tobacco pouch. Buckskin, flesh side out. One piece of skin brought around and stitched up the side with sinew. Bottom edges are self-fringed and stitched together with sinew. Top is folded over inside about 1.5 cm and stitched with buckskin thong. Inside this fold a buckskin draw thong threads around circumference of pouch. Length: 27 cm; width: (top) 12 cm, (bottom) 15 cm; draw thong: 63 cm; fringe: 7–10 cm.

*USNM 17224*: Pouch. Mink skin (*Mustela vison*), tanned with fur on, fur outside. Complete skin not opened lengthwise, but only at the top (mouth area) to form a pouch. A buckskin thong tie piece is attached to bottom edge of mouth opening. At each of the four leg skins, a piece of red flannel is wrapped around just above paw, and held on with wrapping of three-ply, S-twist, brown cotton thread. Under this flannel is a piece of buckskin self-fringed on each side so that the fringe extends out

top and bottom from red flannel. Length, less tail: 36 cm; width, without legs: 10 cm; width of opening: 8 cm; length of tie strap: 34 cm; width of flannel band: 1 cm; length of fringe: 2–4.5 cm.

#### *Goose Creek Shoshoni*

*USNM 19844*: Tobacco pouch. Buckskin, flesh side in. Fringed and decorated with painted design. Main body piece brought around and stitched up side with buckskin insert. Stitching is sinew. Bottom stitched across with fringe buckskin piece inserted in seam. On top, one side is stitched with sinew to a flap which is scalloped and has two self-pendants and one stitched on. Flap also has a buckskin strap passed through at each end and tied to center of flap. Length: 24.5 cm; width: 16.5 cm; length of flap: 11 cm; flap pendant: 7 × 3 cm; fringe: 18–23 cm.

*USNM 22005* (Figure 64e): Tobacco pouch. Fawn skin tanned with fur on, fur outside, stitched together on one side and across bottom with sinew. Buckskin fringe inserted in bottom seam. One fawn toe ornament strung on one fringe piece. Top extends into flap on one side with buckskin fringe strip stitched with sinew to edge. At fold of flap buckskin carrying strap is passed through two holes on each side of fold and each end is tipped with a fringed buckskin tassel. Length, less fringe: 24.5 cm; width: (base) 18 cm, (top) 13 cm; flap: 10 cm; fringe: (flap) 3–4 cm; (bottom) 13–18 cm, (tassel) 3–4 cm; strap: 36.5 cm.

#### Horse Equipment

The collection contains 17 items of horse equipment. Powell's catalog indicates that there were originally 41 items, including several reputedly from the Kaibab and Moapa Southern Paiute. Two women's saddles (*USNM 17197, 17198*) and a set of saddle bags (*USNM 17222*) are listed in Powell's (1878) catalog as "Kaibab Southern Paiute." But, comments in the National Museum accessions catalog indicate Uintah Valley Ute. We assume the latter assignment is correct for several reasons: One, the dates of accession are June 1875. Two, Powell's 1874 field season started in midsummer and lasted until the end of the year. Therefore, any items Powell collected would not have been deposited

in the National Museum for cataloging until 1875. Three, Powell spent the entire 1874 field season in the Uintah Mountains and specifically reported studying the Uintah and Seuvarits Utes who lived nearby (Fowler and Fowler, editors, 1971:12).

On the other hand, three parfleches (*USNM 14640, 14641, 14642*) listed in the museum accession catalog as "Paiute, S. Utah," are listed in Powell's (1873) catalog as "Uintats," i.e., Uintah Ute.

There are no ethnographic reports of the Southern Paiute manufacturing wooden saddles, parfleches, or other horse gear in the 1870s. They undoubtedly did obtain such gear by trade from the Utes.

There are two Hillers photographs of Southern Paiute men on horses. One (Figure 72) is of two Kaibab men; the other (Figure 73) is of four men "met along the trail" in the Moapa Valley of southern Nevada. We suspect that the photograph of the Kaibab men (Figure 72) was posed by Powell and Hillers, using the latter's horses. The saddle, bridle, and blanket visible in the photograph are probably of U.S. Army issue, borrowed by Powell while he was acting as Special Commissioner. The condition of the horses also leads us to suspect that they were Powell's and not the Indians'. Figure 73 shows some Mexican horse equipment and the condition of the horses may suggest Indian ownership.

The available ethnohistoric data indicate some use of horses by Kaibab Southern Paiute prior to 1870. The settlement of Kanab, Utah, was established in Kaibab territory by Jacob Hamblin and others in 1864. A manuscript history of early Kanab in the Mormon Church Historian's Office, Salt Lake City, Utah, reports a raid on Kanab, probably by Navajos, in 1865, during which, "horses belonging to both settlers and the Piede [Paiute] Indians" were stolen (Euler, 1966:80).

The diaries of Powell's men, who were stationed in and around Kanab between 1871 and 1873, contain the following entries: On the Kaibab Plateau in 1872, S. V. Jones (in Gregory, 1948–1949:139, 167), "Soon saw ahead of us 4 Pa-Ute men and 2 squaws with 3 ponies. . . ." At Kanab he reported that, "some of the Santa Clara Pa-Utes have stolen the horses of a small party of Navajos camped here." Clem Powell at Kanab reported that "Frank" [Chuarumpeak, a young Kaibab band leader and

one of Powell's informants] "rode a Navajo horse. . . ." and "Indian Frank was thrown from his mule, quite laughable" (in Kelly, editor, 1948-1949:409, 457). Clem also related an incident in 1868 near Short Creek, Arizona, in which Paiutes on "fleet horses" killed three settlers (in Kelly, editor, 1948-1949:411; cf. Gottfredson, 1919:181-183).

Isabel T. Kelly (1964:91-93) collected some information on the early use of horses by the Kaibab Southern Paiute in the 1930s, but she was unable to firmly date the introduction of horses and some of her material may relate to the 1890s or later. However, she does report that there was trade between the Kaibab and the Navajo (the latter crossing the Colorado River at Crossing of the Fathers); the Navajo supplying blankets and horses and the Kaibab buckskins and, sometimes, children. She also reports trade, including horses, between the Kaibab and other Ute and Paiute groups to the north. Stewart's (1942:342) Kaibab and Shivwits informants, also in the 1930s, reported that their first horses were obtained from the Mormons. Kelly's and Stewart's data, together with the passages in Powell's men's diaries (which were not available when Kelly and Stewart wrote their monographs) do indicate that the Kaibab had some horses by 1870 and were trading with both the Ute to the north and the Navajo to the south. Hence, it is possible that Powell was able to collect horse gear from them, although the gear was, in all likelihood, of Ute manufacture. The items reported herein were probably collected from the Ute by Powell, the listings in his catalog apparently being in error. However, other items listed in the catalog, but not found in the collection, could well have come from the Kaibab.

It is not clear when the Moapa Southern Paiute began using horses. They were less isolated than the Kaibab, since a section of the Old Spanish trail, later a major emigrant route to southern California, passed through their territory. The available ethnohistoric data for the period 1830-60 (Euler, 1966, *passim*) indicate that any horses obtained were eaten. Thus the Moapa may have been as late as the Kaibab in adopting horses for riding.

The saddles, parfleches, and saddle bags in the collection are of typical Plains manufacture. The women's saddles are quite clearly of the general

type manufactured by Plains and Plateau tribes in the 19th century, as Ewers (1955:89-91) points out. The parfleche decorations, as well as the saddle bags are typical of the geometric designs used by various Plains tribes, including the Ute (Speer, 1925; Douglas, 1936)

#### PARFLECHES

##### *Uintah Ute*

*USNM 14640* (Figure 80a): Parfleche. Rawhide, folded up, two pieces of rawhide thong laced to holes. More holes cut in sides and ends. Ornamented on outside with design painted on with red, yellow, green, and blue. Wear has partially obscured design. Width: (open) 91 cm, (folded) 47 cm; length: (open) 132 cm, (folded) 68 cm; thongs: (lengths) 71, 82 cm, (average widths) 1.0-1.5 cm.

##### *Kaibab Southern Paiute*

*USNM 14641* (Figure 79a): Parfleche. Rawhide, flesh side in. Decorated with painted design in red, green, and blue colors on outside. One short rawhide thong is laced through two holes on end. Length (open) 158 cm, (folded) 82 cm; width: (folded) 47 cm, (open) 93 cm; rawhide thong:  $67 \times \approx 0.7$  cm.

##### *Moapa Southern Paiute*

*USNM 14642* (Figure 79b): Parfleche. Rawhide, folded up and missing lacing. Lace holes are cut in sides and ends. Ornamented on outside with design painted on with red, yellow, and green coloring. Wear has partially obscured design. A single long buckskin thong (not shown in illustration) is tied to one hole. Length: (open) 156 cm, (folded) 73 cm; width: (open) 92 cm, (folded) 45 cm; thong:  $119 \times 2.5$  cm.

##### *Seuvarits Ute*

*USNM 17196* (Figure 74): Parfleche. Rawhide, folded up, some rawhide lacing remains attached. Lace holes are cut in sides and ends. Several small

places on edge still retain some fur. Ornamented on outside with design painted on with red, yellow, green, black, and blue coloring. Length: (open) 165 cm, (folded) 76 cm; width: (open) 97 cm, (folded) 47 cm; thongs: (lengths) 75, 164 cm; (average width) 0.5 to 0.7 cm.

#### LARIATS

##### *Uintah Ute*

*USNM 11203*: Rawhide lariat. Braided six-ply in six-stranded single flat or English sennit method. One end terminates in six-strand single stopper knot. The other passes through the two ends of a rawhide band and doubles back on standing part, braiding over in single flat sennit braid. The rawhide band forms a bight. Length: 8 m; diameter: 1.3 cm; length of bight: 8.5 cm.

*USNM 11206*: Fiber lariat (*Apocynum cannabinum*); six-ply constructed by three twisted strands of two-ply each. These form a 7 cm self-bight at one end and then are braided in six-strand single flat or English sennit method. The other end is either unfinished or has been cut off. Length: 4.18 m; diameter: 1.4 cm.

*USNM 11887/1*: Rawhide lariat, four-ply, braided in four-strand round sennit method. One end terminated by passing two strands through slashes cut in other two strands. The other end passes through a separate bight and is formed into a four-strand sennit knot so that it will not pull out of the bight unit. The bight is constructed of rawhide band with self bands cut into it which seize a section of eight-strand single flat or English sennit braid wrapped around it. Length: 13.5 m; diameter: 1 cm; length of bight: 8.2 cm.

*USNM 11887/2*: Horse hair lariat, 16-ply, braided in 16-strand square sennit method. At one end a bight is formed by bringing end of lariat alongside of standing part and lacing the two parts together with buckskin thong. Black color. Length: 11.85 m; diameter: 1 cm; length of bight: 14 cm.

*USNM 11888*: Black horse hair lariat, six-ply constructed by forming three twisted strands of two ply each and further twisting these three strands together. This can be done when hair is wet; when dry, the lariat will hold its shape. Each end is seized with buckskin thong. Length: 16.95 m; diameter: 0.9 cm.

#### SADDLES

##### *Seuvarits Ute*

*USNM 11035* (Figure 75): Woman's saddle; wooden tree, covered with rawhide stitched on with sinew. Side boards have commercial leather pieces for skirts tied front and rear with a buckskin thong, which also laces commercial leather girthing to side boards. Pommel and cantle extend up and flatten out on top into circular shapes. The pommel is slightly higher than the cantle and has a prong extension and a commercial leather strap and yoke piece attached to it. The cantle has a wooden peg passed through the rawhide cover to serve as a cantle pin. Around edge of each top circular piece are fringe pieces of buckskin.

Girthing is leather extending from each end of each side board in a loop, and passing through a metal ring on each side. A lined leather cinch is tied to one ring and has a metal buckle on the other. The ring on the other side has no further straps but some tie strap probably extended from it to the hook to buckle on the cinch.

Stirrups are tied to side boards with lengths of buckskin thongs and are carved of wood and covered with rawhide stitched with sinew and rawhide lace.

Frame: (length) 53.5 cm, (width) 22 cm, (height, cantle) 30 cm, (height, pommel) 36 cm; skirt: 52 cm long × 13 cm wide; girthing width: 3.5 cm; cinch: 80 cm long × 8.5 cm wide; fringe: 17–23 cm long; neck yoke length: 1.2 m; stirrups: (height) 15 cm, (length) 16 cm, (width) 13.5 cm; stirrup suspension straps: 60 cm long. Listed in Powell 1873) catalog as *Seuvarits Ute*.

*USNM 11036*: Woman's saddle; wooden tree, covered with rawhide stitched on with sinew. Side boards have commercial leather pieces for skirts, are padded with cedar bark fiber, and tied front and rear with a buckskin thong, which also laces commercial leather girthing to sideboards. Pommel and cantle extend up and flatten out on top into circular shapes. The pommel is higher and has a prong for attachment of another article. A strap of commercial leather is split, stitched to a buckskin piece at one end and tied to the pommel at the other end to serve as a neck yoke.

Girthing of leather depends from each end of each side board and loops around a cut out ring of rawhide. A rawhide cinch is attached to one

ring and a tie thong to the other ring. One stirrup of wood covered with rawhide is tied with buckskin strap to side board; other stirrup missing.

Frame: (length) 44 cm, (width) 28 cm, (height, pommel) 26 cm, (height, cantle) 23 cm; skirt: 45 cm long  $\times$  15 cm wide; girthing width: 4 cm; cinch: 75 cm long  $\times$  3 cm wide; neck yoke length: 95 cm; stirrups: (height) 11 cm, (length) 13 cm; (width) 9 cm; stirrup suspension strap: 56 cm long. Listed in Powell (1873) catalog as Seuvarits Ute.

### *Uintah Ute*

*USNM 14637*: Woman's saddle; wooden tree, covered with rawhide, stitched with sinew. Side boards have buffalo hide with hair on for skirts, which are tied front and back with buckskin thongs; thongs also lace girthing to side boards. Pommel and cantle extend up and curve out spoon-shape with buckskin fringe laced into rawhide around edge of tops. Pommel is probably the higher extension with prong for attachment of another article. Girthing is buckskin tied and depending from each end of each side board and then tied together on each side with thong. Cinch is missing, as are stirrups.

Frame: (length) 53 cm, (width) 30 cm, (height, pommel) 41 cm, (height, cantle) 30 cm; skirt: 52 cm long  $\times$  21 cm wide; girthing width: 5 cm; fringe, length: 13–25 cm. Listed in Powell (1873) catalog as Uinta Ute.

*USNM 14638*: Woman's saddle; wooden tree, covered with rawhide, stitched on with sinew. Side boards have rawhide pieces for skirts, which are tied front and rear with buckskin thongs also tying girthing to side boards. Pommel and cantle extend up and curve out spoon-shaped with buckskin fringe laced into rawhide and depending from edge of spoons.

Girthing of rawhide is tied to each end of each side board, depending and tied together with buckskin thong on one side and looping through slit cut in cinch on other. Cinch is rawhide with metal D-shaped ring stitched onto loose end with sinew. Stirrups are missing.

Frame: (length) 64 cm, (width) 25 cm, (height of pommel) 36 cm, (height of cantle) 33 cm; skirt: 50 cm long  $\times$  17 cm wide; girthing width: 2.5 cm; cinch: 82 cm long  $\times$  3 cm wide; fringe length:

25–34 cm. Listed as Southern Paiute (Powell, 1878), but probably of Ute manufacture.

*USNM 17197* (Figure 76): Woman's saddle; wooden tree, covered with rawhide, stitched with sinew. Side boards have scalloped rawhide skirts tied on front and back with a buckskin thong which also laces girthing to side boards. Pommel and cantle extend up into spoon shaped hooks and are similar enough to be indistinguishable. (For purposes of description pommel will be noted as one with Powell's name inscribed on it.) Around under edge of spoon on each side are several buckskin fringe pieces and a triangular piece of buckskin (6.5  $\times$  17 cm) with pink, green, blue, white, and red beads, lazy-stitched on with sinew. Girthing is made of tanned buffalo hide, some with hair left on. From two points of attachment at each end of side boards a loop of hide strap comes to the center and passes around a continuous hide ring piece. On left side a hide strap cinch is tied to the ring and on the right side a buckskin thong is tied to the ring. The thong serves to tie off the other end of the hide cinch which has a slit hole cut into it. One end of frame (either pommel or cantle) has a prong extending out and up. If this is cantle or rear, the prong may serve as an attachment point for a crupper. It may also be attachment for saddle bags or further seat suspension.

Frame: (length) 53 cm, (width) 30 cm, (height, pommel) 43 cm, (height, cantle) 36 cm; skirt: 59 cm long  $\times$  22.5 cm wide; girthing width: 2–3 cm; cinch length: 81 cm; fringe length: 16–30 cm; bead sizes: (red) 2  $\times$  1.5 mm, (pink) 2  $\times$  1–1.6 mm, (white) 2–2.2  $\times$  1–1.8 mm, (light blue) 2.1–2.5  $\times$  1.9–2.0 mm, (green) 2–2.1  $\times$  1–1.6 mm, (blue) 2–2.1  $\times$  12.2–1.5 mm.

*USNM 17198*: Woman's saddle; wooden tree, covered with rawhide stitched on with sinew. Side boards have rawhide pieces for skirts, are tied front and rear with buckskin thongs, which also lace girthing to side boards. Pommel and cantle extend up and curve hook-like at tops. Buckskin fringe is laced through rawhide around tops of pommel and cantle. Pommel has a prong for attachment of another article.

Girthing of rawhide on one side depends and then forms self-cinch, on other side girthing of rawhide depends and forms self-ring for cinch tie. Stirrups of wood with outer sides covered with rawhide are tied with buckskin strap to side boards.

Frame: (length) 49 cm, (width) 24 cm, (height, pommel) 33.5 cm, (height, cantle) 29.5 cm; skirt: 48 cm long  $\times$  23 cm wide; girthing width: 4.5 cm; cinch: 113 cm long  $\times$  12–5.5 cm wide; stirrup: (height) 12 cm, (width) 10 cm, (length) 13 cm; stirrup suspension strap: 55 cm; fringe: 19–26 cm.

#### CRUPPERS

##### *Moapa Southern Paiute(?)*

USNM 14399 (Figure 78a): Crupper; buckskin and coarse woven cloth, covered with red flannel and blue denim, ornamented with beads. Crupper is made of two identical halves connected by a buckskin thong. Each half is made of a D-shaped piece, which has long buckskin fringe laced to curving border with buckskin lace. Also around curving border is a 2-cm strip of red flannel cloth with beading, white and blue, lazy-stitched using cotton two-ply, S-twist thread and approximately 12 beads to the row. Down straight edge of D-shape is a 2-cm strip of red flannel and 1.5-cm strip of blue denim cloth both stitched to border with buckskin lace. In the center of D-shaped piece, a cross-shaped design with expanding arms is made with blue, green, and yellow beads in lazy-stitch with two-ply, S-twist cotton thread. Cross design is about 5.5 cm across, with each arm going from two beads wide at center to 12 beads wide at outside. Triangular piece of white cloth is covered with red flannel cloth and bordered with a 2-cm-wide strip of blue denim folded in half over edge with two-ply, S-twist cotton thread stitched to bind flannel, denim, and background cloth. At apex (bottom) of triangle a buckskin fringe is attached with buckskin lace and depends.

Total length: 86 cm; width: 23 cm; D-shaped piece length: 27 cm; fringe around D-shaped piece: 0.7  $\times$  53–64 cm; fringe piece at bottom: 1 cm long  $\times$  48 cm wide; beads: (blue) 0.2  $\times$  0.12 cm, (white) 0.18–0.2  $\times$  0.11–0.18 cm, (yellow) 0.2–0.22  $\times$  0.11–0.19 cm, (green) 0.19–0.2  $\times$  0.13–0.15 cm.

##### *Uintah Ute*

USNM 14398: Crupper. Body of crupper consists of two pieces of buckskin, one triangular in shape and one D-shaped, with a straight as opposed to rounded bottom end. Two pieces are sewn to-

gether with Z-twist hemp, overhand stitch. Fringe sewn onto D-shaped piece at top and rounded side; this is self-fringe on two separate pieces of buckskin, sewn between two thicknesses of crupper with sinew; 82 cm in length from top to bottom, not including fringe.

D-shaped piece: two thicknesses of buckskin, 25.5 cm long  $\times$  28.5 cm wide. Straight, probably front, side trimmed with band of navy blue wool, on top of which is band of red wool. Blue band: 22  $\times$  5  $\times$  2.5 cm; red band: 21  $\times$  1.5 cm. Both bands sewn to crupper with buckskin in overhand stitch.

Beading on D-shaped piece: circle of red wool in center of D-shape: 3 cm diameter on top of which rows of blue and white beads are sewn. Beads strung on sinew and sewn to red wool using lazy-stitch. Rows of beading around circle: 12 white, 3 blue, 5 white, 3 blue, 4 white, 4 blue, 5 white, 4 blue. Most rows contain average of 5 beads; average length of row: 0.7 cm; average width of beads: 0.2 cm; diameter of red wool circle uncovered by beading: 2 cm from bottom toward top; beading around circular part of D is approximately 40 cm and borders the circular part of D-shaped buckskin. Each row has the following pattern of beads, 23 blue, 1 white, 2 blue, 2 white, 43 blue, 2 white, 2 blue, 2 white, 40 blue, 2 white, 2 blue, 2 white, 36 blue, 6 blue and white combined, 3 blue, 2 white, 18 blue, 2½ black, 8½ blue. Average length of most rows: 1.8 cm; beadwork begins ca. 0.5 cm. from edge of piece; 15 beads per row is average; rows sewn on with sinew thread and lazy stitch.

Fringe: Around circular part of piece, consists of two separate pieces of self-fringed buckskin inserted between two thicknesses and sewn together and to front thickness with sinew. All thicknesses of buckskin overhand stitched to back layer with very heavy sinew. Average length of fringe: 43 cm.

Triangular bottom piece: Buckskin with cover flap (perhaps pocket) of red wool sewn to buckskin around edges with sinew. Length: 57.2 cm; width: (across top) 26.5 cm, (across middle) 18.5 cm, (across bottom) 6 cm.

Green cloth strip: Folded over red wool and stitched on both front and back with cotton thread, 25.5  $\times$  0.8 cm. Line of cotton thread stitches immediately beneath green cloth strip on red wool across width of flap. Two buckskin strips, one 56

cm long and one 52 cm long, running down sides of triangular piece are sewn to both red wool and buckskin beneath it with sinew twist.

Beading on triangular piece: All white beading on navy blue wool band; navy band sewn to red wool with cotton thread. Rows sewn on with cotton thread, using the lazyy-stitch. Top row sewn from top of blue band onto redwool:  $22 \times 1.3$  cm; 98 rows of beading, approximately 10 beads per row. Bottom row sewn on blue band:  $19.7 \times 1.2$  cm; 88 rows of beading, 10 beads per row. Three beaded diamonds,  $\approx 7 \times \approx 2$  cm in center of blue wool. Diamonds expand from one bead at top and bottom apices to 17, 20, and 21 beads per row, respectively, at the centers.

Other half of the crupper is, for the most part, identical with half described except for D-shaped piece, which has different beading pattern, along outside rim of the D piece: 22 black, 56 blue, 2 white, 2 blue, 2 white, 44 blue (1 row with only 2 beads and a few rows missing), 2 white, 2 blue, 2 white, 32 blue (1 row with only 2 beads and rest missing). Circle pattern in center basically same as that for other side. Attached on this half of crupper to triangular buckskin portion: 10.5 cm down from top is strip of buckskin folded in half and self-fringed on ends (3 sides). Ornamented with pieces of red and blue wool, with buckskin strip running through their centers and sewn onto buckskin with cotton thread. Piece of buckskin sewn onto main piece with sinew: 10.5 cm long (not including fringe)  $\times$  1.5 cm wide. Fringe length: 0.6 cm on ends and 3 cm on sides.

Two pieces of crupper held together by 2 buckskin straps; one strap is one piece of folded over buckskin, while other appears to have been either folded over and slit or made from two pieces of buckskin.

#### SADDLE BAGS

##### *Seuvarits Ute*

*USNM 10793* (Figure 77): Saddle bag; rawhide, ornamented with fringe and green, yellow, black, blue, and red coloring painted on in design. Made from single piece of rawhide, folded in middle, and stitched with buckskin thongs on sides. Each seam has two buckskin fringe strips inserted in it. Top of flap with two holes for securing to front side,

which has buckskin tie string attached. Back side has a thong carrying strap tied through holes on either end of flap. A slash in the back is repaired with buckskin thong and sinew stitching. Width: 26 cm; depth: 25 cm; flap: 8.5 cm; fringe: 61–70 cm; carrying strap: 80 cm. Listed as Seuvarits Ute in Powell (1878) catalog.

##### *Uintah Ute*

*USNM 17222* (Figure 78*b*; cf. Mason 1889*c*, fig. 25): Saddle bag; rawhide bag ornamented with designs painted on in red, green, black, blue, and yellow colors. Edging on top flap of red flannel laced on with buckskin thong, which also laces on buckskin fringe. Sides are bordered with red flannel laced on with buckskin thong. Long buckskin thongs are passed through each side and serve to bind seams. Thong carrying strap passed through pouch at each end. Width: 23 cm; depth: 16.5 cm; flap: 4.5 cm; fringe: (top) 1.5–2 cm, (sides) 29–34 cm; carrying strap: 49 cm.

##### *Wind River Shoshoni*

*USNM 27826* (Figure 80*b-d*): Saddle bag; rawhide saddle bag, lined with red flannel cloth and decorated with fringe and painted design. Main piece of rawhide is covered on one side with red flannel which is laced to rawhide with buckskin thong; then unit is brought around and laced up seam with buckskin thong. A bottom piece is laced with thong to bottom edge of main piece and a lid is tied to top edge with buckskin lace, being capable of closing over top with three other sets of two thongs each placed around circumference of main piece. A small finished leather pouch decorated with white beads and a brass button is tied to one of the latter thongs. A heavy tie thong passes through rawhide container and the two parts depend. Down the length of the seam and around bottom circumference, large buckskin thongs are attached. Design painted around the specimen is in blue, yellow, and red coloring. The form is the maker's version of some standard or guide-on emblem. It depicts an eagle with a banner and a stylized attempt to copy the words "*E Pluribus Unum*," two American flags, a shield and a wagon, cannon, or wagon wheel. Length: 49 cm; diameter: 14 cm; fringe: 28–60 cm long  $\times$   $\approx$  1 cm wide;

tie thongs: 42 cm long  $\times$  1.7 cm wide; leather pouch: 5.2 cm long  $\times$  5.7 cm wide; white beads: 0.3–0.35  $\times$  0.25–0.3 cm; brass button: 0.9 cm diameter.

### Clay Figurines

*USNM 11297* (Figure 82): There are sixteen unfired clay figurines in the collection, listed by Powell as "toys; baked [sic], clay images." Fourteen of the figurines are anthropomorphic with short limbs and pinched, featureless heads. These figures range from 6.3 to 16.3 cm long and 2.8 to 4.5 cm wide. Some are decorated with fingernail impressions; others with rows of circular perforations. Figure 82 *a, h, i, m* have bands of red ocher stain painted down the sides of the heads and onto the shoulders. Figure 82 *b, m, n* appear to be covered with a slip of darker clay. Figure 82 *m* has a 6-cm-wide band of commercial tweed-weave cloth tied around the body and secured by a strip of blue denim.

The other two figurines are of a bison (Figure 68*d*) and a horse (not illustrated) with a Mexican-style saddle. The bison figure is headless, measuring 7 cm long and 4.8 cm high. The horse figure is 9 cm long, 7.5 cm high, and has a commercial purple string for a bridle. Provenience: The anthropomorphic figures are apparently Kaibab Southern Paiute; the horse and bison figures are probably Uintah Ute.

Kelly (1964:119, pl. 4*h–j*) describes and illustrates unfired "clay dolls" of essentially the same form as the Powell specimens. Drucker (1941:109) reports for the Shivwits Southern Paiute that both human- and animal-form unfired clay dolls or figurines were made by children. Similarly, Stewart (1942:273) reports the manufacture of "unbaked-clay effigies for children." Stewart's (1941:243) data indicate that similar figures were widely made throughout the Great Basin Numic area.

### Miscellaneous Articles

*USNM 11302* (Figure 45*d*): Stone mortar. Carved from fine-grained granite with lug handles. Unidentified yellow substance on interior of bowl. Height: 11 cm; maximum outside diameter: 13.3 cm; maximum inside diameter: 8.5 cm; depth: 6–8 cm. Provenience: Uncertain, possibly Uintah Ute. Simi-

lar to Western Shoshoni specimens (Steward, 1941, fig. 5*a–e*).

*USNM 11304*: Full grooved maul. Made of unidentified stone. Grooved around circumference for hafting. Height: 10.5 cm; width: 5.4–7.1 cm; thickness: 3.6 cm; groove width: 2.5 cm. Possibly a "recycled" archeological implement. Provenience: Southern Paiute Southern Utah.

*USNM 12019* (Figure 64*c*): Fiber brush. Listed as "hairbrush" by Powell (1873). Bundle of broom straws cut straight across both ends and bound with thick sinew bands and rawhide thong at one end. Possibly straws were salvaged from a broom discarded by whites. Length: 35 cm; diameter of bundle: 6–11 cm; binding: 5 cm wide. Provenience: Kaibab Southern Paiute.

*USNM 14438* (Figure 68*e*): Hair brush. Consists of two bundles of unidentified stiff fibers. Internal bundle is bound with 3-cm-wide band of sinew; external bundle wrapped around internal bundle and bound with 3-cm-wide sinew band. Length: 20–22 cm; diameter: 3.5–7.0 cm. Provenience: Shivwits Southern Paiute.

*USNM 14606* (Figure 68*f*): Rabbit hook. Wooden handle curved at top end and split for insertion of iron nail. Nail bound in place by three strands of bark fiber and cemented with resin. Handle: (length) 75 cm, (diameter) 1.2 cm; nail length: 4.5 cm. Provenience: Southern Paiutes, Southern Utah. Similar hooks are held by man in Figure 81.

*USNM 14785* (Figure 45*c*): Small grayware olla. Of type known archeologically in the southern Great Basin as North Creek Gray (Colton, 1952:5). Uneven, blurred red pigment lines running down sides of vessel from neck. Circular, striated sherd plug over neck, held in place with pitch. Maximum diameter: 14.2 cm; mouth diameter: 5.6 cm; height: 13.3 cm. Provenience: Moapa Southern Paiute.

The vessel is apparently an archeological specimen which the Paiutes had found or dug up and then added the red pigment decoration and plug. North Creek Gray is a pottery ware commonly found in Pueblo II-III archeological sites in Moapa Southern Paiute territory and adjacent areas (Colton, 1952:5). Stewart (1942:341) reports that the Antarianunts Southern Paiute in the Henry Mountains area of Utah used, "pots found in caves and old stone houses . . . for carrying water and for cooking." Apparently the reference here is to Fremont sites in the area (Morss, 1931; Gunnerson,

1969). Some instances of the co-occurrence of "Shoshonean" and Puebloan pottery in Great Basin archeological sites may be due to this type of re-use by Numic peoples.

*USNM 14850*: Unfinished knife sheath. Made of

bison tail, hair removed except at tip. Rawhide tail skin filled with grass; grass stuffing may have been used to hold shape of sheath while it dried. Length: 72 cm; diameter: 1.5–4.2 cm. *Provenience*: Probably Uintah Ute.

## Conclusions

The foregoing descriptions of Numa tools, implements, and manufacturing processes furthers our understanding of several areas of Numa culture, especially that of the several Southern Paiute bands of Arizona, Utah, and Nevada. The principal area is that of technology and manufacturing. There are no previously published, detailed studies of Numa material culture, such as have been made for other North American culture areas or tribes (cf. the bibliography in Driver and Massey, 1957, for sources). Other descriptions of Numa material culture are scattered in general ethnographic studies made long after the "old ways" had generally been abandoned for the exigencies of reservation life or are compilations from ethnohistoric sources. The latter are useful in indicating the presence or absence of material culture items, but rarely tell us much about the details of manufacture or use.

A second area is that of culture change. For some of the Southern Numic groups we have a record of two hundred years of culture contact and culture change. Escalante's diary (Bolton, editor, 1950) provides us with glimpses of several Ute and Southern Paiute groups (and indirectly at least one Shoshoni group) in 1776. Further glimpses are afforded by traders' and trappers' journals and diaries after *ca.* 1812 (Cline, 1963; Euler, 1966; Malouf, 1966) and the numerous documents derived from the Mormon settlements in the Great Basin after 1847 (Euler, 1966; C. Fowler and D. Fowler, 1971). Powell conducted his studies between 1868 and 1873 (Fowler and Fowler, editors, 1971); Sapir interviewed Tony Tillohash in 1910; Lowie stopped at various reservations and colonies between 1910–1920 (Lowie, 1924); Kelly (1964), Steward (1943) and Stewart (1942) did their field work in the 1930s, and Catherine Fowler worked with Tony Tillohash in the early and middle 1960s (Fowler and Fowler, editors, 1971:133). We thus have nearly two centuries of information, albeit scattered and sometimes conflicting, on Southern Numic cultures and culture change.

By 1776 the Ute groups of eastern Utah and western Colorado, as well as the Shoshoni groups to the north, were being established as horse-using, bison hunters, participating to varying degrees in the rapid development of "Plains Indian culture," which reached its peak on the High Plains and in the adjacent Rocky Mountains in the 19th century (Lowie, 1954; Oliver, 1962). But for ecological (Steward, 1938) and cultural reasons, including the impact of slave raiding (p. 6), the linguistic relatives of the Ute and Eastern Shoshoni, respectively, did not become horse-using, "Plains-like" peoples. Rather, they continued in pursuit of the older, pre-horse lifeways until after the 1840s when the incursions of Mormon settlers and Anglo ranchers and miners forced rapid changes in their cultures and societies (C. Fowler and D. Fowler, 1971; Gould, Fowler, and Fowler, 1972:269–270; Stewart, 1958, *passim*).

The 25-year period from 1847 to 1873 was one of increasing contacts not only with Mormons and Anglos but also with Utes and Navajos.

The Gosiute and some Western Shoshoni developed mounted raiding bands after 1850, often under Ute leadership (C. Fowler and D. Fowler, 1971:108). But the raids, including the so-called "Goshute War," were short-lived and were essentially over by 1865 (Allen and Warner, 1971:164–167).

The various Southern Paiute bands had a somewhat different history of contact with Whites. The Las Vegas, Moapa, and, to an extent, Shivwits bands occupied lands crossed by the Old Spanish Trail and hence had some contact with Spanish, Utes, Navajos, Anglos, and Mormons from at least the 1810–1820, if not earlier (Euler, 1966). The Mormons established missions to the Indians on the Santa Clara River in Utah and at Las Vegas in Nevada in the 1850s, although the latter mission was short-lived (Jensen, editor, 1926). Shivwits, Uinkarets, Kaibab, all Southern Paiute bands, as well as some "Red Lake Utes," occupied areas not penetrated by Whites in some cases until the 1860s

and even the early 1870s (Fowler, editor, 1972:121; Gregory, editor, 1939:84).

Although the various Southern Paiute bands committed occasional "depredations," that is, "shared" the Mormons' crops and Mormons' and Anglos' livestock, there were no horse-mounted raiding bands even on the modest scale of the "Goshute War" of the early 1860s along the Utah-Nevada border.

As Kelly (1964:86) notes, after the Southern Paiute groups obtained the horse, their contacts with the Ute bands to the north and northeast intensified. This is reflected in the Powell collection of horse gear from various Southern Paiute bands, but which is probably of Ute manufacture. Trade with the Utes may also be reflected in the few guns possessed by the Kaibab Southern Paiute during 1871-1873. The quotation from Dellenbaugh (p. 10) and the gun shown in one of Hillers' photographs (Steward, 1939, pl. 20b), suggest the old style Indian trade guns described by Russell (1967:64-75). The suggestion here is that the Ute may have obtained such guns and later passed them on to the Paiute. Kelly (1964:90) reports instances of Kaibab Southern Paiute trading buckskins for horses, guns, and knives from the Ute.

The trend toward "Northern Plains" style buckskin clothing among the Southern Paiute probably also reflects Ute influence. As we suggested in the clothing section (page 29) it may have been the acquisition of horses and guns which permitted the collection of the relatively larger numbers of deer needed to provide the requisite buckskins for such clothing. On the other hand, we don't know how much of the buckskin clothing Powell collected was "made to order" for him and how much was in actual use by the people. Both Sapir (1910:13) and Kelly (1964:62) suggest that fringed buckskin garments were never all that common, at least among the Kaibab Paiute.

Kelly (1964:87) suggests extensive trade between the Southern Paiute and the Navajo, but this trade is not well reflected in the Powell collection and may have occurred primarily after 1873.

The Powell collection also reflects another common aspect of the early stages of culture contact situations: the adaptation of new materials to existing patterns. We refer here specifically to the use of glass and iron nails for arrow points by the South-

ern Paiute. Powell (1895:62) also hints at an obverse process, adapting existing materials to new patterns, i.e., his possibly incorrect suggestion that ground-length Ute buckskin dresses were copies of White dresses.

In providing data for the various areas of culture change, tracing trade relationships, etc., the principal value of the Powell collection is its "timeliness." Despite accretions from Ute, and possibly Navajo, as well as Mormon and Anglo cultures, the Southern Paiute cultures were still functioning entities in 1870, especially the relatively remote groups of the Arizona Strip region, the Shivwits, Uinkarets, Kaibab. In terms of observing aboriginal subsistence and technological patterns, and collecting and documenting the related tools and implements, Powell arrived at the "right time." Powell's field notes, and his work based on them (Powell, 1875, 1895a), reflect a still viable culture in contact with others. By 1880, in less than 10 years, the situation had changed dramatically, as a letter from Jacob Hamblin to Powell (Fowler and Fowler, editors, 1971:22) makes clear. By 1880 ranching had extended over the entire Arizona Strip area; the seed resources were destroyed by livestock, and the Southern Paiute, as had other Numic groups before them, were forced to largely abandon their traditional subsistence patterns. As elsewhere in the Great Basin, the Southern Paiute clustered on the edges of White settlements, where, in some instances, their descendants remain a century later, or were later moved to reservations.

Finally, the present study puts on record the last major unpublished segment of the anthropological field work that John Wesley Powell undertook during his years in the West. These studies had far-reaching effects for the Smithsonian Institution and for the discipline of anthropology. Powell's interest in American Indian studies was quickened by his contacts with the Numa peoples in the 1860s and 1870s. In the years to follow, Powell's interest burgeoned to include all of North America and was a central factor underlying his efforts to develop the Bureau of American Ethnology of the Smithsonian Institution, an agency he dedicated to "organizing anthropological research in America" (Powell, 1881:xxxiii). In 1964, it was merged into the present Department of Anthropology of the National Museum of Natural History.

# Appendix

## Table 1

Dimensions, construction materials and techniques, and decorative forms of arrows in the Powell collection itemized according to provenience and USNM catalog numbers

*Column 1:* Material from which arrow shaft was manufactured; H = hardwood, P = reed-cane, *Phragmites* sp.

*Column 2:* Dimensions of arrow shaft, length × diameter, in mm.

*Column 3:* Length of shaftment, in mm.

*Column 4:* Nock forms, U = U-shaped; V = V-shaped; N = nock missing; S = shallow groove; c = cylindrical; e = expanded; s = spread.

*Column 5:* Foreshaft dimensions, length × diameter, in mm; dash indicates specimen made without foreshaft.

*Column 6:* Materials and forms of arrowheads; B = brass rod, pointed; G = greenish bottle glass; I = iron, trade arrowheads, or made from barrel hoops; S = stone, i.e., siliceous chert or chalcedony, obsidian; a = asymmetrical, triangular form, straight base; b = arrowhead broken, no dimensions taken; c = small, isosceles triangular form, straight sides (some slightly incurvate), straight to slightly convex bases, bifacially flaked; d = Desert Side-notched types and variants; n = larger triangular form, sinuous sides, concave bases; t = small triangular forms, straight to slightly convex bases, side notches; x = triangular iron head, e.g., Figure 51a; z = diamond-shaped iron head, e.g., Figure 51b.

*Column 7:* Dimensions of arrowheads, length × maximum width × maximum thickness for stone and glass specimens, length from seizing to tip of blade × maximum width for iron and brass specimens, tang inside shaft not included, iron specimens 3–5 mm thick.

*Column 8:* Design elements on arrow shaft as in Figure 50.

*Column 9:* Design elements on shaftment as in Figure 50.

*Column 10:* Figure numbers of illustrated specimens.

USNM	1	2	3	4	5	6	7	8	9	10
	KAIBAB SOUTHERN PAIUTE (KSP)									
10792/1	H	550 × 7	170	Vc	–	B	58 × 3	1	–	–
2	P	655 × 8	140	Uc	110 × 7	Ix	32 × 14	–	–	–
3	H	525 × 7	205	Ve	–	Ix	96 × 13	2	19	–
4	H	520 × 7	200	Ve	–	Iz	109 × 15	3	–	–
5	H	515 × 7	220	Ve	–	Ix	115 × 16	3	19	–
6	H	525 × 7	185	Ue	–	Ix	65 × 17	1	16	–
7	H	525 × 6	220	Ue	–	Ix	79 × 18	–	16	–
8	H	520 × 6	210	Ve	–	Ix	55 × 15	4	–	–
11219/1	H	597 × 7	253	Ve	–	Ix	60 × 16	1	20	–
2	H	595 × 8	255	Ve	–	Iz	83 × 15	1	20	–
3	H	595 × 7	186	Ue	–	Ix	47 × 15	4	1	–
4	H	600 × 17	190	N	–	Ix	–	1	16	–
5	H	555 × 8	292	Vs	–	Iz	85 × 16	1	21	–
6	H	590 × 8	285	Ve	–	Ix	85 × 16	1	21	–
7	H	615 × 7	255	Ve	–	Ix	77 × 15	1	21	–

TABLE 1.—Continued

USNM	1	2	3	4	5	6	7	8	9	10
8	H	565 × 7	190	Ue	—	Ix	45 × 15	4	—	—
9	H	600 × 7	280	Ve	—	Iz	72 × 16	1	21	—
10	H	530 × 8	210	Ue	—	Ix	65 × 17	5	—	—
11	H	585 × 7	180	Ue	—	Ix	28 + × 13	6	22	—
12	H	562 × 7	180	Vs	—	Iz	60 × 16	5	—	—
12041/1	H	564 × 7	175	Ue	—	Sd	31 × 15 × 3	7	—	52y
2	P	510 × 9	170	Vc	145 × 7	Sd	23 × 14 × 3	—	—	52z
3	H	580 × 7	250	Ve	—	Sd	36 × 15 × 3	—	15	52aa
4	H	570 × 7	200	Vc	—	—	—	4	15	—
5	H	580 × 6	220	Ue	—	Sd	21 × 14 × 3	4	15	52bb
6	H	632 × 7	210	Ue	—	—	—	4	15	—
12045/1	H	579 × 7	205	Ue	—	Sd	23 × 13 × 2	2	15	53a
2	P	515 × 7	175	Uc	190 × 7	Sc	22 × 13 × 4	—	—	53b
3	H	577 × 6	225	Ue	—	St	21 × 13 × 3	2	15	53c
4	P	575 × 7	175	Ue	135 × 6	—	—	—	—	—
5	H	580 × 7	203	Ue	—	Sd	21 × 11 × 2	7	16	53d
6	H	520 × 7	175	Uc	—	—	—	1	16	—
7	H	550 × 7	245	Vc	—	St	30 × 20 × 3	—	—	53e
8	H	550 × 6	195	Vc	—	Sc	26 × 15 × 3	3	14	53f
14483/1	H	550 × 7	190	Ue	—	Ix	45 × 15	—	—	54a
2	H	552 × 8	195	Ue	—	Ix	45 × 15	—	—	54b
3	H	540 × 7	190	Ue	—	Iz	45 × 15	—	—	54c
14538/1	P	655 × 9	195	Uc	90 × 7	—	—	—	—	—
2	H	805 × 7	165	Uc	—	Sc	18 × 12 × 2	—	5	52q
3	H	835 × 7	170	Uc	—	Sc	26 × 13 × 4	—	—	52r
4	H	810 × 7	170	Uc	—	—	—	—	5	—
5	H	870 × 7	175	Uc	—	—	—	1	15	—
6	H	810 × 7	170	N	—	—	—	—	—	—
MOAPA SOUTHERN PAIUTE (MSP)										
14532/1	H	610 × 7	250	Ue	—	Ix	57 × 16	1	15	—
2	H	565 × 7	228	Ue	—	Ix	52 × 15	3	19	—
3	H	565 × 7	210	Ve	—	Ix	56 × 18	2	—	—
4	H	600 × 8	230	Ue	—	Ix	40 × 15	7	23	—
5	H	595 × 7	210	Ve	—	Iz	56 × 14	1	14	—
6	H	590 × 7	200	Vc	—	Ix	41 × 15	7	12	—
7	H	595 × 8	275	Ve	—	Ix	61 × 15	1	20	—
8	H	590 × 6	210	Ue	—	Ix	50 × 14	1	12	—
9	H	565 × 6	190	Ue	—	Ix	50 × 20	1	16	—
10	H	560 × 6	215	Ve	—	Ix	45 × 15	—	15	—
11	H	565 × 7	210	Ve	—	Ix	40 × 15	5	17	—
14536/1	P	630 × 9	180	Uc	220 × 7	Sc	29 × 11 × 5	—	—	52p
2	P	660 × 9	185	Uc	190 × 7	—	—	—	—	—
14537/1	H	613 × 7	170	Vs	—	—	—	1	17	—
2	P	645 × 10	190	Uc	135 × 6	Sn	36 × 17 × 6	1	—	53k
3	H	595 × 6	210	Vc	—	St	21 × 14 × 2	1	19	51i/53l
4	H	630 × 6	235	Vs	—	St	32 × 12 × 4	1	24	51j/53m
5	H	592 × 6	210	Uc	—	Sn	31 × 17 × 6	1	—	51k/53n
6	H	515 × 7	170	Ve	—	Iz	48 × 15	2	1	51b
7	H	620 × 7	255	Ve	—	—	—	1	19	—
8	H	618 × 7	187	Ve	—	—	—	—	—	—
14539/1	P	715 × 8	170	Uc	200 × 7	Sc	29 × 11 × 4	—	1	53o
2	P	710 × 8	170	Uc	220 × 6	—	—	—	1	—

TABLE 1.—Continued

USNM		1	2	3	4	5	6	7	8	9	10
3	P	735 × 9	180	Uc	195 × 7	-	-	-	-	3	-
4	P	736 × 9	170	Uc	190 × 7	-	-	-	-	3	-
5	P	715 × 8	170	Uc	175 × 6	Sc	19 × 11 × 4	-	-	3	53p
6	P	715 × 9	175	Uc	200 × 6	Sc	27 × 12 × 5	-	-	3	53q
7	P	715 × 9	175	Uc	210 × 7	Sc	26 × 12 × 4	-	-	3	53r
8	P	730 × 9	155	Uc	215 × 7	-	-	-	-	3	-
9	P	730 × 10	155	Uc	215 × 6	Sc	23 × 13 × 4	-	-	3	53s
10	P	725 × 8	160	Uc	-	-	-	-	-	1	-
11	P	715 × 8	150	Uc	245 × 6	-	-	-	-	1	-
12	P	735 × 9	155	Uc	-	-	-	-	-	1	-
13	P	725 × 8	160	Uc	-	-	-	-	-	1	-
14540/1	P	490 × 8	190	Uc	210 × 7	Sc	28 × 12 × 3	-	-	-	51c
2	P	680 × 10	180	Uc	205 × 6	St	27 × 12 × 3	-	-	19	51d
3	P	650 × 9	160	Uc	200 × 7	-	-	-	-	11	-
4	P	610 × 8	160	Ue	240 × 6	-	-	-	-	19	-
5	P	735 × 10	207	Uc	172 × 7	Sa	35 × 21 × 7	-	-	-	51e
6	P	550 × 8	175	Uc	110 × 7	-	-	-	-	-	-
7	P	560 × 7	215	Uc	255 × 7	Sd	27 × 13 × 4	1	1	1	51f
8	P	515 × 8	183	Uc	180 × 7	-	-	-	-	-	-
14609/1	H	673 × 7	121	Ue	-	Sc	29 × 13 × 4	-	-	15	-
2	P	675 × 7	130	Ue	-	Sc	21 × 12 × 3	-	-	1/6	-
3	H	654 × 7	126	Ue	-	Sc	24 × 10 × 3	-	-	3/6	-
4	H	785 × 4	200	Uc	-	Sb	-	-	-	3/6	-
5	H	685 × 7	125	Uc	-	Sd	24 × 13 × 4	-	-	5	-
6	H	682 × 7	132	Uc	-	Sc	19 × 14 × 4	-	-	33	-
7	H	685 × 6	125	Vc	-	Sb	-	-	-	5/15	-
8	H	635 × 6	146	Uc	-	Sc	25 × 12 × 3	-	-	15	-
9	H	680 × 7	130	Ue	-	-	-	-	-	5/15	-
10	H	648 × 7	140	Uc	-	-	-	-	-	25	-
11	H	640 × 6	140	Uc	-	-	-	-	-	25	-
14610/1	P	580 × 9	200	Uc	185 × 7	Sc	26 × 15 × 3	-	-	10	-
2	P	670 × 9	195	Uc	135 × 6	Sc	24 × 12 × 4	2	3	-	-
3	P	620 × 9	150	Uc	165 × 7	-	-	-	-	3	-
4	P	590 × 8	170	Uc	160 × 7	Sc	28 × 14 × 4	-	-	-	-
5	P	575 × 7	165	Uc	150 × 6	Sc	23 × 15 × 5	-	-	-	-
6	P	745 × 9	190	Uc	175 × 7	Sc	35 × 15 × 5	-	-	14	-
7	P	700 × 10	245	Uc	190 × 7	-	-	-	-	26	-
8	P	680 × 9	235	Uc	225 × 6	Sc	17 × 10 × 3	-	-	26	-
14611/1	P	575 × 7	160	Uc	150 × 6	St	23 × 10 × 4	-	-	-	-
2	P	610 × 9	170	Ue	210 × 6	Sd	25 × 12 × 4	-	-	-	-
3	P	570 × 7	160	Uc	155 × 6	Sd	29 × 14 × 4	-	-	-	-
4	P	550 × 8	165	Uc	200 × 7	Sc	29 × 15 × 3	7	-	-	-
5	P	570 × 8	170	Uc	150 × 6	Sd	24 × 12 × 2	-	-	-	-
6	P	570 × 7	171	Uc	165 × 6	-	-	-	-	-	-
7	P	570 × 7	160	Uc	150 × 6	-	-	-	-	-	-
SOUTHERN PAIUTE, SOUTHERN UTAH (SPSU)											
11220/1	P	495 × 7	170	Vc	155 × 7	Sb	-	-	-	14	52a
2	P	472 × 8	181	Ue	172 × 6	Sd	29 × 16 × 5	-	-	14	52b
3	P	510 × 8	180	Uc	146 × 6	Sd	27 × 17 × 3	-	-	-	52c
11230/1	P	510 × 9	181	Ue	145 × 6	Sd	23 × 15 × 3	-	-	-	52d
12027/1	P	495 × 8	150	Uc	170 × 7	Sd	41 × 18 × 4	-	-	15	52s
2	P	535 × 9	180	Ve	155 × 6	Sd	33 × 18 × 5	-	-	-	52t

TABLE 1.—Continued

USNM	1	2	3	4	5	6	7	8	9	10
3	P	532 × 9	198	V	164 × 7	St	31 × 14 × 3	—	—	52u
4	H	665 × 7	220	Ue	—	St	26 × 12 × 4	4	—	52v
5	H	509 × 7	170	Ve	—	Sd	20 × 15 × 3	—	18	52w
6	H	680 × 7	160	Ve	—	Sd	25 × 15 × 2	—	27	52x
7	H	808 × 7	137	Ue	—	—	—	—	14	—
8	H	550 × 7	175	Ue	—	—	—	—	—	—
12036/1	P	510 × 9	185	Ve	155 × 7	Sd	24 × 13 × 3	—	—	52j
2	H	815 × 6	143	Ue	—	Sd	23 × 13 × 4	—	14	52k
3	P	515 × 7	175	Uc	160 × 6	Sd	27 × 13 × 4	—	4	52l
4	P	710 × 8	183	Ve	193 × 7	Sd	28 × 14 × 4	—	—	52m
5	H	605 × 7	190	Ue	—	Sd	30 × 16 × 4	1	16	52n
6	H	680 × 8	190	Ue	—	Sd	25 × 15 × 3	1	15	52o
7	H	680 × 7	160	Ue	—	Sd	23 × 15 × 4	—	18	—
8	H	575 × 7	200	Ve	—	Sd	34 × 17 × 4	1	14	—
14534/1	H	575 × 7	220	Uc	—	St	30 × 15 × 5	2	15	53g
2	H	595 × 7	195	Ve	—	St	33 × 18 × 4	2	14	53h
3	H	593 × 6	180	Ve	—	—	—	2	14	—
4	H	560 × 7	250	Ue	—	Sc	25 × 16 × 5	1	14	53i
5	P	505 × 9	200	S	170 × 7	Sd	28 × 16 × 3	—	14	53j
14612/1	P	665 × 9	205	Uc	180 × 7	Sc	26 × 11 × 3	—	13	53t
2	P	510 × 9	200	Uc	200 × 5	Sd	33 × 16 × 5	—	—	53u
3	P	610 × 8	120	Uc	188 × 6	Sc	20 × 13 × 4	1	31	53cc
4	P	600 × 8	150	Uc	150 × 7	Sc	24 × 11 × 4	—	7	53v
5	P	700 × 8	162	Uc	135 × 7	Gc	14 × 11 × 3	—	15	53w
6	P	670 × 9	185	Uc	155 × 7	Sc	17 × 10 × 2	—	—	53x
7	P	688 × 9	230	Uc	204 × 6	Sc	25 × 11 × 4	—	32	53y
8	P	650 × 9	140	Uc	160 × 7	—	—	—	8	—
9	P	680 × 9	270	Uc	200 × 6	—	—	—	8	—
10	P	570 × 8	180	Uc	168 × 7	Sc	24 × 14 × 2	—	—	53z
11	P	571 × 8	160	Uc	160 × 7	—	—	—	—	—
12	P	590 × 8	100	Uc	140 × 6	Sc	22 × 10 × 2	—	9	53aa
13	P	595 × 8	105	Uc	145 × 6	Sc	19 × 9 × 2	—	9	53bb
14	P	625 × 8	145	Uc	155 × 6	Sd	20 × 12 × 3	—	9	—
BEAR LAKE SHOSHONI (BLS)										
11199/1	H	515 × 7	230	Ve	—	Ix	55 × 11	1	—	51a
2	H	540 × 7	275	Ve	—	Ix	50 × 16	4	16	—
DEEP CREEK GOSIUTE (DCG)										
12033/1	H	570 × 7	195	Vc	—	Sd	31 × 18 × 5	2	14	—
2	H	585 × 6	205	Ve	—	Sd	25 × 15 × 4	5	16	52e
3	H	640 × 7	220	Ue	—	Sc	23 × 12 × 3	4	16	52f
4	H	680 × 7	165	Vc	—	St	23 × 18 × 4	—	17	—
5	H	670 × 7	190	Ue	—	Sd	27 × 15 × 3	2	25	51g/52h
6	H	675 × 7	185	Ue	—	Sd	24 × 13 × 3	4	25	51h/52i
14533/1	P	535 × 8	185	Ve	160 × 6	Sd	25 × 12 × 3	—	—	—
2	P	500+ × 8	145+	N	175 × 6	Sd	24 × 13 × 4	—	—	—
3	P	650 × 9	175	Uc	135 × 7	—	—	—	—	—
4	P	500 × 9	170	Vc	180 × 6	Sd	20 × 12 × 4	—	—	—
14608/1	H	635 × 7	142	Ue	—	Sc	—	—	28	—
2	H	680 × 7	130	Uc	—	Sb	—	—	29	—
3	H	675 × 7	125	Uc	—	Sc	25 × 12 × 3	—	29	—

TABLE 1.—Continued

USNM	1	2	3	4	5	6	7	8	9	10
4	H	839 × 7	151	Uc	-	Sc	27 × 12 × 4	-	14	-
5	H	680 × 7	145	Uc	-	-	-	-	29	-
6	H	820 × 7	145	Uc	-	-	-	-	29	-
7	H	639 × 7	144	Uc	-	Sc	19 × 12 × 3	-	25	-
8	H	670 × 7	120	Uc	-	Sb	-	-	29	-
9	H	630 × 6	120	Uc	-	-	-	-	30	-
10	H	642 × 6	142	Uc	-	Sd	19 × 10 × 3	-	25	-

Table 2

Provenience of all USNM cataloged objects in the Powell Collection  
(except arrows)

USNM	Object	Tribe or band	Figure
10739	bow	KSP	—
10745	wooden ladle	KSP	—
10746	wooden ladle	KSP	—
10747	wooden tray	KSP	71 <i>b</i>
10751/1	basket	WRU	6 <i>f</i>
10751/2	berry basket	WRU	7 <i>c</i>
10752	berry basket	WRU	7 <i>a</i>
10757	water jug	DCG	6 <i>d</i>
10758	water jug	SPSU	Mason, 1904, pl. 32-1
10759	water jug	WRU	5 <i>b</i>
10760	water jug	SPSU	Mason, 1904, pl. 32-2
10765	water jug	WRU	6 <i>b</i>
10770	seed basket	MSP	14 <i>f</i>
10773/1	bullroarer whirrers	KSP(?)	62 <i>a</i>
10773/2-3	rasps	WRS	62 <i>b</i>
10778	man's moccasins	UU	28
10780	woman's moccasins	UU	—
10782	tobacco pouch	UCT	64 <i>d</i>
10786/2	rawhide pouch	UCT	—
10793	saddle bag	SU	77
10794	man's shirt	UCT	—
10797	cradleboard	UCT	48
10798	man's shirt	UU	33
10799	woman's dress	KSP	19 <i>b</i>
10801	buckskin leggings	UCT	—
10802	buckskin legging	UU	—
10807	wooden ladle	UCT	—
10808	horn spoon	UCT	—
10809	horn spoon	UCT	—
11035	woman's saddle	SU	75
11036	woman's saddle	SU	—
11068	beaded headband	UU	43
11200	man's tunic	KSP	—
11201	woman's dress	SSP	—
11203	lariat	UU	—
11206	lariat	UU	—
11217	bark playing cards	SPSU	61
11218	sticks	SSP	—
11219	bow	KSP	49 <i>a</i>
11226	scraper [missing from collection]	GCS	Mason, 1891 <i>a</i> , pl. 92-1
11228	horn spoon	MSP	—
11229	horn spoon	KSP	—
11230	horn spoon	KSP	—
11231	horn spoon	KSP	—
11225	cradleboard	MSP	47 <i>a</i>
11232	wooden ladle	KSP	71 <i>c</i>
11233	wooden bowl	KSP	68 <i>h</i>
11239	cradle swaddling	MSP	—
11244	small net	MSP	16

TABLE 2.—Continued

USNM	Object	Tribe or band	Figure
11247	rabbit net	MSP	—
11249	water jug	KSP	6a
11250	water jug	KSP	6c
11254	water jug	DCG	5c
11261	water jug	KSP	6e
11262	basketry jar	SPSU	Mason, 1904, figs. 187, 188
11276	basketry bowl	USP	8d
11295	birdbone bracelet	KSP	—
11297	toy bison	UU(?)	68d
11297	clay figurines	SPSU	81
11301	stone pipe	KSP	65a
11302	stone mortar	UU(?)	45d
11304	maul	(?)	—
11806/1	seed basket	SPSU	13a
11806/2	seed basket	SPSU	13b
11808	seed basket	SPSU	13c
11811	seed basket	SPSU	13d
11812	seed basket	MSP	13e
11814	seed basket	USP	13f
11817	seed fan	USP	1a
11819	seed fan	SPSU	—
11820	seed fan	MSP	1b
11821	seed fan	USP	1c
11822	seed fan	SPSU	Mason, 1904, fig. 181
11823	seed fan	USP	Mason, 1885, pl. 23, 1904, fig. 180
11824	seed fan	KSP	—
11825	seed fan	SSP	1d
11826	seed fan	SPSU	1e
11829/1	basketry hat	SPSU	8c
11831	basketry hat	USP	8f
11834	basketry hat	SPSU	9e
11837	basketry hat	SPSU	9d
11838	basketry hat	SPSU	Mason, 1904, fig. 179
11842	basketry hat	SPSU	—
11843	basketry hat	GCS	—
11844	basketry tray	KSP	10g
11848	basketry tray	KSP	11a
11853	winnowing tray	SSP	4a
11856	basketry tray	SSP	10a
11859	basketry bowl	SSP	3c
11860	basketry bowl	SSP	7f
11861	basketry bowl	DCG	8b
11863/1	basketry bowl	DCG	8m
11863/2	basketry bowl	DCG	8p
11865	basketry bowl	SPSU	8a
11866	basketry bowl	USP	11e
11867/1	winnowing tray	USP	3d
11867/2	basketry bowl	USP	8o
11869	basketry bowl	SPSU	11c
11870-A	basketry tray	USP	12a
11870-B	basketry tray	SPSU	12b
11871	basketry tray	KSP	12c

TABLE 2.—Continued

USNM	Object	Tribe or band	Figure
11872	basketry tray	KSP	11 <i>d</i>
11874	water jug	SPSU	4 <i>e</i>
11876	water jug	SPSU	Mason, 1904, pl. 117
11879	water jug	SSP	4 <i>f</i>
11880	water jug	SPSU	Mason, 1904, pl. 32-2
11882	water jug	SPSU	Mason, 1904, pl. 32-7
11887/1	lariat	UU	—
11887/2	lariat	UU	—
11888	lariat	UU	—
11889	stone pipe	KSP	65 <i>c</i>
11892/1	powder horn	SPSU	—
11892/2	powder horn	SPSU	—
11893	powder horn	SPSU	—
11894	horn spoon	USP	—
11895	horn spoon	USP	—
11900	horn spoon	SSP	—
11902	horn spoon	KSP	—
11905	horn spoon	SSP	—
11907	tortoise shell bowl	KSP	71 <i>a</i>
11908	cradle swaddling	KSP	—
11909	cradleboard	MSP	47 <i>b</i>
11912	bow	DCG	—
11913	cradle swaddling	MSP	—
11956	hand-game bones	SSP	59 <i>c</i>
11959	hand-game bones	USP	59 <i>h</i>
11962	hand-game bones	USP	59 <i>d</i>
11963	hand-game bones	USP	59 <i>b</i>
11965	hand-game bones	SPSU	59 <i>g</i>
11968	hand-game bones	DCG	59 <i>a</i>
11970	hand-game bones	KSP	59 <i>e</i>
11975	hand-game bones	MSP	59 <i>f</i>
11976	hearth & drill	KSP	—
11978	hearth & drill	KSP	—
11979	hearth & drill	KSP	—
11984	cane dice	MSP	—
11986	Olivella-shell necklace	KSP	38 <i>c</i>
11991	claw necklace	KSP	—
11992	birdbone necklace	KSP	—
11993	porcupine quill necklace	MSP	44
11996	birdbone necklace	DCG	—
11998	buckskin necklace	SSP	38 <i>d</i>
12003	necklace & bracelet	SSP	—
12004	birdbone necklace	SSP	38 <i>d</i>
12005	birdbone necklace	MSP	—
12010	birdbone necklace	MSP	—
12011	birdbone necklace	MSP	—
12014	human hair braid	UU	—
12015	cap pouch	UU	38 <i>h</i>
12019	fiber brush	KSP	64 <i>c</i>
12025	bow	MSP	—
12034	bow	SSP	—
12035	quiver	MSP	—
12040	bow	KSP	—

TABLE 2.—Continued

USNM	Object	Tribe or band	Figure
12044	bow	KSP	—
12048	bow	KSP	—
12051	rabbit net	SPSU	—
12052	sticks	MSP	—
12053	rabbit net	MSP	—
12054	sticks	MSP	—
12059	net	MSP	—
12064	carrying net	MSP	—
12068	woman's moccasins	SSP	—
14263	cordage	SPSU	—
14307	basketry hat	SPSU	—
14310	basketry hat	MSP	—
14320	basketry hat	MSP	—
14325	seed fan	MSP	—
14329/1-19	hafted stone knives	SPSU	56a-s
14329/20	hafted stone knife	SPSU	—
14330	seed fan	SPSU	—
14331	pipe	KSP	—
14332	stone pipe	KSP	—
14334	stone pipe	KSP	—
14335	stone pipe	KSP	McGuire, 1899, fig. 204
14336	stone pipe	KSP	—
14337	stone pipe blanks	KSP	—
14340	shaft straightener	KSP	—
14341	arrow smoother	SPSU	—
14342	pendant ornaments	SSP	—
14346	arrow-point flaker	SSP	—
14351	woman's "shawl"	UU	—
14352	woman's dress	KSP	30
14354	woman's dress	KSP	—
14356	woman's dress	KSP	—
14358	man's shirt	SSP	—
14359	man's tunic	KSP	—
14360	woman's dress	UU	34
14361	woman's dress	KSP	—
14362	woman's dress	KSP	—
14363	woman's dress	UU	—
14364	man's tunic	KSP	—
14366	woman's dress	KSP	—
14367	woman's dress	UU	—
14368	girl's dress	KSP	31
14369	woman's dress	UU	—
14371	man's shirt	KSP	21
14373	woman's dress	KSP	—
14375	buckskin leggings	SSP	—
14376	buckskin leggings	KSP	22, 23
14378	buckskin leggings	KSP	—
14379	woman's apron	SSP	32b
14380	woman's apron	SSP	—
14381	breechcloth	SSP	32a
14384	man's moccasins	UU	—
14385	man's moccasins	KSP	24
14386	woman's moccasins	KSP	Hatt, 1916, fig. 48

TABLE 2.—Continued

USNM	Object	Tribe or band	Figure
14387	woman's moccasins	KSP	—
14388	man's moccasins	KSP	25
14389	woman's moccasins	SSP	27
14390	man's moccasins	KSP	26
14392	buckskin belt	KSP	32 <i>d</i>
14395	woman's apron	KSP	—
14398	crupper	UU	—
14399	crupper	MSP(?)	78 <i>a</i>
14401	net	SSP	—
14403	net	SPSU	—
14404	net	SSP	—
14405	net	SSP	—
14406	net	SSP	—
14407	net	SSP	—
14408	net	SSP	—
14409	net	SSP	—
14410	net	SSP	—
14411	net	SPSU	—
14412	net	SPSU	—
14413	net	SPSU	—
14414	net	SPSU	—
14415	net	SPSU	—
14416	net	SPSU	—
14417	net	SPSU	—
14419	net	DCG	—
14420	net	DCG	—
14421	net	DCG	—
14424	club	MSP	69 <i>c</i> , 70
14433	cordage fiber	SPSU	—
14438	hair brush	SSP	68 <i>e</i>
14447	club	MSP	69 <i>a</i>
14452	wooden bowl	KSP	71 <i>e</i>
14455	wooden ladle	KSP	71 <i>d</i>
14457	horn spoon	MSP	—
14458	horn spoon	"Paiute"	—
14459	cane dice	MSP	—
14465	tortoise shell bowl	MSP	—
14471	tortoise shell bowl	KSP	—
14472	tortoise shell bowl	KSP	—
14473	tortoise shell bowl	KSP	—
14474	tortoise shell bowl	KSP	—
14475	tortoise shell bowl	KSP	Hough, 1922, pl. 9-3
14477	tortoise shell bowl	DCG	—
14478	tortoise shell bowl	DCG	—
14481	tortoise shell bowl	DCG	—
14482	quiver	KSP	54 <i>d</i> , <i>e</i>
14483/4	quiver	KSP	55 <i>b</i>
14483/5	quiver	KSP	—
14484	quiver	KSP	—
14485	quiver	KSP	—
14486	quiver	UU	—
14488	quiver	SSP	—
14489	quiver	SSP	55 <i>a</i>

TABLE 2.—Continued

USNM	Object	Tribe or band	Figure
14490	quiver	KSP	—
14491	pouch	KSP	38 <i>e</i>
14494	snakeskin necklace	SSP	—
14495	arrow-point flakers	MSP	—
14502	sticks	MSP	—
14504	sticks	SPSU	—
14505	man's tunic	KSP	—
14506	cradle swaddling	KSP	—
14510	bow	SPSU	—
14511	bow	MSP	—
14513	bow	USP	49 <i>e</i>
14514	bow	SPSU	—
14516	bow	USP	—
14518	bow	SPSU	—
14519	bow	USP	—
14520	bow	MSP	49 <i>c</i>
14521	bow	SPSU	49 <i>b</i>
14525	bow	KSP	—
14526	bow	MSP	49 <i>d</i>
14531	wooden sword	SPSU	64 <i>a</i>
14569	tally sticks	SPSU	—
14575	man's headdress	KSP	—
14578	man's headdress	KSP	—
14579	man's headdress	KSP	—
14580	headdress	MSP	—
14581	headdress	KSP	37 <i>a</i>
14582	headdress	MSP	37 <i>c</i> , 39
14583	headdress	MSP	—
14584	headdress	KSP	—
14585	headdress	MSP	—
14586	headdress	MSP	—
14588	man's headdress	KSP	—
14589	feather cluster	KSP	—
14593	headdress	KSP	—
14594	feathered cap	LVSP	38 <i>g</i> , 41
14595	man's cap	LVSP	37 <i>f</i> , 42
14597	feathered cap	MSP	37 <i>d</i> , 38 <i>f</i> , 40
14601	man's cap	MSP	37 <i>e</i> , 40
14602	man's cap	LVSP	37 <i>b</i> , 41
14606	rabbit hook	SPSU	68 <i>f</i>
14614	hair ornament	MSP	68 <i>g</i>
14622	birdbone necklace	SSP	38 <i>b</i>
14623	gorget	SSP	—
14626	necklace	SSP	—
14627	fur robe	KSP	—
14628	fur robe	KSP	32 <i>c</i>
14631	cradle swaddling	DCG	—
14632	cradle swaddling	USP	—
14633	cradle swaddling	DCG	—
14634	woman's mitten	SSP	—
14637	woman's saddle	UU	—
14638	woman's saddle	UU	—
14640	parfleche	UU	80 <i>a</i>

TABLE 2.—Continued

USNM	Object	Tribe or band	Figure
14641	parfleche	KSP	79a
14642	parfleche	MSP	79b
14646	cradleboard	MSP	Mason, 1889b, figs. 22-24; 1896, fig. 217
14647	cradleboard	KSP	—
14649	cane dice	SPSU	—
14651	cane dice	SPSU	—
14653	cane dice	SPSU	—
14654	tally sticks	SPSU	—
14655	tally sticks	SPSU	—
14657	cane dice	SPSU	—
14658	cane dice	SPSU	—
14660	tally sticks	SPSU	—
14661	stick game billets	SPSU	58a
14663	hand-game tally sticks	SPSU	58b
14668	seed basket	SPSU	7b
14669	seed basket	MSP	14a
14670	seed basket	KSP	14b
14671	seed basket	SPSU	14c
14673	seed basket	SPSU	14d
14677	seed basket	KSP	14e
14680	winnowing tray	SPSU	3b
14682	winnowing tray	SPSU	4b
14683	winnowing tray	SPSU	4d
14685	winnowing tray	SPSU	4c
14688	berry basket	SPSU	7d
14697	pitch container	MSP	5e
14698/1	pitch container	SPSU	5f
14698/2	pitch container	SPSU	5g
14700	basket	SPSU	9a
14701	basket	KSP	9b
14704	basketry bowl	SPSU	8h
14705	basketry bowl	SSP	8k
14706	basketry bowl	SSP	8j
14707	basketry bowl	SSP	8i
14708/1	basketry bowl	SSP	12d
14708/2	basketry bowl	SSP	9c
14709	basketry bowl	SSP	10c
14711	basketry bowl	KSP	8l
14712	basketry bowl	USP	8e
14713	basketry bowl	KSP	10d
14716	basketry tray	KSP	11b
14717	basketry tray	SPSU	10b
14720	basketry bowl	KSP	5d
14723	basketry bowl	SPSU	8g
14724	basketry tray	SPSU	10e
14725	basketry bowl	SPSU	2e
14735	basketry tray	USP	12e
14737	basketry tray	SPSU	10f
14739	basketry bowl	SPSU	7e, 8n
14740	basketry bowl	SPSU	2a, b
14742	basketry bowl	SPSU	3a
14744	basketry bowl	SPSU	2c, d

TABLE 2.—Continued

USNM	Object	Tribe or band	Figure
14747	birdbone necklace	MSP	—
14782	paint pouch	UU	—
14785	pottery olla	MSP(?)	45c
14842	head ornament	DCG	—
14850	knife sheath	UU(?)	—
14886	bow	SPSU	—
14975	necklace of human phalanges	MSP(?)	45b
16417	bow	SPSU	—
16765	stone pipe	DCG	65b
16781	stone pipe	DCG	66c
16782	stone pipe	DCG	65e
16783	stone pipe	DCG	66b
16784	stone pipe	DCG	66d
16785	stone pipe	DCG	—
16786	stone pipe	DCG	—
16787	stone pipe	DCG	66a
16788	stone pipe	DCG	65d
17196	parfleche	SU	74
17197	woman's saddle	UU(?)	76
17198	woman's saddle	UU	—
17220	drum	UU	64b
17222	saddle bag	UU	78b
17223	tobacco pouch	UU	—
17224	pouch	UU	—
17227	hair ornaments	UU	—
17228	drill	MSP	—
17229	hearth	MSP	—
17230	hearth & drill	MSP	—
17205	man's shirt	UU	—
17206	woman's dress	UU	—
17209	woman's dress	UU	—
17211	woman's dress	UU	—
17215	buckskin leggings	UU	—
17217	woman's moccasins	UU	—
17219	woman's moccasins	UU	—
19034	basketry scoop	SPSU	5a
19828	woman's dress	GCS	—
19829	man's tunic	GCS	—
19832	breechcloth	GCS	—
19833	horned cap	GCS	55d
19834	beaver skin tunic	GCS	35a
19835	buckskin leggings	GCS	—
19837	breechcloth	GCS	—
19842	breechcloth	GCS	—
19843	quiver	GCS	55c
19844	tobacco pouch	GCS	—
19847	woman's dress	GCS	—
19848	woman's dress	GCS	—
19849	squirrel skin belt	GCS	36b
19851	woman's dress	BLS	—
19852	woman's skirt	GCS	—
19855	girl's dress	GCS	—
19856	girl's moccasins	GCS	—

TABLE 2.—Continued

USNM	Object	Tribe or band	Figure
19858	girl's dress	GCS	35 <i>b</i>
19859	girl's moccasins	GCS	—
19860	minkskin belt	GCS	—
19865	buckskin leggings	BLS	—
19867	breechcloth	BLS	—
19869	man's tunic	BLS	—
19870	buckskin leggings	BLS	—
19871	boy's moccasins	BLS	—
19872	breechcloth	BLS	—
19873	headdress	BLS	—
19874	buckskin necklace	BLS	45 <i>a</i>
19876	man's tunic	GCS	—
19877	woman's moccasins	GCS	—
19878	minkskin belt	GCS	—
19880	minkskin belt	GCS	—
19882	scraper	"Ute"	—
19883	hide scraper	UU	68 <i>c</i>
19891	beaming tool	GCS	69 <i>b</i>
19893	hide scraper	GCS	68 <i>a</i>
19894	graining tool	UU	68 <i>b</i>
19910	bow	DCG	—
22001	woman's moccasins	BLS	29
22002	minkskin belt	BLS	—
22003	buckskin necklace	BLS	—
22004	club	GCS	—
22005	tobacco pouch	GCS	64 <i>e</i>
22006	birdclaw necklace	WRS	—
22007	man's shirt	WRS	—
22011	minkskin headband	WRS	36 <i>a</i>
22012	birdclaw necklace	WRS	—
22013	drum	WRS	63 <i>a</i>
22015	boy's shirt	WRS	—
22016	buckskin leggings	WRS	—
22017	breechcloth	WRS	—
22018	man's moccasins	WRS	Hatt, 1916, fig. 31
22019	woman's dress	WRS	—
22021	birdclaw necklace	WRS	46
22022	hearth & drill	WRS	—
22026	rasp set	WRS	—
22027	rasp set	WRS	63 <i>b</i>
27818	man's shirt	WRS	—
27819	buckskin leggings	WRS	—
27820	man's moccasins	WRS	—
27822	woman's dress	WRS	—
27823	woman's belts	WRS	—
27824	woman's moccasins	WRS	—
27825	rabbit skin blanket	WRS	—
27826	saddle bag	WRS	80 <i>b-d</i>

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## Figures

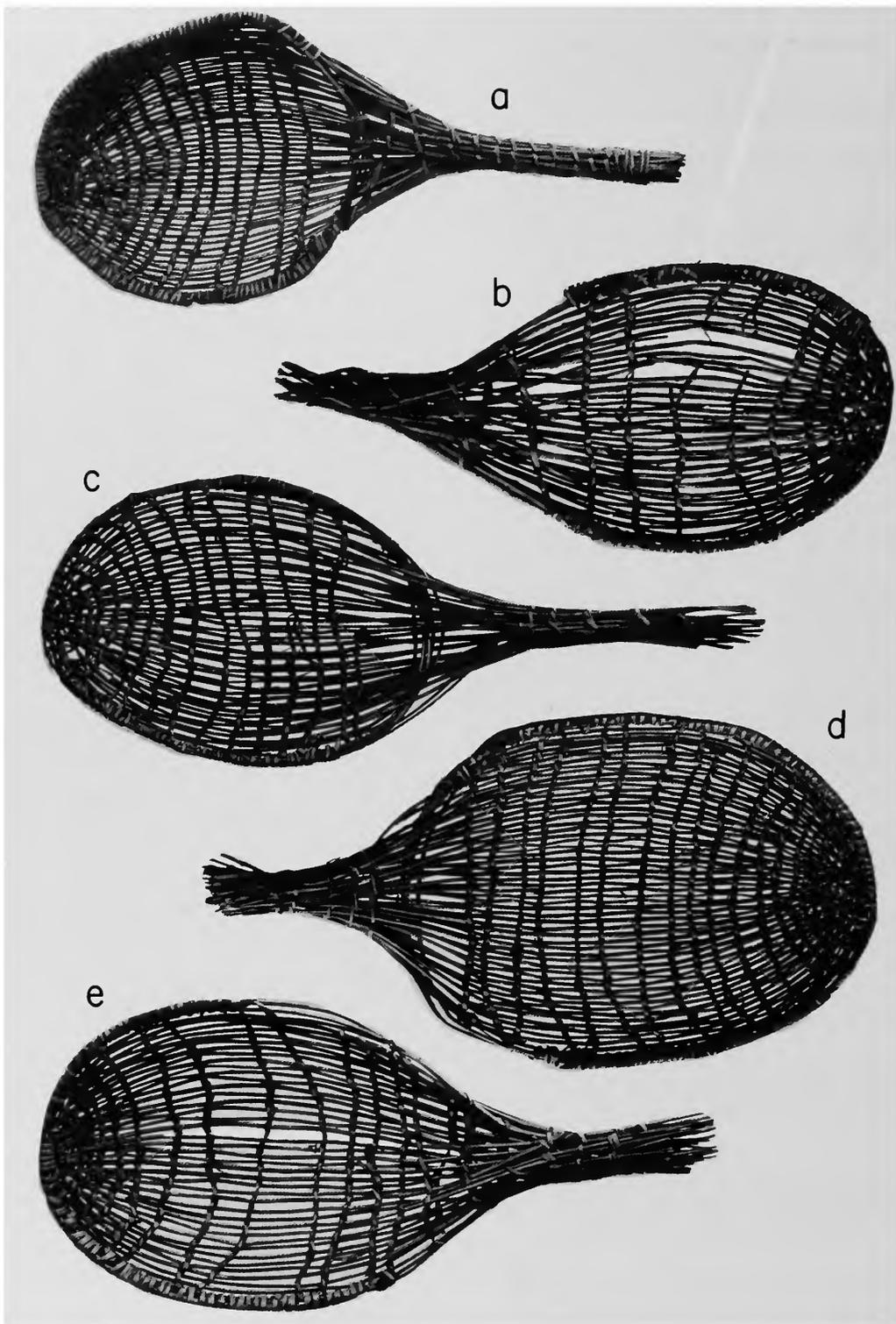


FIGURE 1.—Seed fans: *a*, USNM 11817, USP; *b*, USNM 11820, MSP; *c*, USNM 11821, USP; *d*, USNM 11825, SSP; *e*, USNM 11826, SPSU. (Scale: ca. 1/5.)



FIGURE 2.—Basketry bowls: *a, b*, USNM 14740, interior and exterior views, SPSU; *c, d*, USNM 14744, interior and exterior views, SPSU; *e*, USNM 14725, SPSU. (Scale: *ca.* 1/6.)

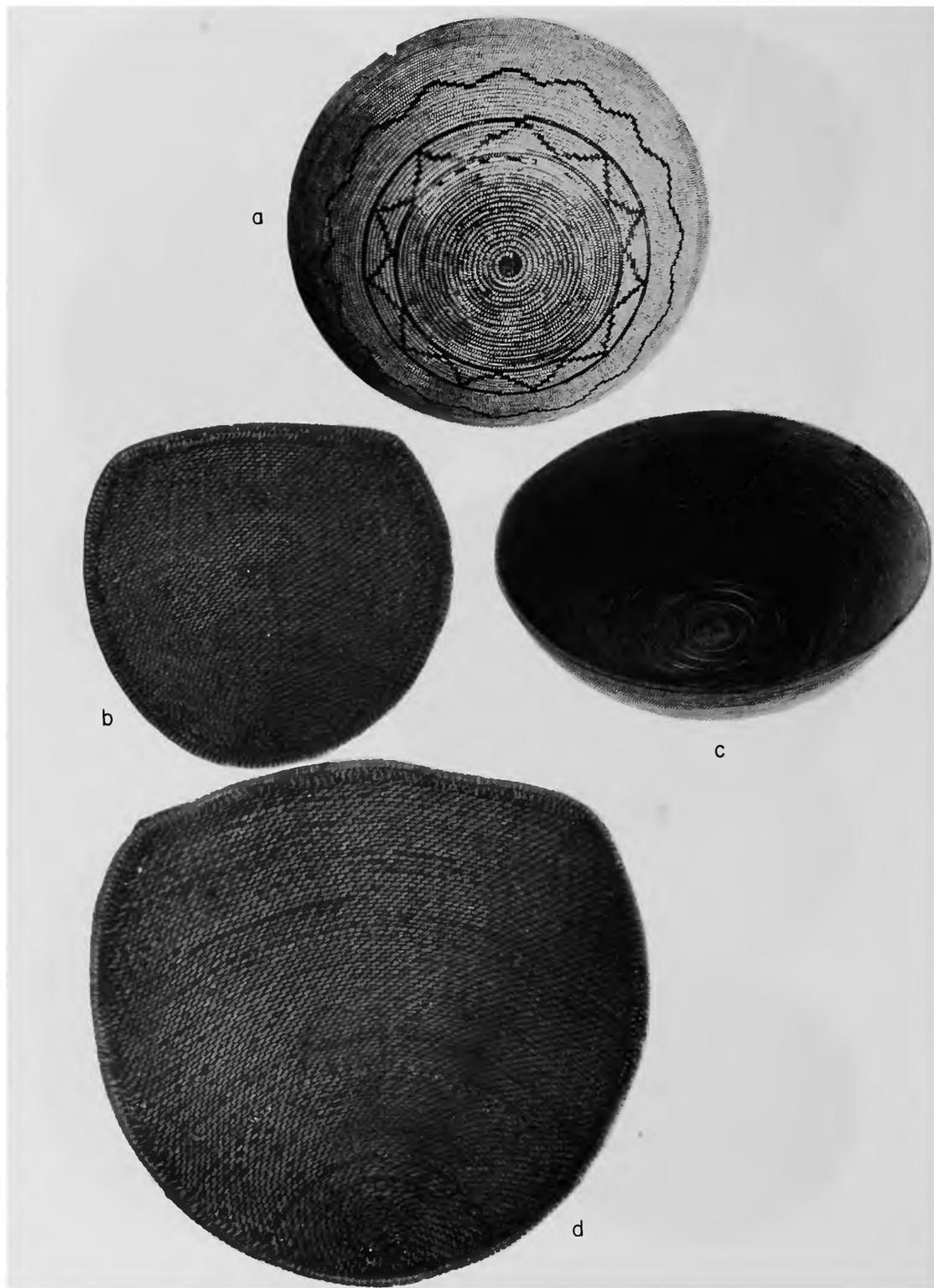


FIGURE 3.—Basketry. Bowls: *a*, USNM 14742, exterior view, SPSU; *c*, USNM 11859, SSP.  
Winnowing trays: *b*, USNM 14680, SPSU; *d*, USNM 11867/1, USP. (Scale: *ca.* 1/6.)

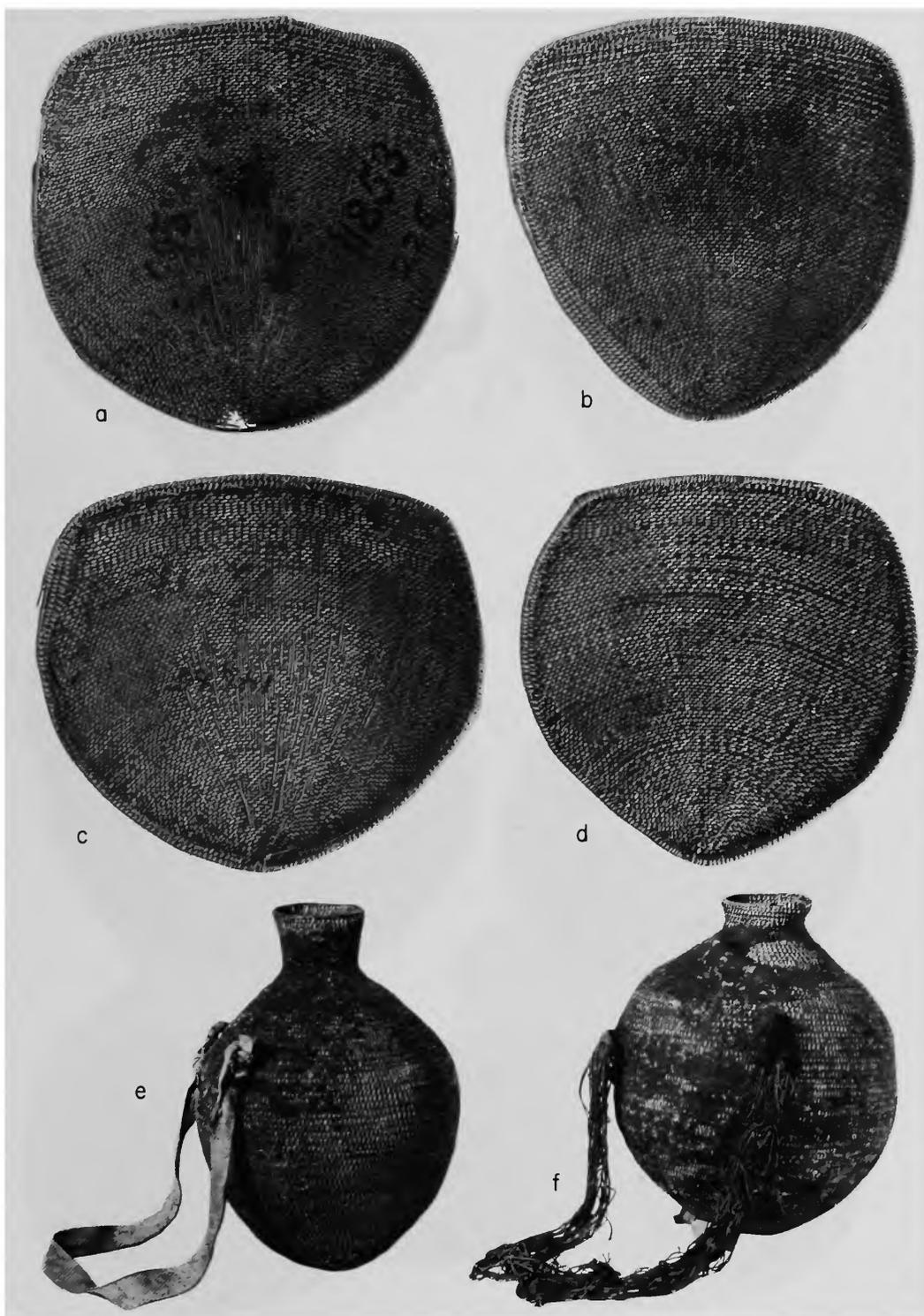


FIGURE 4.—Basketry. Winnowing trays: *a*, USNM 11853, SSP; *b*, USNM 14682, SPSU; *c*, USNM 14685, SPSU; *d*, USNM 14683, SPSU. Water jugs: *e*, USNM 11874, SPSU; *f*, USNM 11879, SSP. Scale: *ca.* 1/9))



FIGURE 5.—Basketry: *a*, scoop, USNM 19034, SPSU; *b*, water jug, USNM 10759, WRU; *c*, water jug, USNM 11254, DCG; *d*, bowl, USNM 14720, KSP; *e*, pitch container, USNM 14697, MSP; *f*, pitch container, USNM 14698/1, SPSU; *g*, pitch container, USNM 14698/2, SPSU. (Scale: *ca.* 1/3.)

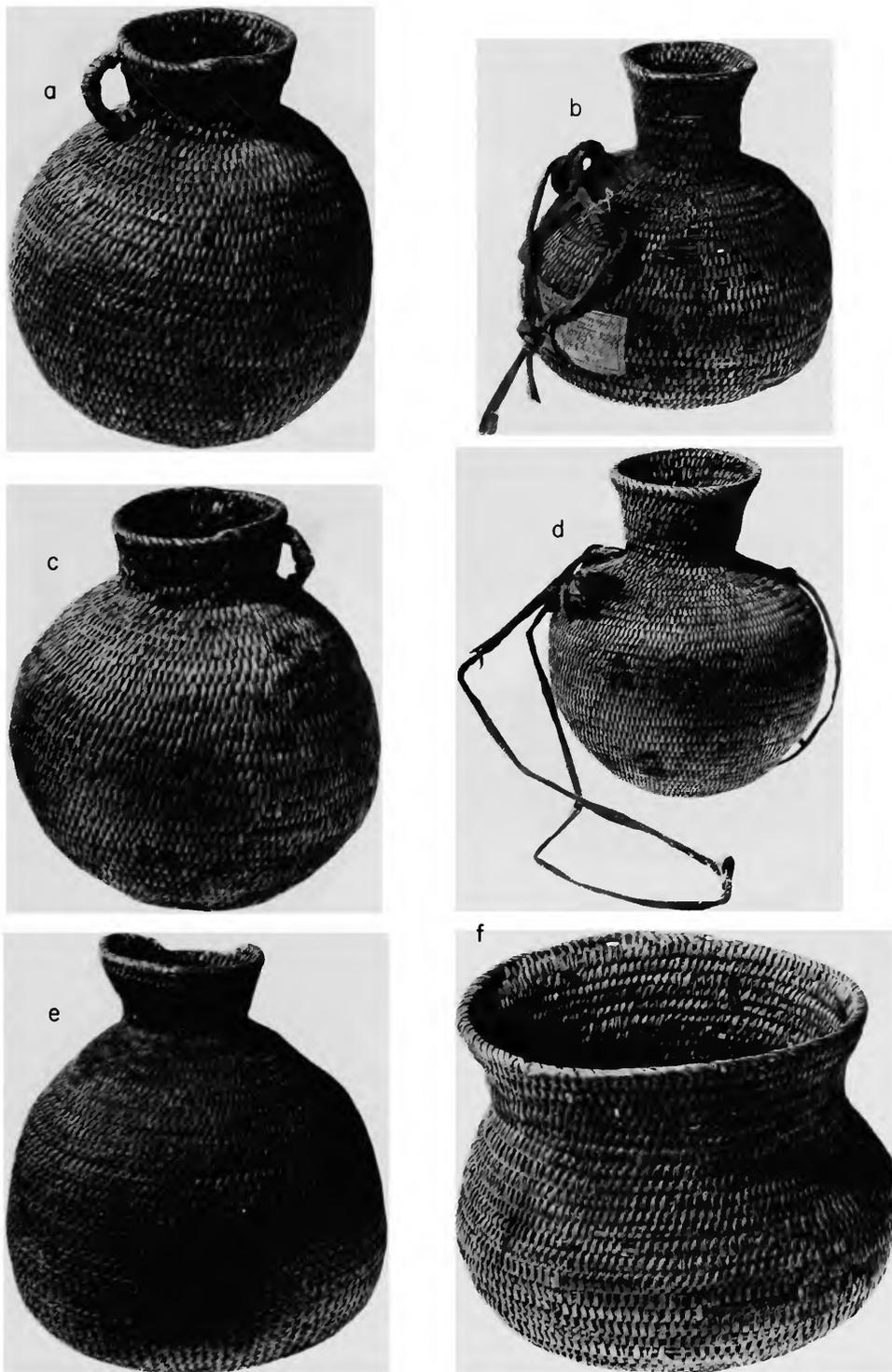


FIGURE 6.—Basketry. Water jugs: *a*, USNM 11249, KSP; *b*, USNM 10765, WRU; *c*, USNM 11250, KSP; *d*, USNM 10757, DCG; *e*, USNM 11261, KSP. Basket: *f*, USNM 10751/1, WRU. (Scale: *ca.* 1/6.)

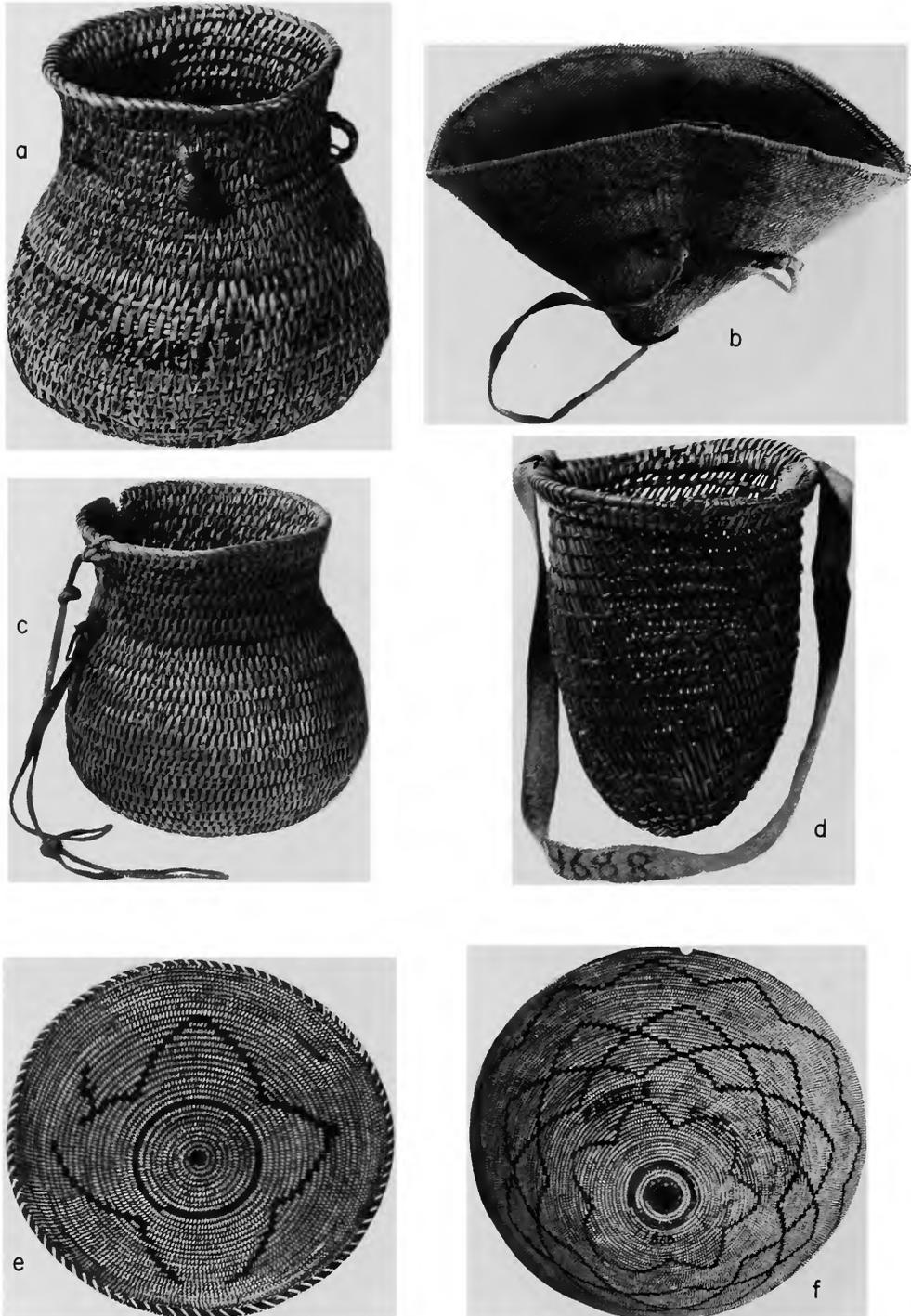


FIGURE 7.—Basketry: *a*, berry basket, USNM 10752, WRU; *b*, seed basket, USNM 14668, SPSU; *c*, berry basket, USNM 10751/2, WRU; *d*, berry basket, USNM 14688, SPSU; *e*, bowl, interior view, USNM 14739, SPSU; *f*, bowl, exterior view, USNM 11860, SSP. (Scale: *a*, *c*-*f*, ca. 1/6; *b*, ca. 1/12.)

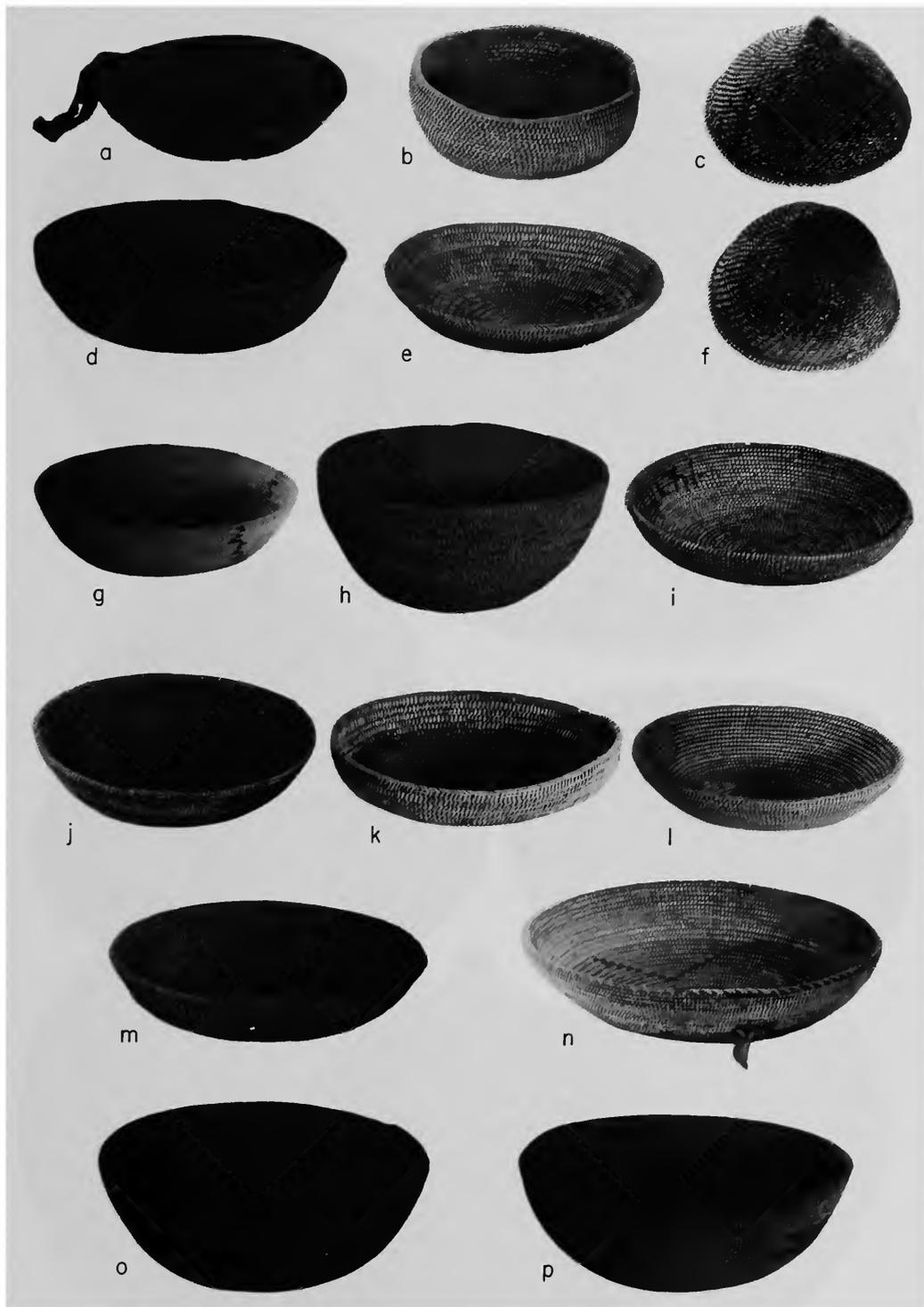


FIGURE 8.—Basketry and hats. Bowls: *a*, USNM 11865, SPSU; *b*, USNM 11861, DCG; *d*, USNM 11276, USP; *e*, USNM 14712, USP; *g*, USNM 14723, SPSU; *h*, USNM 14704, SPSU; *i*, USNM 14707, SSP; *j*, USNM 14706, SSP; *k*, USNM 14705, SSP; *l*, USNM 14711, KSP; *m*, USNM 11863/1, DCG; *n*, USNM 14739, SPSU; *o*, USNM 11867/2, USP; *p*, USNM 11863/2, DCG. Hats: *c*, USNM 11829/1, SPSU; *f*, USNM 11831, USP. (Scale: *ca.* 1/6.)



FIGURE 9.—Basketry: *a*, basket, USNM 14700, SPSU; *b*, basket, USNM 14701, KSP; *c*, bowl, USNM 14708/2, SSP; *d*, hat, USNM 11837, SPSU; *e*, hat, USNM 11834, SPSU. (Scale: *ca.* 1/3.)

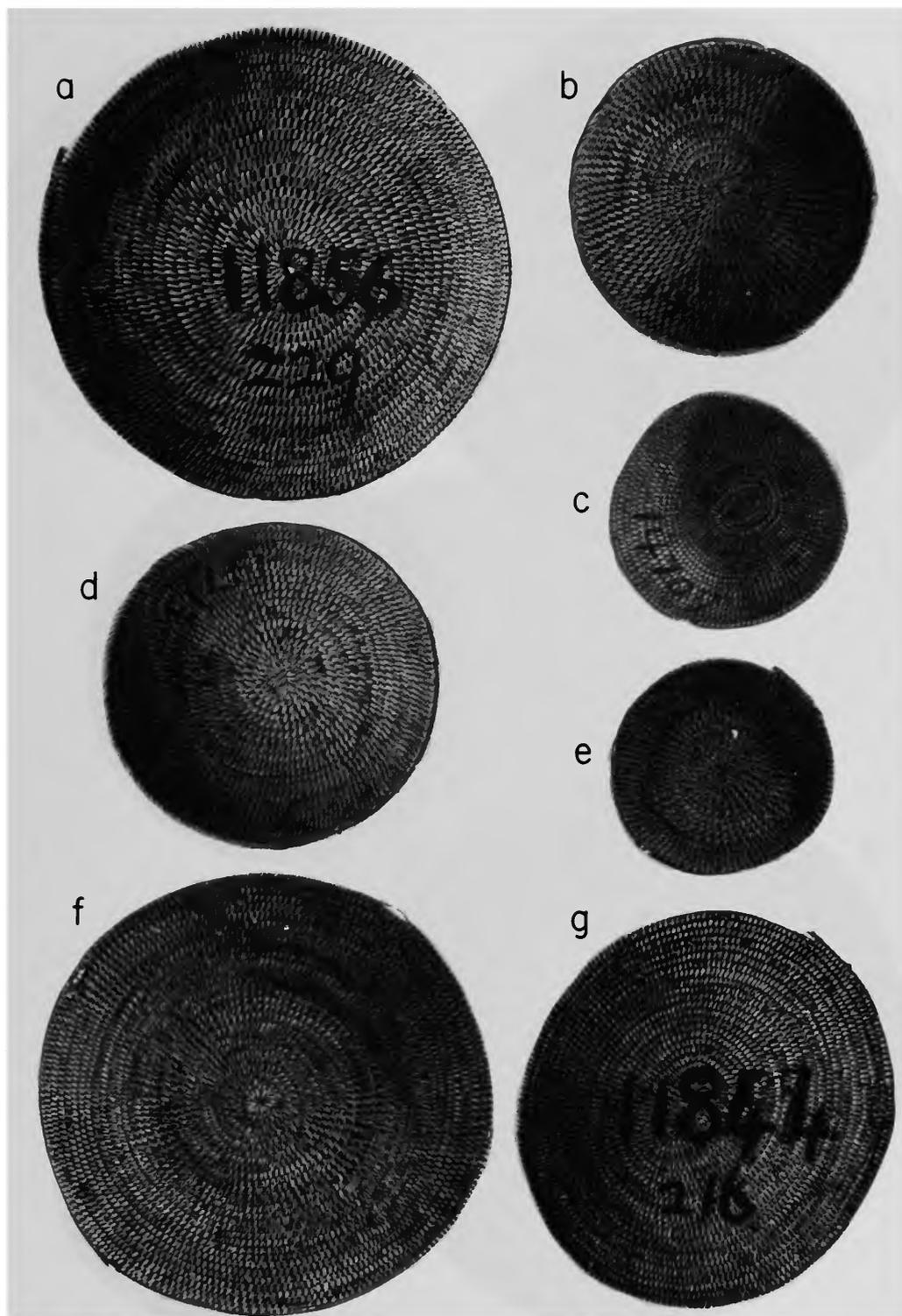


FIGURE 10.—Basketry bowls and trays, interior views: *a*, USNM 11856, SSP; *b*, USNM 14717, SPSU; *c*, USNM 14709, SSP; *d*, USNM 14713, KSP; *e*, USNM 14724, SPSU; *f*, USNM 14737, SPSU; *g*, USNM 11844, KSP. (Scale: 1/5.)



FIGURE 11.—Basketry bowls and trays, interior views: *a*, USNM 11848, KSP; *b*, USNM 14716, KSP; *c*, USNM 11869, SPSU; *d*, USNM 11872, KSP; *e*, USNM 11866, USP. (Scale: 1/5.)

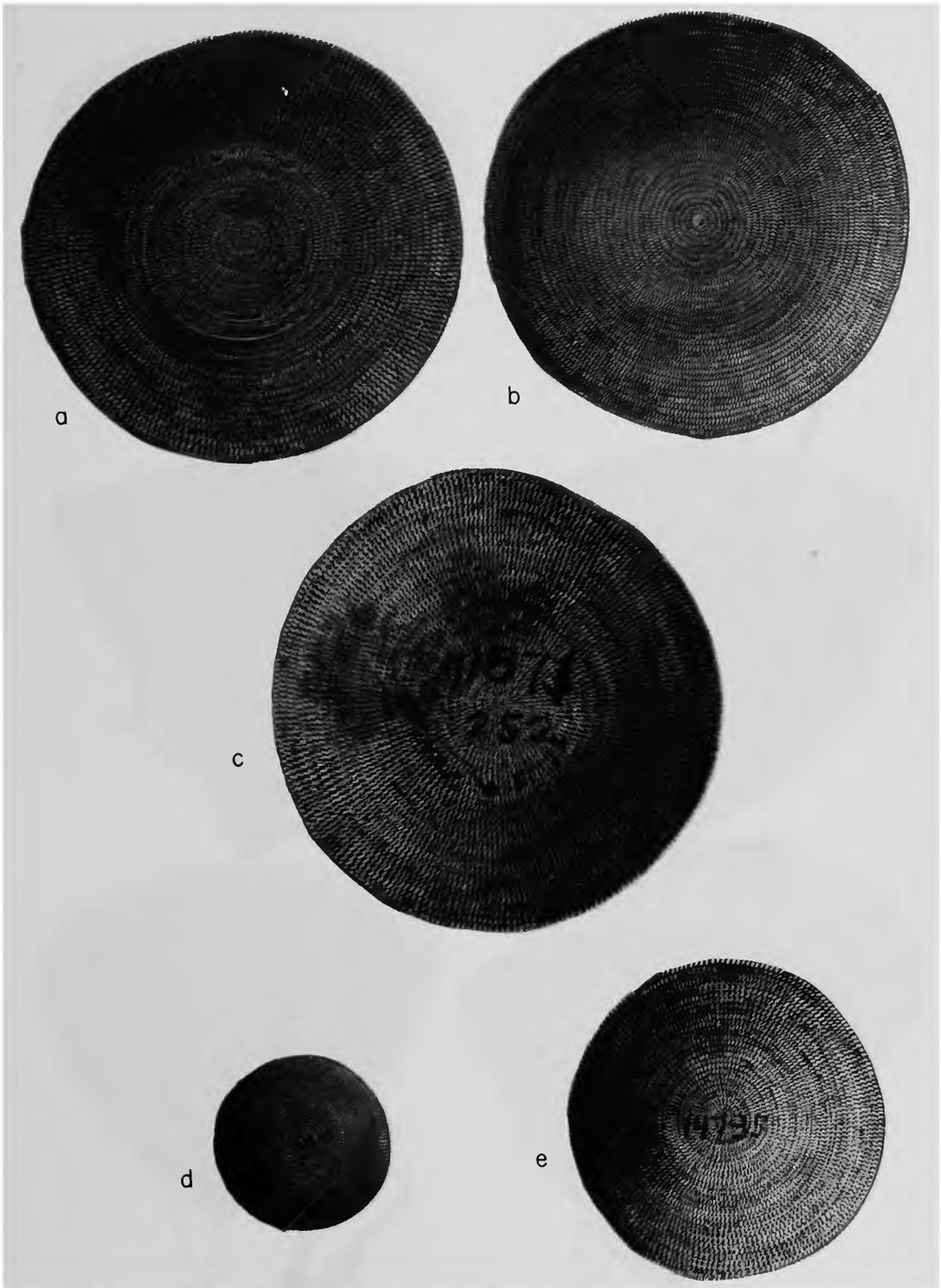


FIGURE 12.—Basketry bowls and trays, interior view: *a*, USNM 11870-A, USP; *b*, USNM 11870-B, SPSU; *c*, USNM 11871, KSP; *d*, USNM 14708/1, SSP; *e*, USNM 14735, USP. (Scale: *ca.* 1/7.)



FIGURE 13.—Seed baskets: *a*, USNM 11806/1, SPSU; *b*, USNM 11806/2, SPSU; *c*, USNM 11808, SPSU; *d*, USNM 11811, SPSU; *e*, USNM 11812, MSP; *f*, USNM 11814, USP. (Scale: ca. 1/9.)

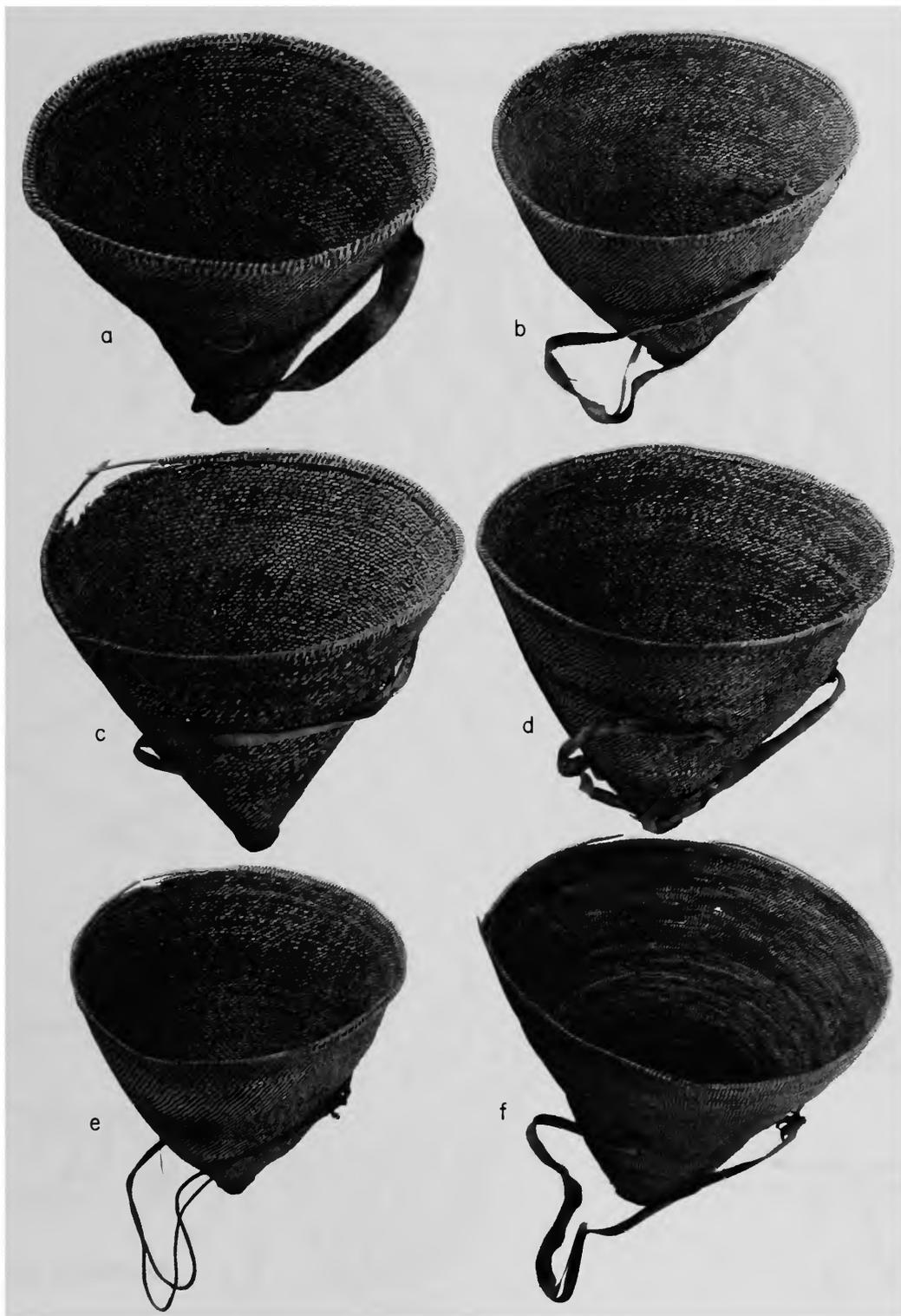


FIGURE 14.—Seed baskets: *a*, USNM 14669, MSP; *b*, USNM 14670, KSP; *c*, USNM 14671, SPSU; *d*, USNM 14673, SPSU; *e*, USNM 14677, KSP; *f*, USNM 10770, MSP. (Scale: ca. 1/9.)

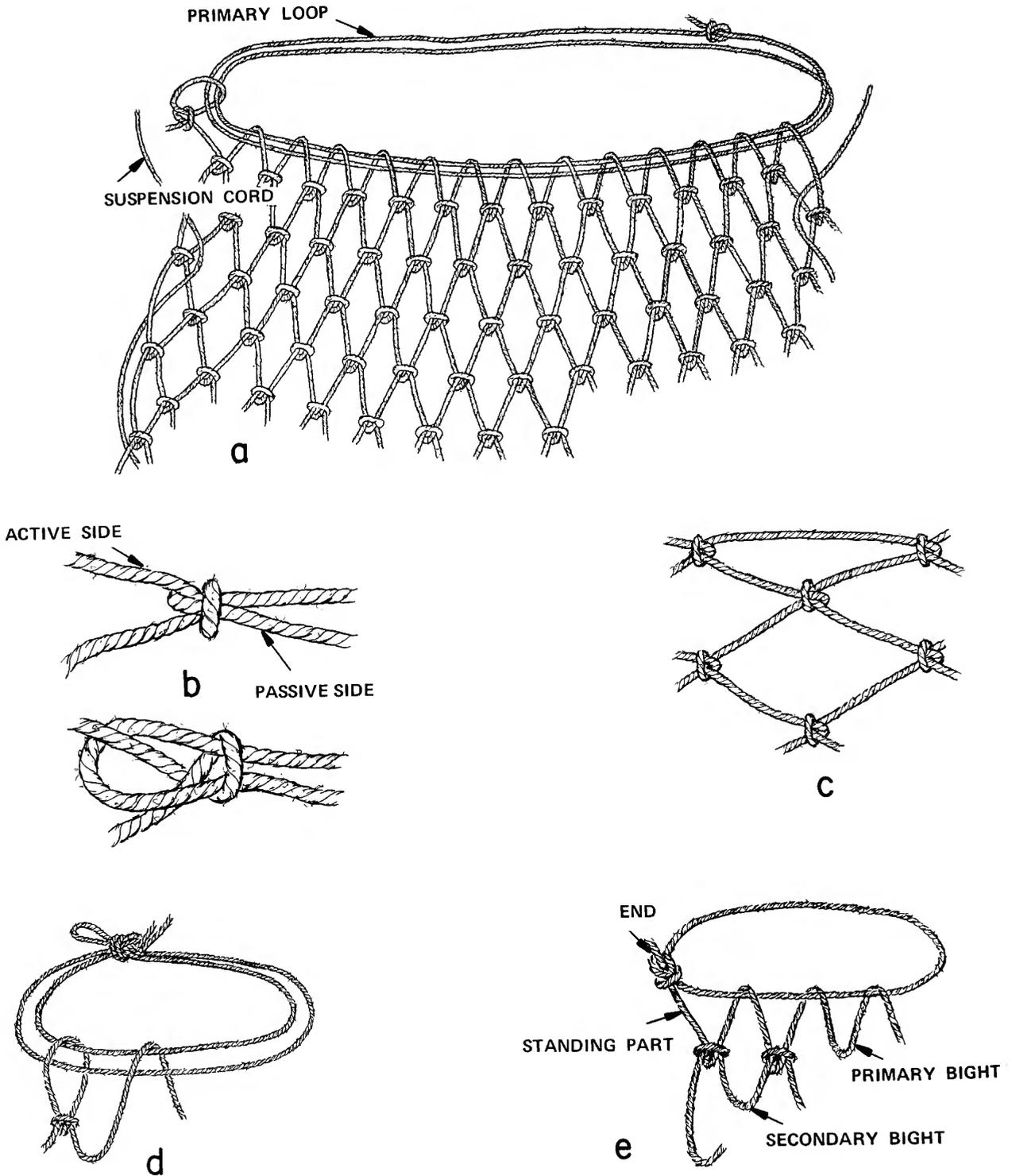


FIGURE 15.—Netting manufacture: *a*, primary loop and netting; *b*, detail of knot; *c*, sheet bend knot (or diamond mesh pattern); *d*, *e*, mesh construction of primary loop and netting. (Not to scale.)

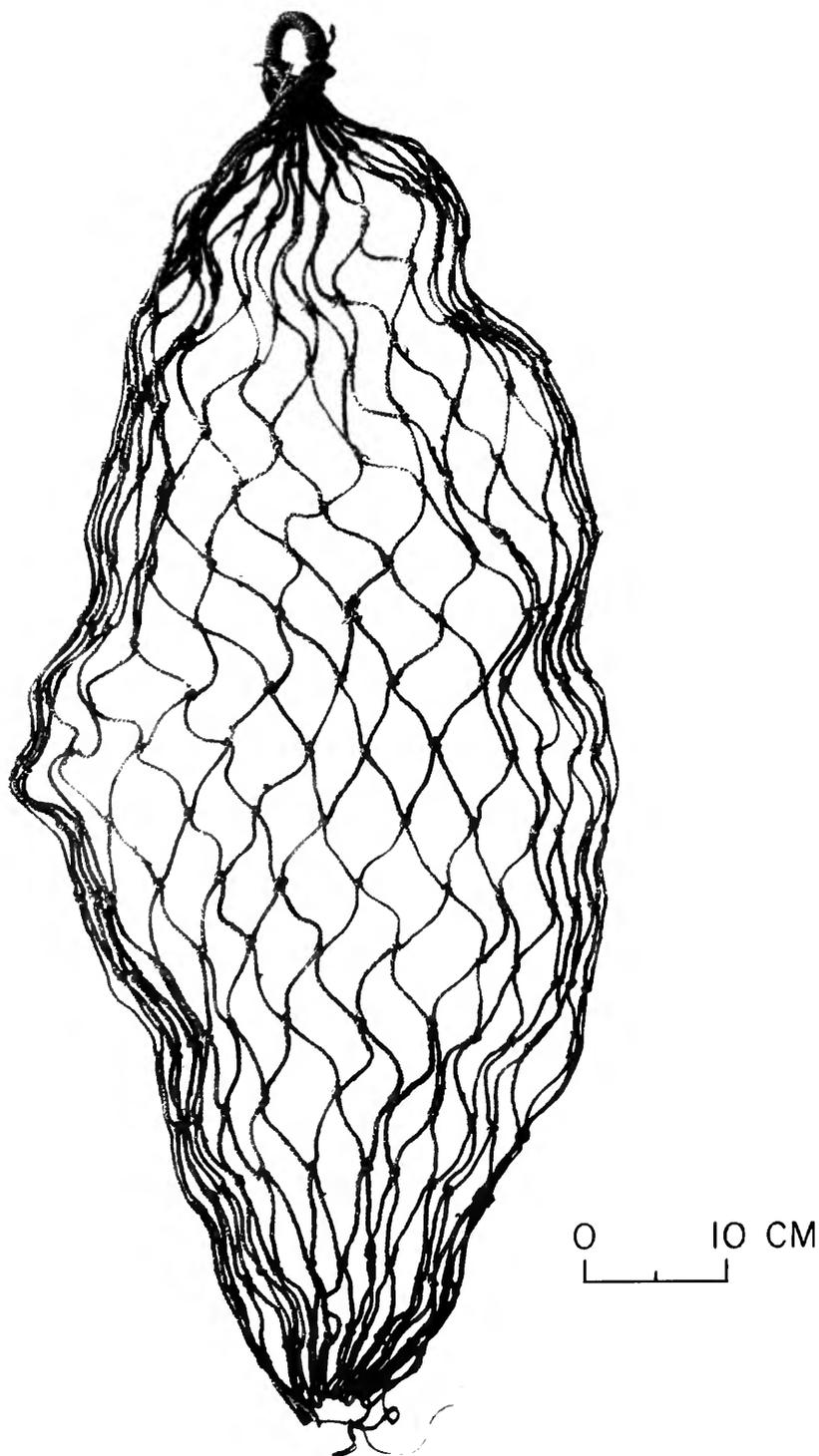


FIGURE 16.—Small net, USNM 11244, MSP.

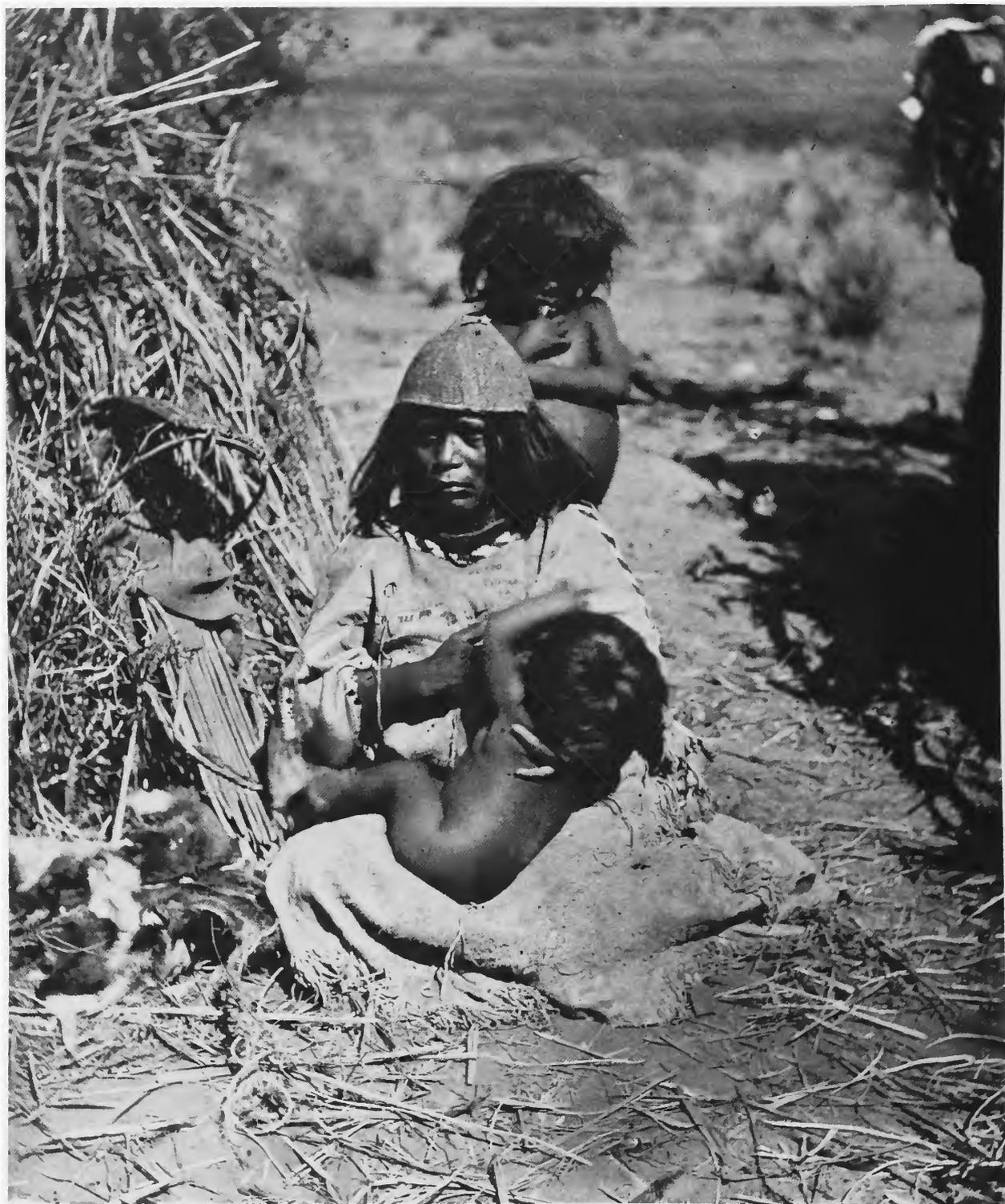


FIGURE 17.—Kaibab Southern Paiute mother and children. Note “Colorado” and “10800” on bodice of dress. (Hillers photo, 1873, BAE neg. 1599.)



FIGURE 18.—Kaibab Southern Paiute women with winnowing trays and burden baskets. Tunplines shown across women's chests were usually worn across foreheads. (Hillers photo, 1873, BAE neg. 1607.)





FIGURE 19.—Kaibab Southern Paiute: *a*, women and girls; beaded dress on woman in front row center is shown in *b*; quill-work head bands are probably USNM 11993 (Hillers photo, 1873, BAE neg. 1614); *b*, woman's dress, front view, USNM 10799, KSP.



FIGURE 20.—Kaibab Southern Paiute family. Beaded shirt on Chuarumpeak (second from left) is probably of Northern Ute manufacture. Note mixture of white and aboriginal clothing. (Hillers photo, 1873, BAE neg. 1604-R.)



0 10 CM  
└───┘

FIGURE 21.—Man's buckskin shirt, front view, USNM 14371, KSP.



FIGURE 22.—Man's buckskin leggings, USNM 14376, KSP.



FIGURE 23.—Group of Kaibab Southern Paiute men. Figure second from left front row is wearing leggings, USNM 14376 in Figure 22. (Hillers photo, BAE neg. 1613-a-1.)

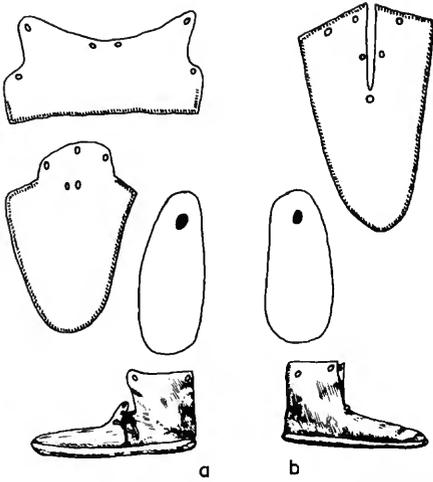


FIGURE 24.—Pair of man's moccasins, USNM 14385, KSP:  
a, right moccasin; b, left moccasin.

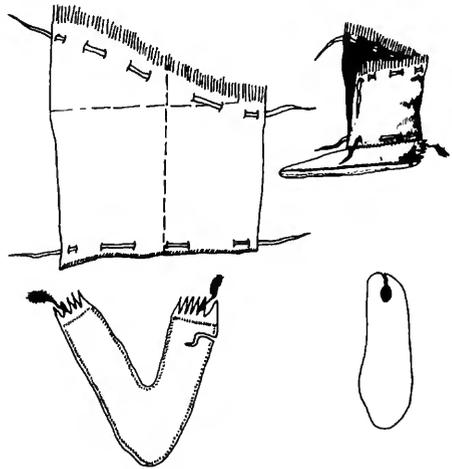


FIGURE 27.—Woman's right moccasin, USNM 14389, SSP.

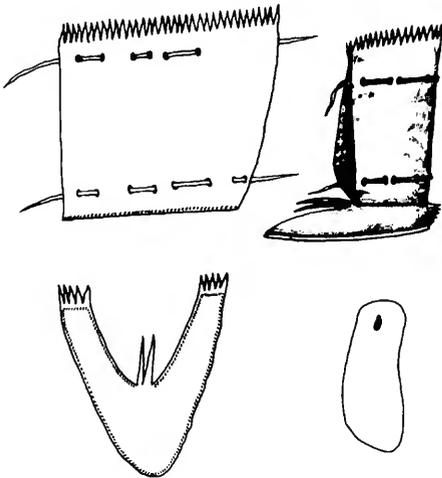


FIGURE 25.—Man's right moccasin, USNM 14388, KSP.

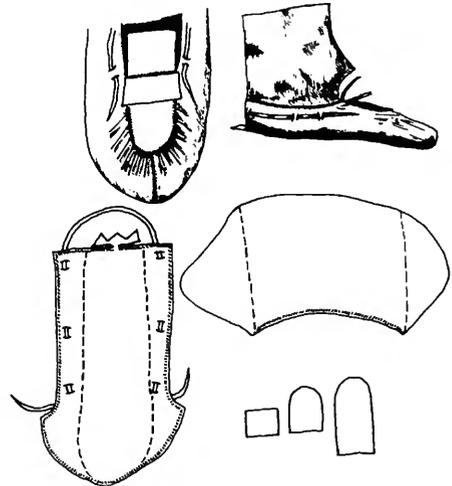


FIGURE 28.—Man's right (?) moccasin, USNM 10778, UU.

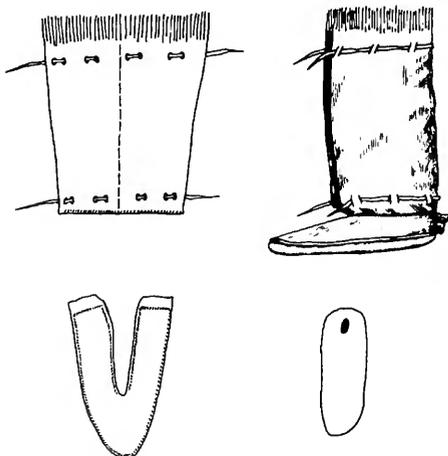


FIGURE 26.—Man's left moccasin, USNM 14390, KSP.

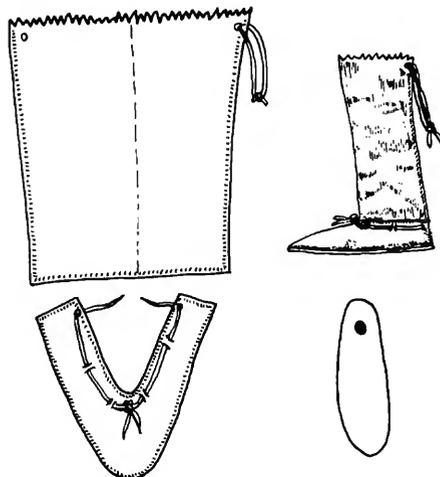


FIGURE 29.—Woman's right moccasin, USNM 22001, BLS.

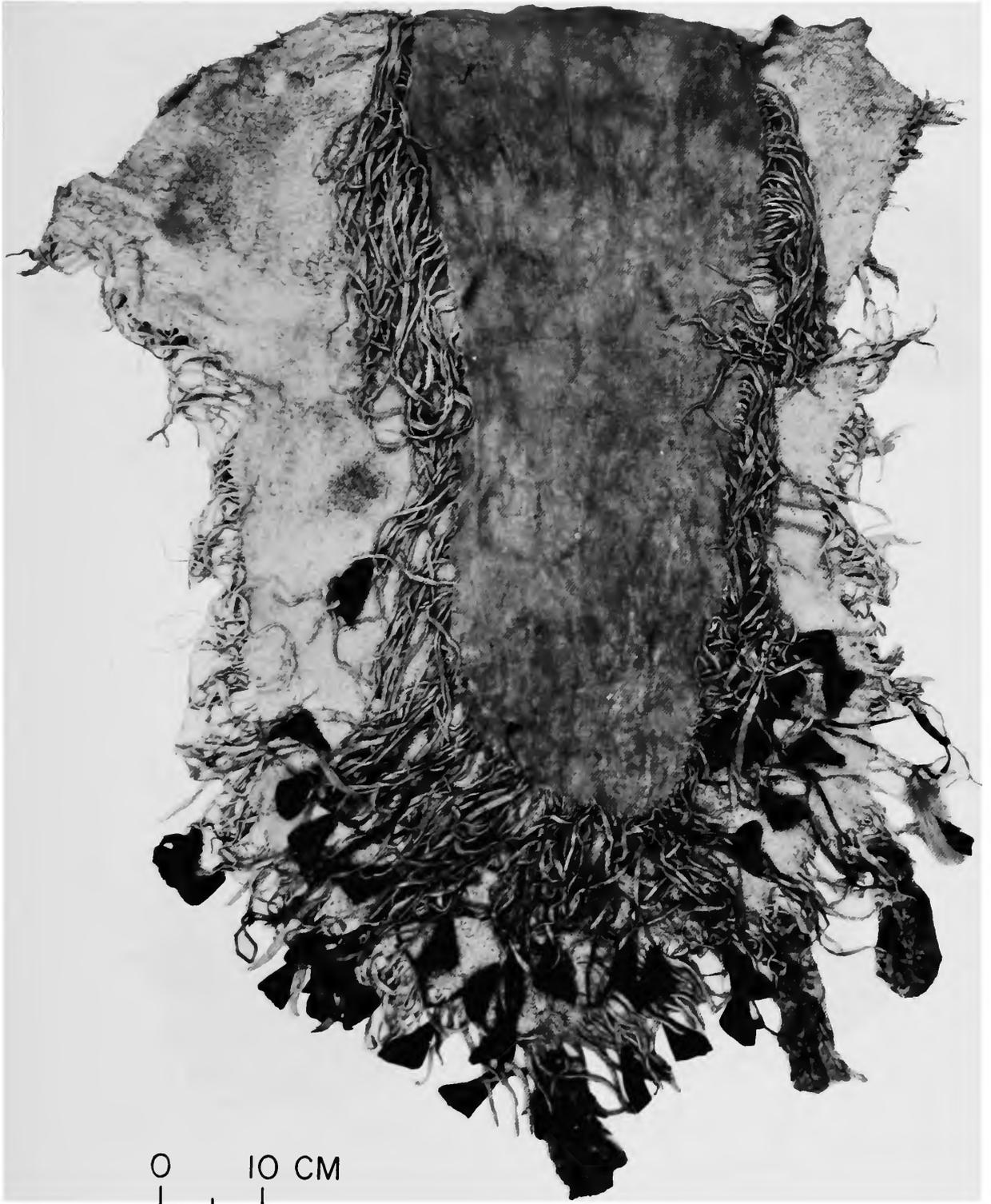
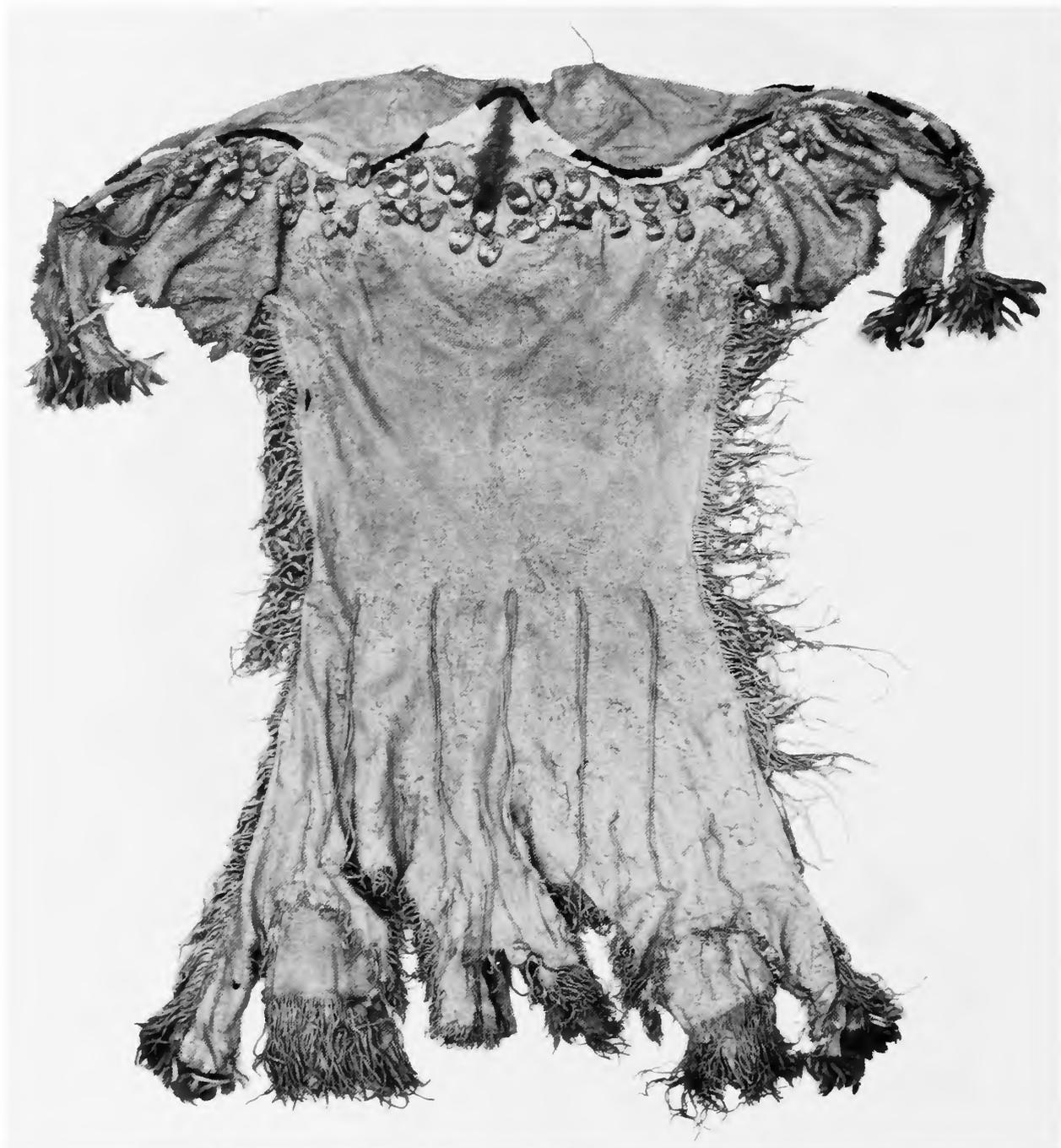


FIGURE 30.—Woman's dress, front view, USNM 14352, KSP.



0 10 CM

FIGURE 31.—Girl's dress, front view, USNM 14368, KSP.

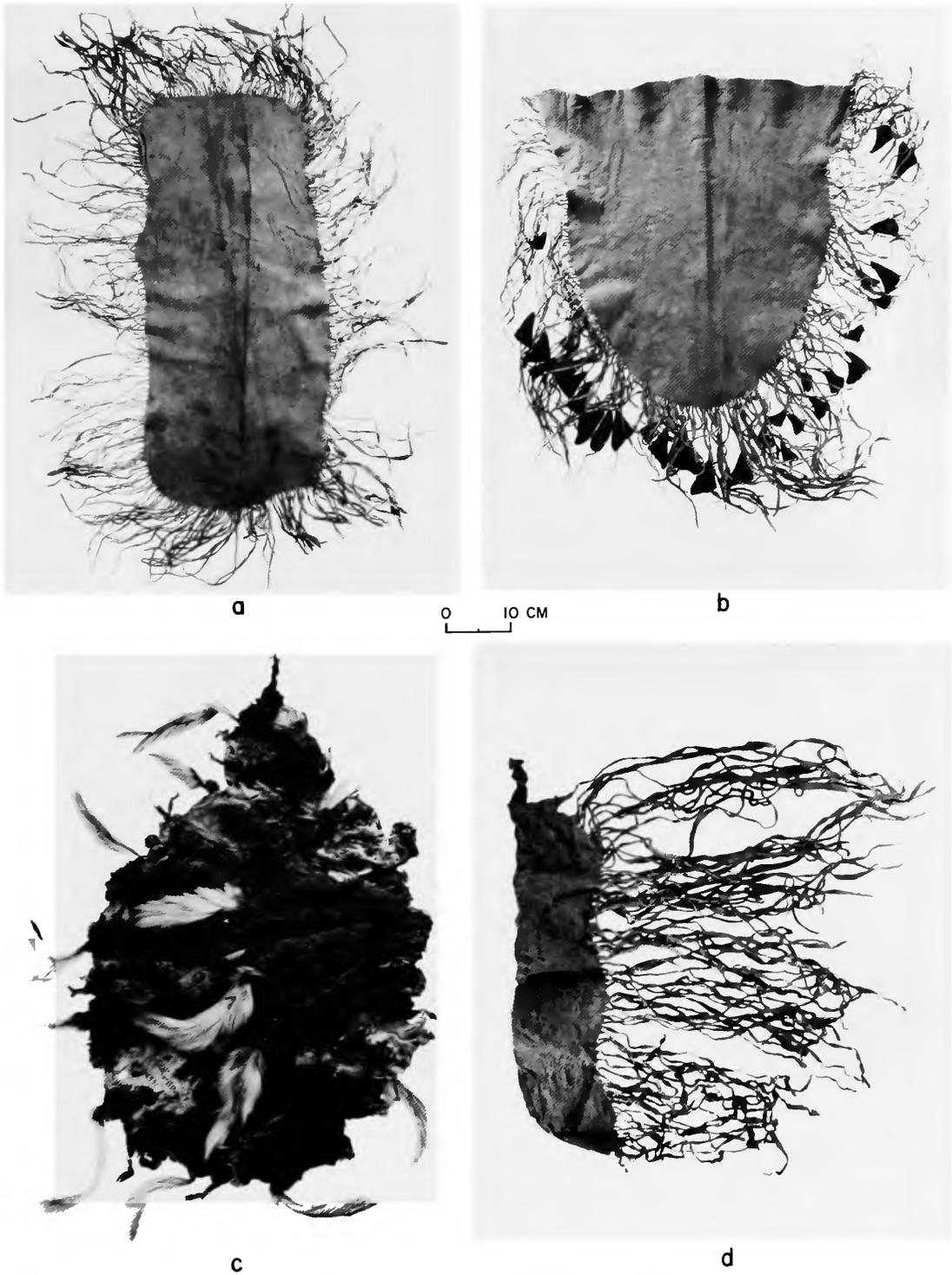


FIGURE 32.—Clothing: *a*, man's breech cloth, USNM 14381, SSP; *b*, woman's apron, USNM 14379, SSP; *c*, child's fur robe, USNM 14628, KSP; *d*, woman's fringed buckskin belt, USNM 14392, KSP.



FIGURE 33.—Man's shirt, front view, USNM 10798, UU.



0 10 CM

FIGURE 34.—Woman's dress, back view, USNM 14360, UU.



FIGURE 35.—Children's clothing, GCS; *a*, boy's beaverskin tunic, front view, USNM 19834; *b*, girl's dress, front view, USNM 19858.

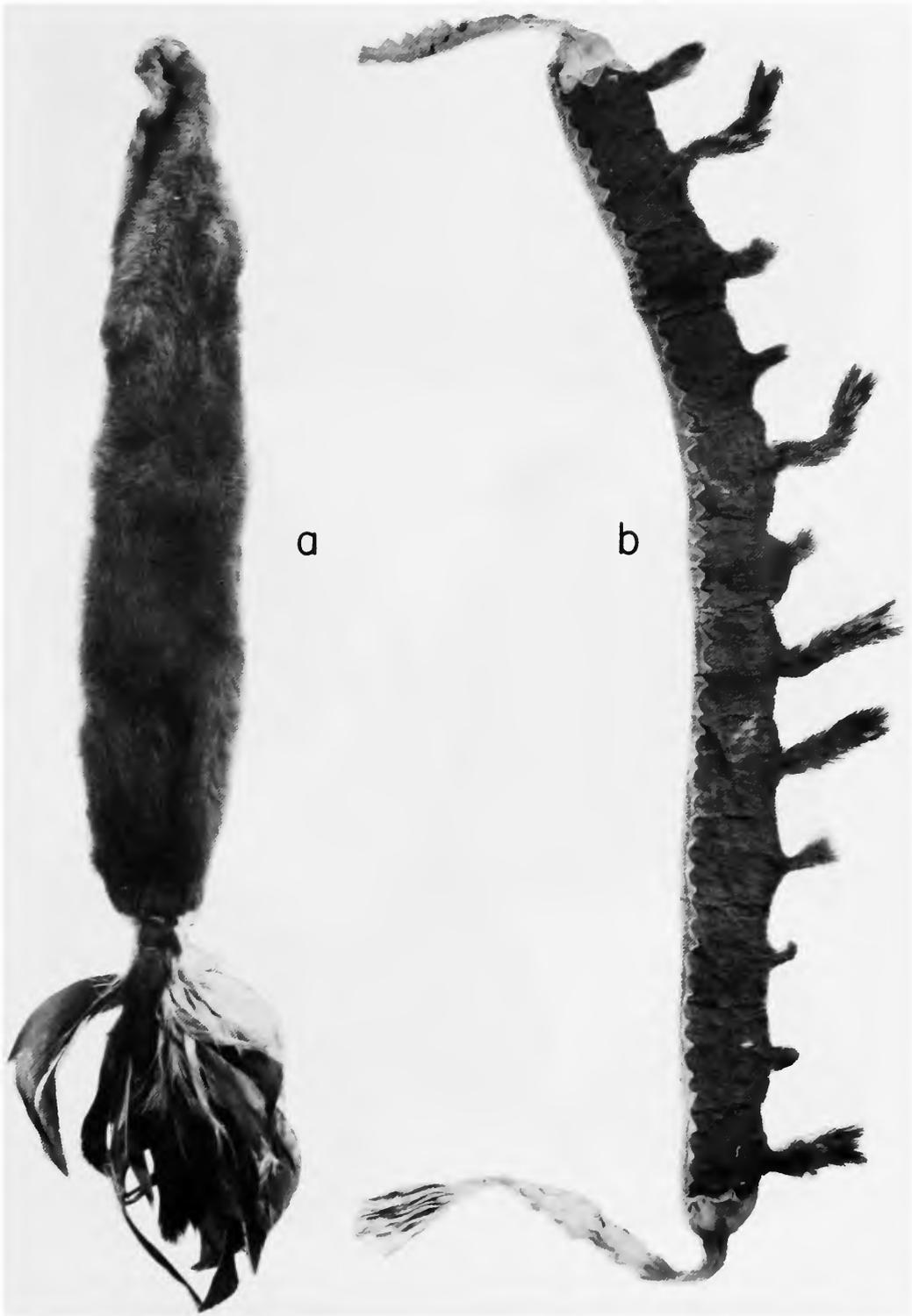


FIGURE 36.—Fur objects: *a*, mink skin headband, USNM 22011, WRS; *b*, woman's squirrel skin belt, USNM 19849, GCS. (Scale, *ca.* 1/5.)

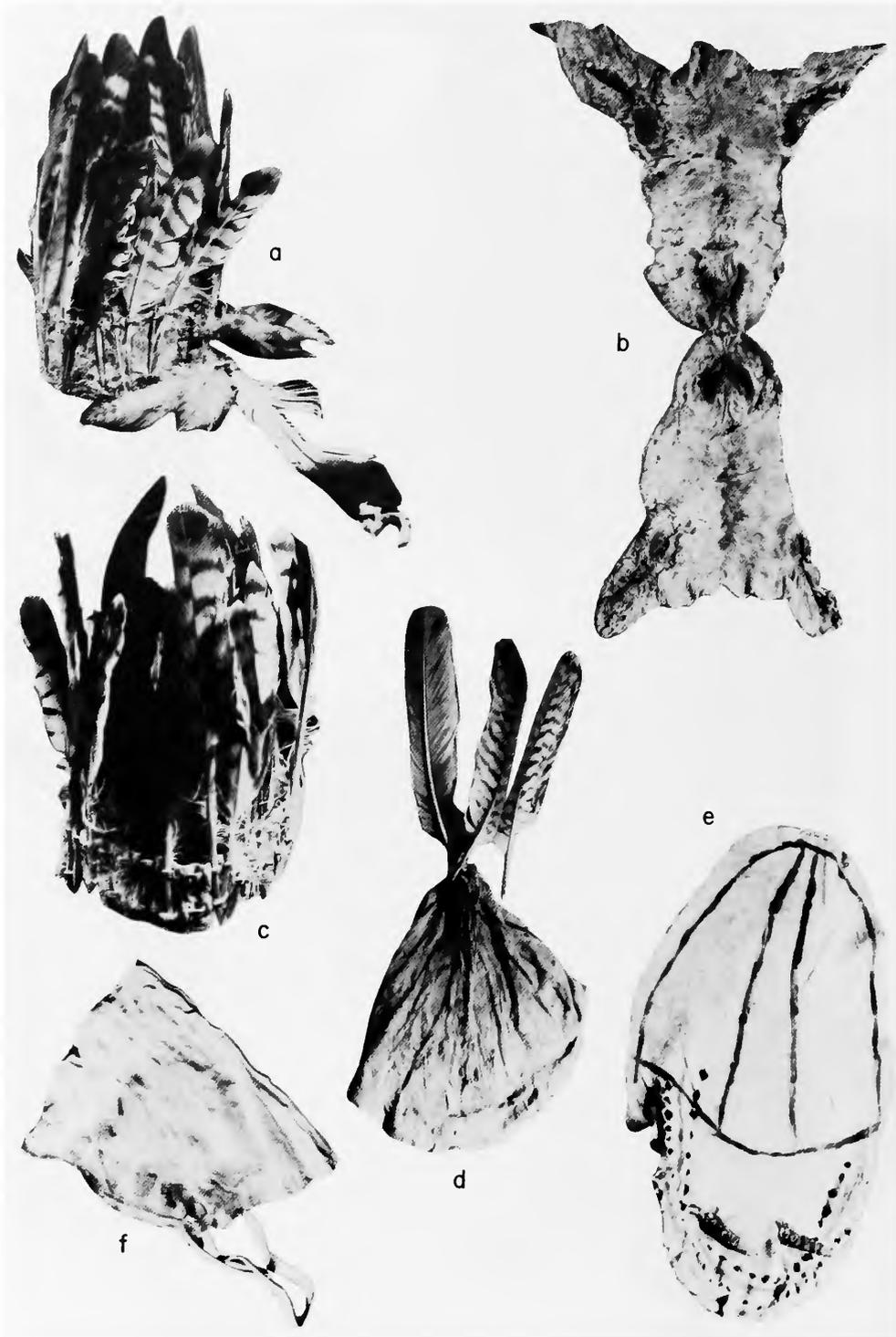


FIGURE 37.—Headgear: *a*, feathered headdress, USNM 14581, KPS; *b*, deerskin-face cap, USNM 14602, LVSP; *c*, feathered headdress, USNM 14582, MSP; *d*, feather-ornamented skin cap, USNM 14597, MSP; *e*, decorated skin cap, USNM 14601, MSP; *f*, skin cap, USNM 14595, LVSP. (Scale: *ca.* 1/6.)

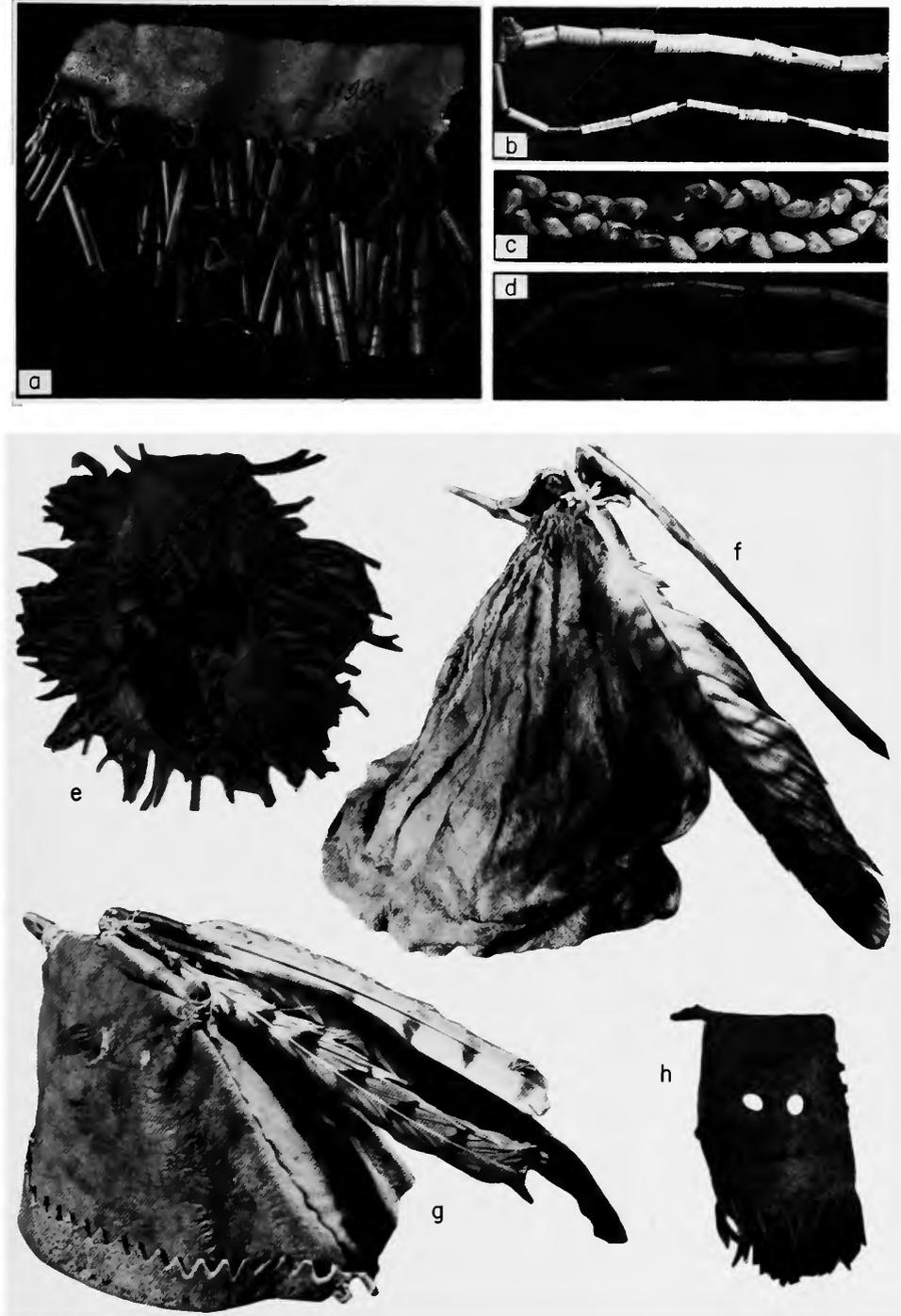


FIGURE 38.—Ornaments, pouches, and headgear: *a*, bone and buckskin necklace, USNM 11998, SSP; *b*, birdbone necklace, USNM 14622, SSP; *c*, olivella-shell necklace, USNM 11986, KSP; *d*, birdbone necklace, USNM 12004, SSP; *e*, pouch, USNM 14491, KSP; *f*, feathered cap, USNM 14597, MSP; *g*, feathered cap, USNM 14594, LVSP; *h*, cap pouch, USNM 12015, UU. (Scale: *ca.* 1/3.)



FIGURE 39.—“Tau-um’-pu-gaip, a chief; valley of the Moapa.”  
Man’s headdress is probably USNM 14582 (Figure 37c).



FIGURE 40.—Three Moapa Southern Paiute men. Man on left is wearing headgear USNM 14601 (Figure 37e); man standing on right is wearing headgear USNM 14597 (Figures 37d, 38f). (Hillers photo, 1873, BAE neg. 1640.)



FIGURE 41.—“The Old Gamblers, the Vegas or Meadows in southwestern [sic] Nevada.” Men are playing four-stick dice game. Man on left wearing headgear USNM 14602 (Figure 37*b*); second left wearing headgear USNM 14594 (Figure 38*g*). (Hillers photo, 1873, BAE neg. 1652.)



FIGURE 42.—“Komohoats Hunting.” Las Vegas Southern Paiute. Man is wearing headgear USNM 14595 (Figure 37f). (Hillers photo, 1873, BAE neg. 1651.)

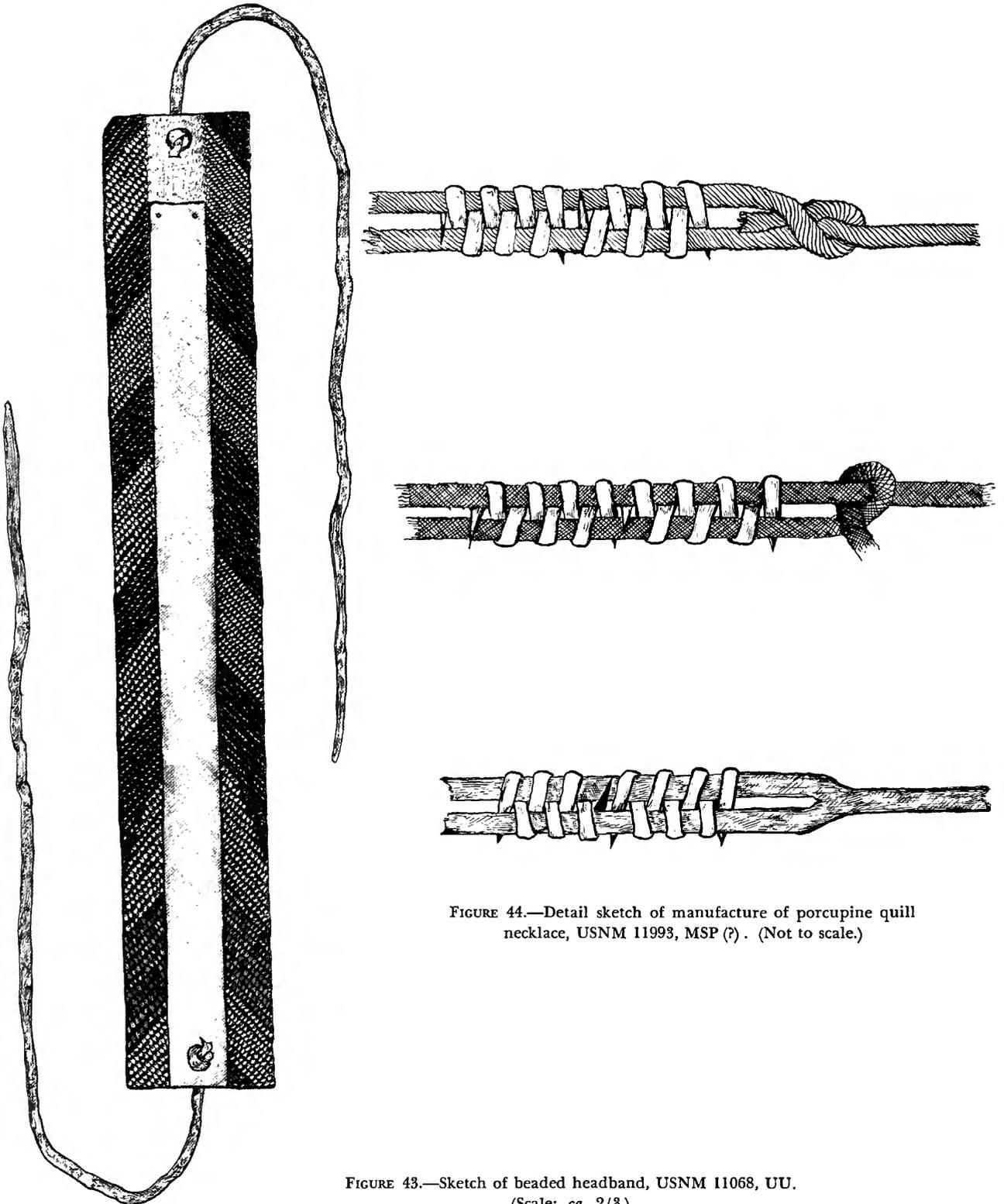
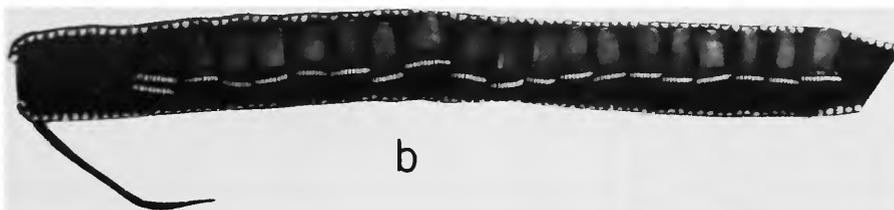


FIGURE 44.—Detail sketch of manufacture of porcupine quill necklace, USNM 11993, MSP (?). (Not to scale.)

FIGURE 43.—Sketch of beaded headband, USNM 11068, UU.  
(Scale: *ca.* 2/3.)



a



b

c



d



FIGURE 45.—Necklaces, olla, and mortar: *a*, buckskin necklace, USNM 19874, BLS; *b*, necklace of human phalanges, USNM 14975, MSP (?); *c*, North Creek Gray olla, USNM 14785, MSP (?); *d*, stone mortar, USNM 11302, UU (?). (Scale: ca. 1/5.)

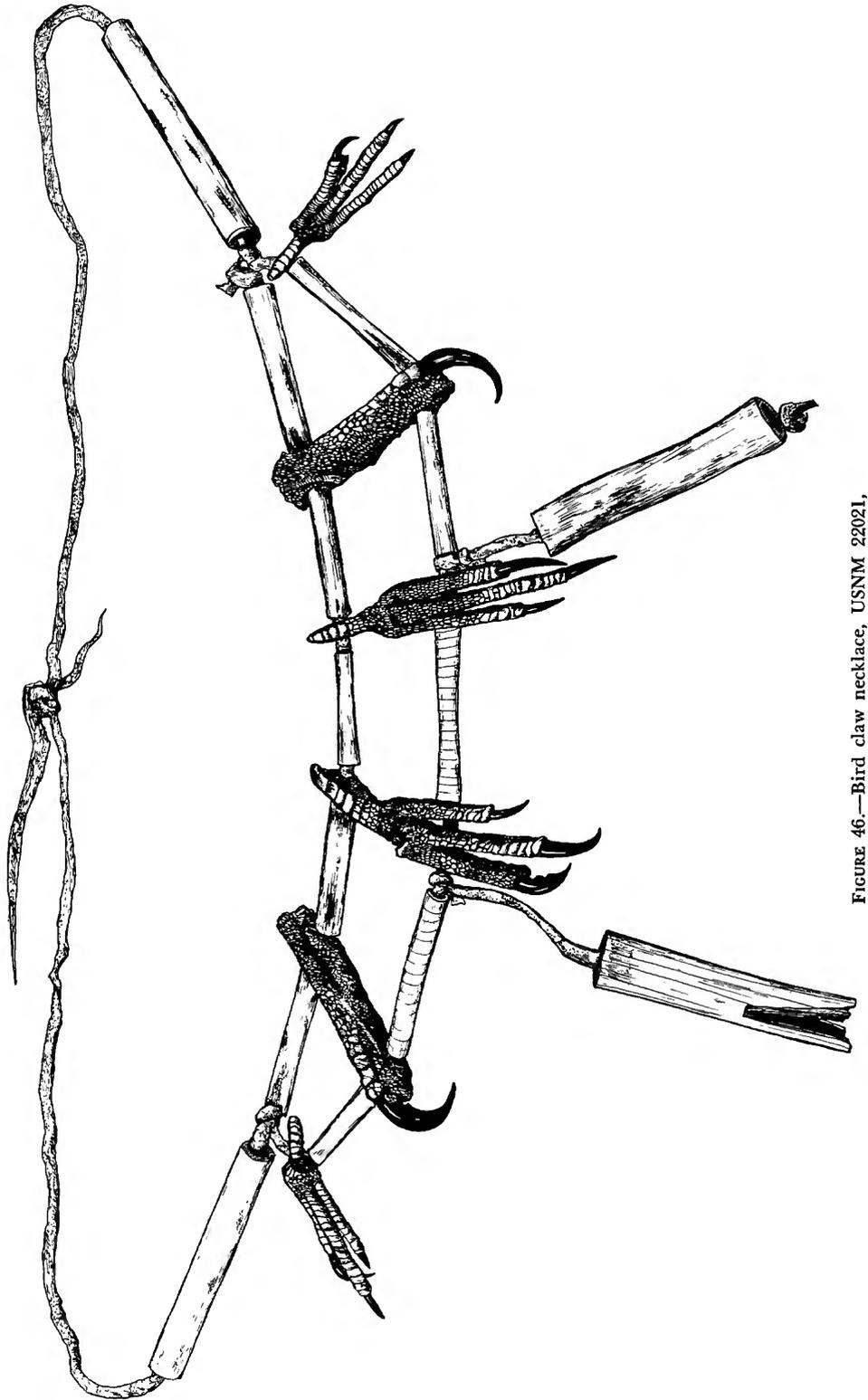


FIGURE 46.—Bird claw necklace, USNM 22021,  
WRS. (Scale: ca. 1/4.)

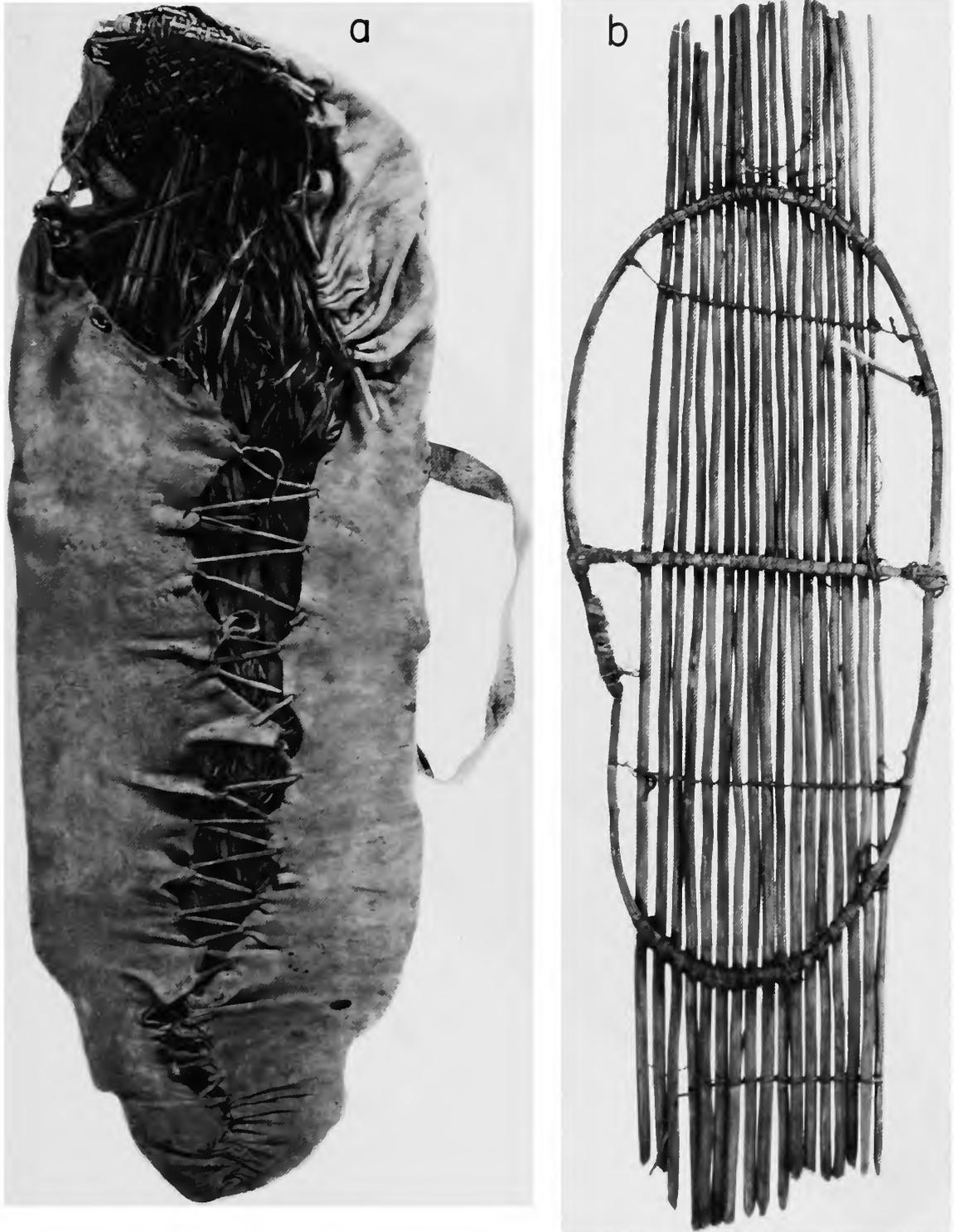


FIGURE 47.—Cradleboards, MSP: a, USNM 11225; b, USNM 11909. (Scale: ca. 1/4.)



FIGURE 48.—Cradleboard, USNM 10797, UCT.

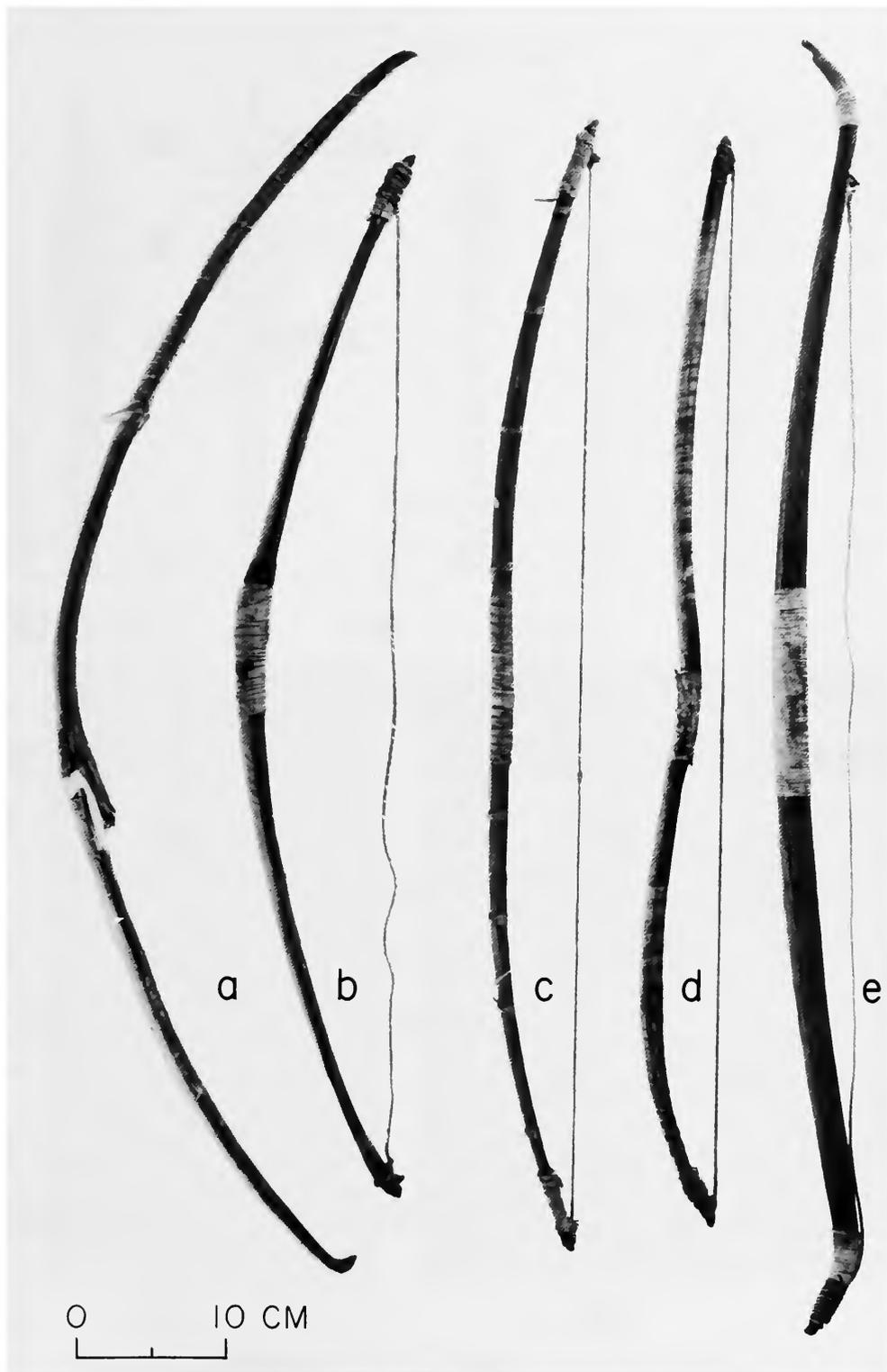
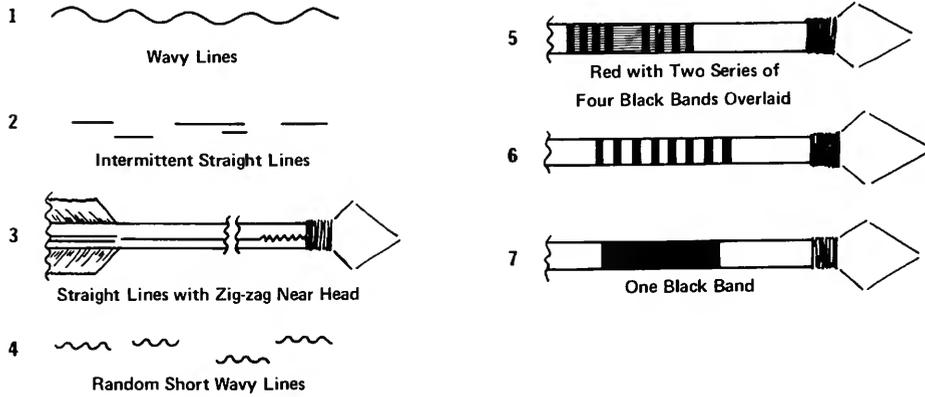


FIGURE 49.—Bows: *a*, sheephorn, USNM 11219, KSP; *b*, sheephorn, sinew belly, USNM 14521, SPSU; *c*, wood, sinew-backed, USNM 14520, MSP; *d*, sheephorn, sinew-backed, double-curved, USNM 14526, MSP; *e*, wood, sinew-backed, USNM 14513, USP.

DESIGN ELEMENTS



SHAFTMENT DESIGNS

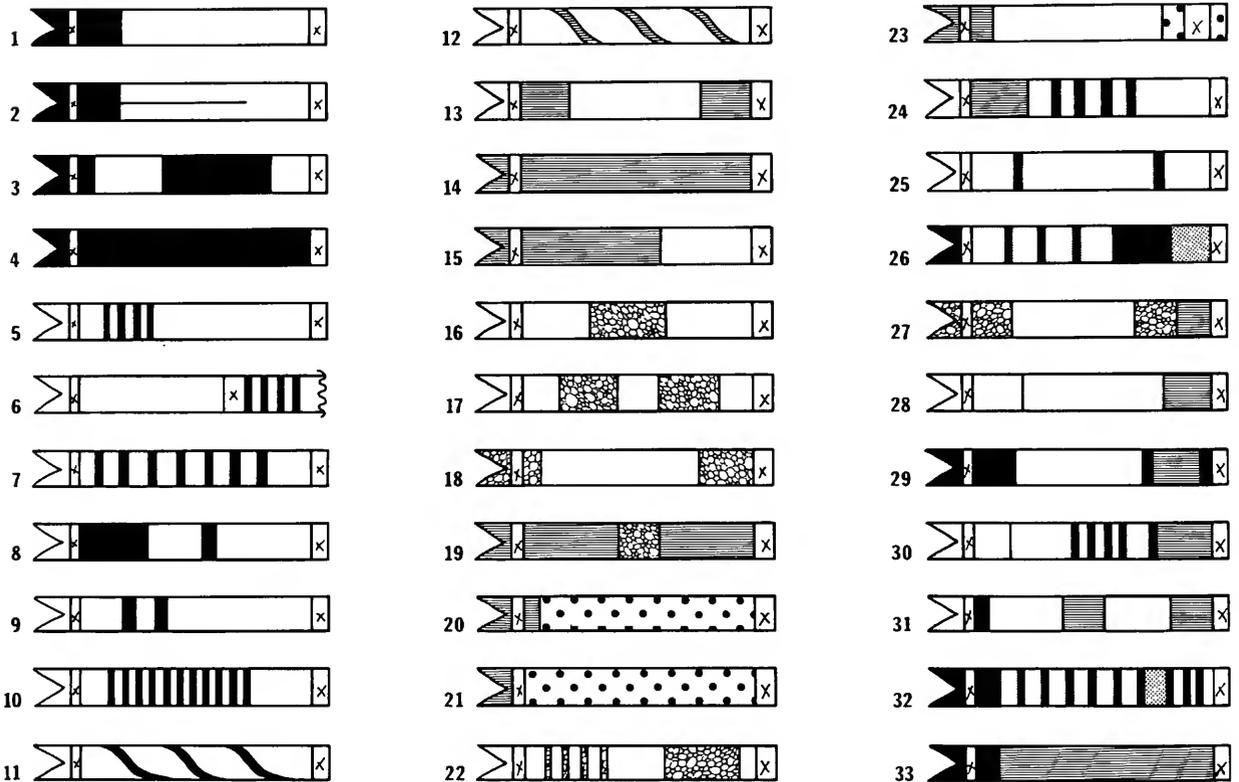


FIGURE 50.—Arrow shaft decoration.

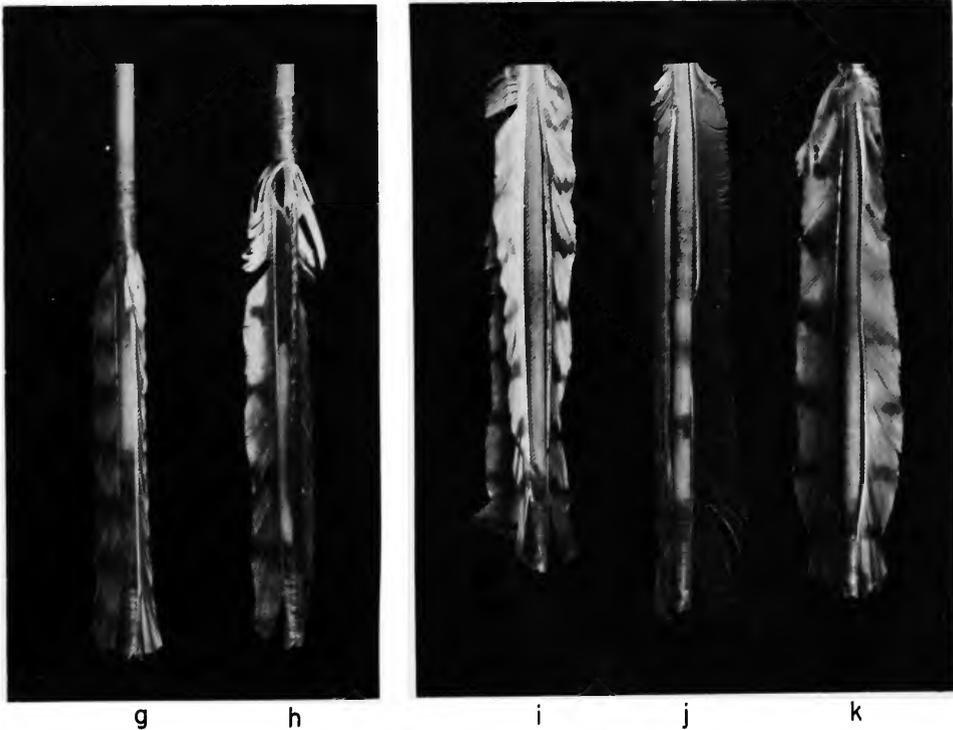
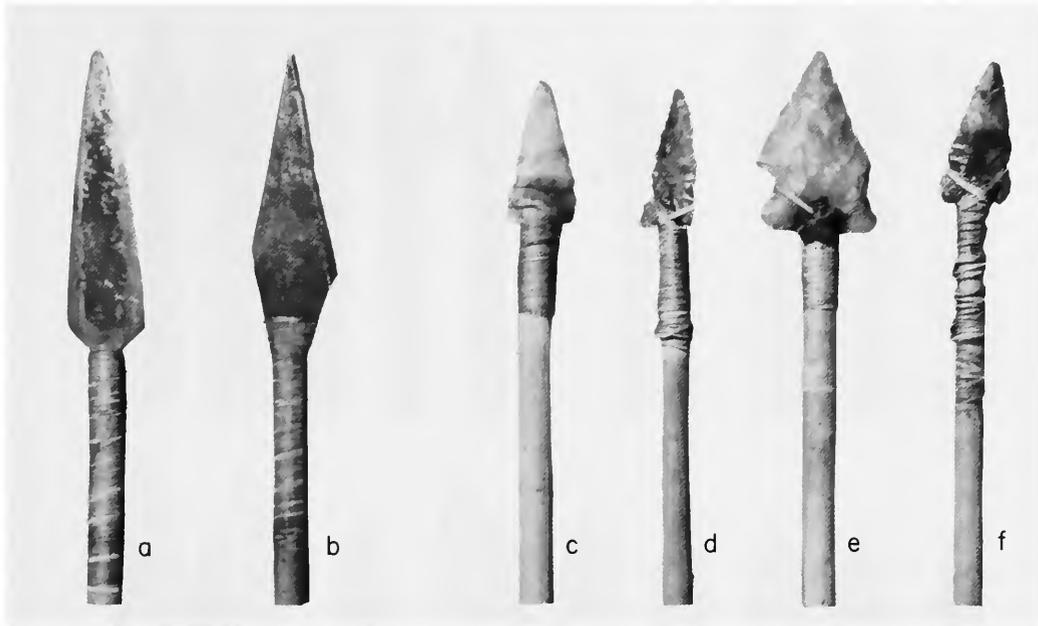


FIGURE 51.—Arrowheads and feathering details. Metal arrow points: *a*, USNM 11199/1, BLS; *b*, USNM 14537/6, MSP. Chipped stone points hafted to shafts: *c*, USNM 14540/1, MSP; *d*, USNM 14540/2, MSP; *e*, USNM 14540/5, MSP; *f*, USNM 14540/7, MSP. Arrow feathering: *g*, USNM 12033/5, DCG; *h*, USNM 12033/6, DCG; *i*, USNM 14537/3, MSP; *j*, USNM 14537/4, MSP; *k*, USNM 14537/5, MSP. (Scale: *a-f*, ca. 2/3; *g-k*, ca. 1/3.)

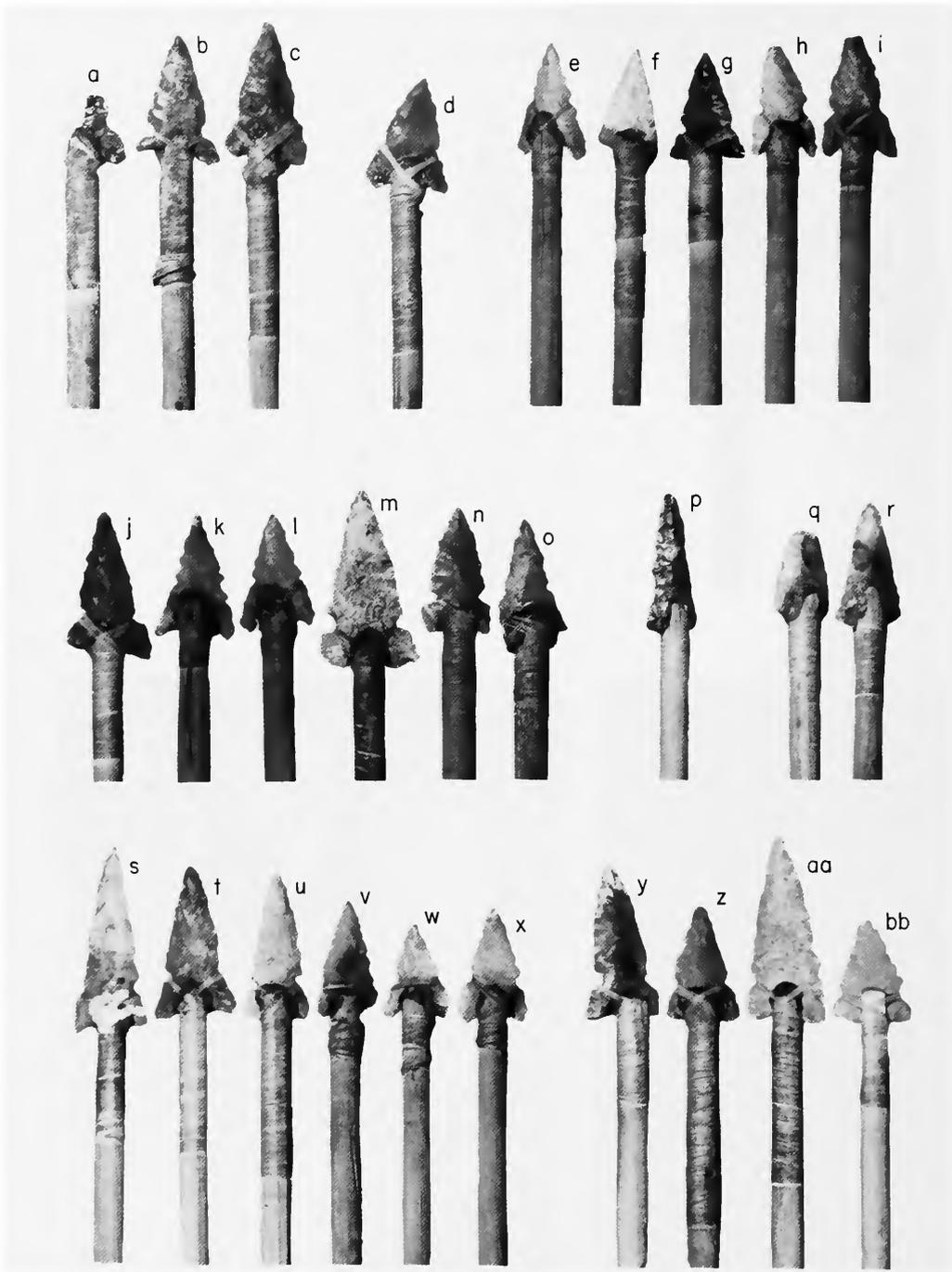


FIGURE 52.—Chipped stone arrow points hafted to shafts: *a*, USNM 11220/1, SPSU; *b*, USNM 11220/2, SPSU; *c*, USNM 11220/3, SPSU; *d*, USNM 11230/1, SPSU; *e*, USNM 12033/2, DCG; *f*, USNM 12033/3, DCG; *g*, USNM 11220/4, SPSU; *h*, USNM 12033/5, DCG; *i*, USNM 12033/6, DCG; *j*, USNM 12036/1, SPSU; *k*, USNM 12036/2, SPSU; *l*, USNM 12036/3, SPSU; *m*, USNM 12036/4, SPSU; *n*, USNM 12036/5, SPSU; *o*, USNM 12036/6, SPSU; *p*, USNM 14536/1, MSP; *q*, USNM 14538/2, KSP; *r*, USNM 14538/3, KSP; *s*, USNM 12027/1, SPSU; *t*, USNM 12027/2, SPSU; *u*, USNM 12027/3, SPSU; *v*, USNM 12027/4, SPSU; *w*, USNM 12027/5, SPSU; *x*, USNM 12027/6, SPSU; *y*, USNM 12041/1, KSP; *z*, USNM 12041/2, KSP; *aa*, USNM 12041/3, KSP; *bb*, USNM 12041/5, KSP. (Scale: ca. 2/3.)

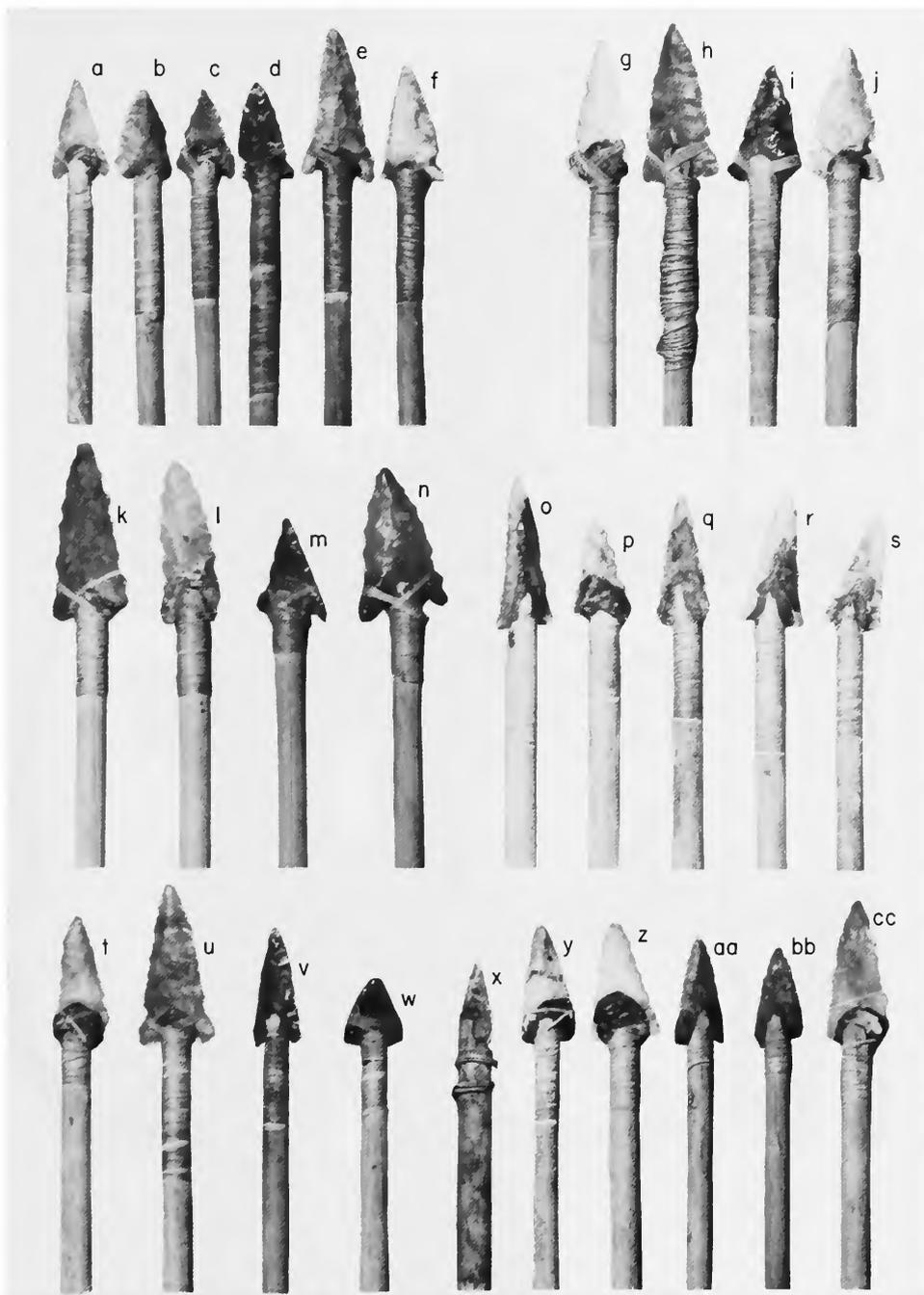


FIGURE 53.—Chipped stone arrow points hafted to shafts: *a*, USNM 12045/1, KSP; *b*, USNM 12045/2, KSP; *c*, USNM 12045/3, KSP; *d*, USNM 12045/5, KSP; *e*, USNM 12045/7, KSP; *f*, USNM 12045/8, KSP; *g*, USNM 14534/1, SPSU; *h*, USNM 14534/2, SPSU; *i*, USNM 14534/4, SPSU; *j*, USNM 14534/5, SPSU; *k*, USNM 14537/2, MSP; *l*, USNM 14537/3, MSP; *m*, USNM 14537/4, MSP; *n*, USNM 14537/5, MSP; *o*, USNM 14539/1, MSP; *p*, USNM 14539/5, MSP; *q*, USNM 14539/6, MSP; *r*, USNM 14539/7, MSP; *s*, USNM 14539/9, MSP; *t*, USNM 14612/1, SPSU; *u*, USNM 14612/2, SPSU; *v*, USNM 14612/4, SPSU; *w*, USNM 14612/5, SPSU; *x*, USNM 14612/6, SPSU; *y*, USNM 14612/7, SPSU; *z*, USNM 14612/10, SPSU; *aa*, USNM 14612/12, SPSU; *bb*, USNM 14612/13, SPSU; *cc*, USNM 14612/3, SPSU. (Scale: ca. 2/3.)

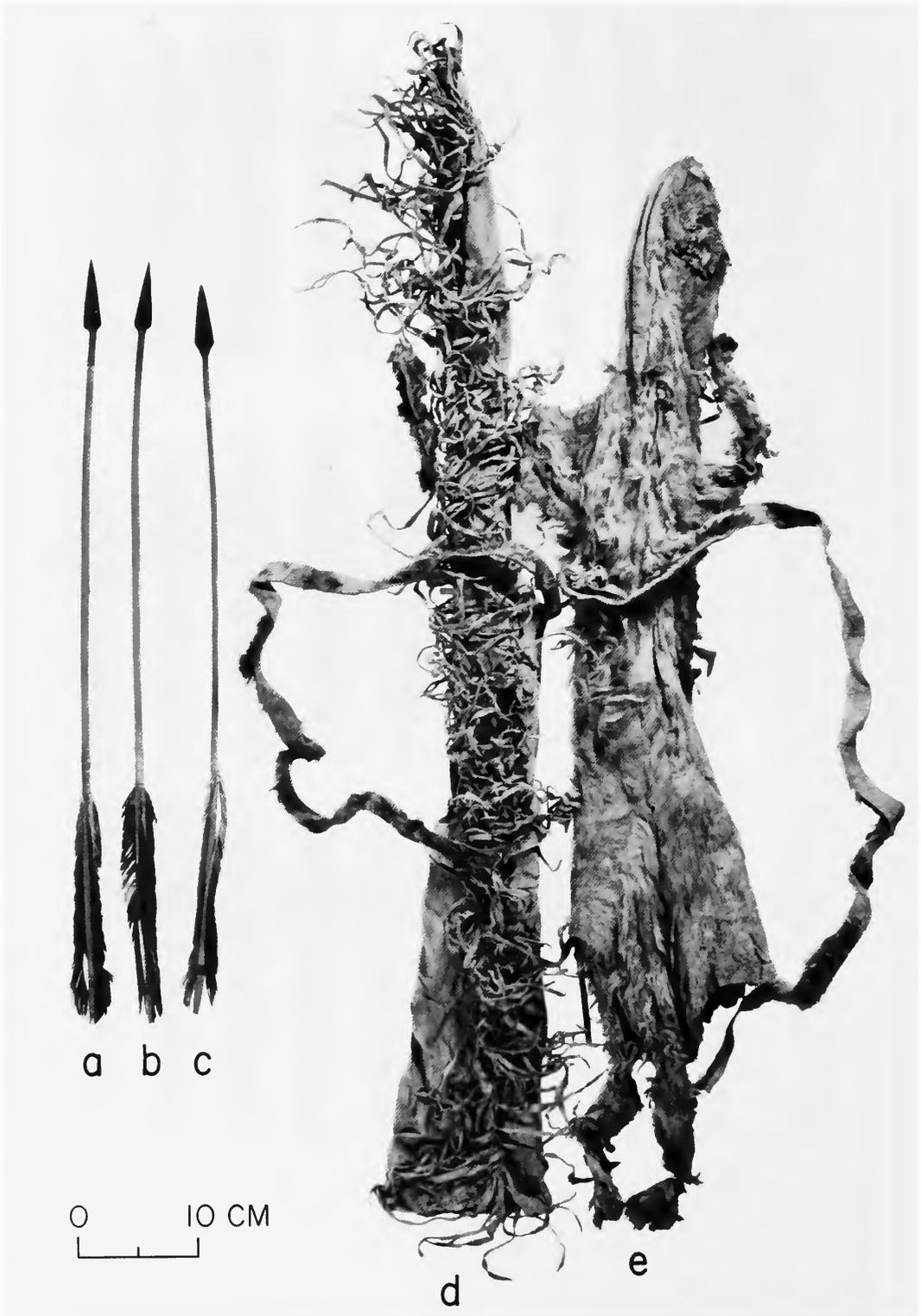


FIGURE 54.—Arrows, KSP: *a*, USNM 14483/1; *b*, USNM 14483/2; *c*, USNM 14483/3.  
Bowcase and arrowcase, KSP: *d*, *e*, USNM 14482.

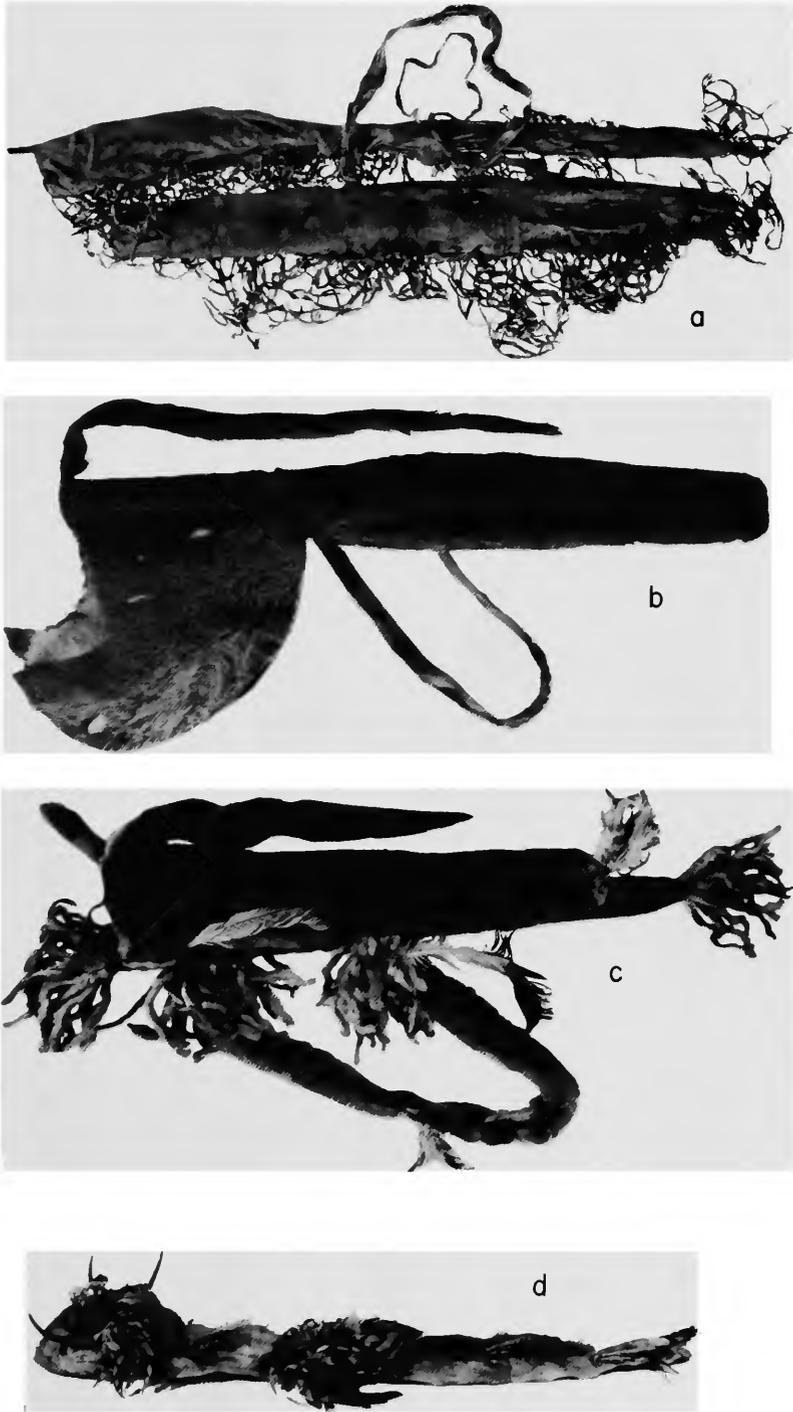


FIGURE 55.—Quivers and horned cap: *a*, quiver, USNM 14489, SSP; *b*, quiver, USNM 14483/4, KSP; *c*, quiver, USNM 19843, GCS; *d*, horned cap with cape, USNM 19833, GCS. (Scale: *a-c*, ca. 1/12; *d*, scale is 10 cm.)

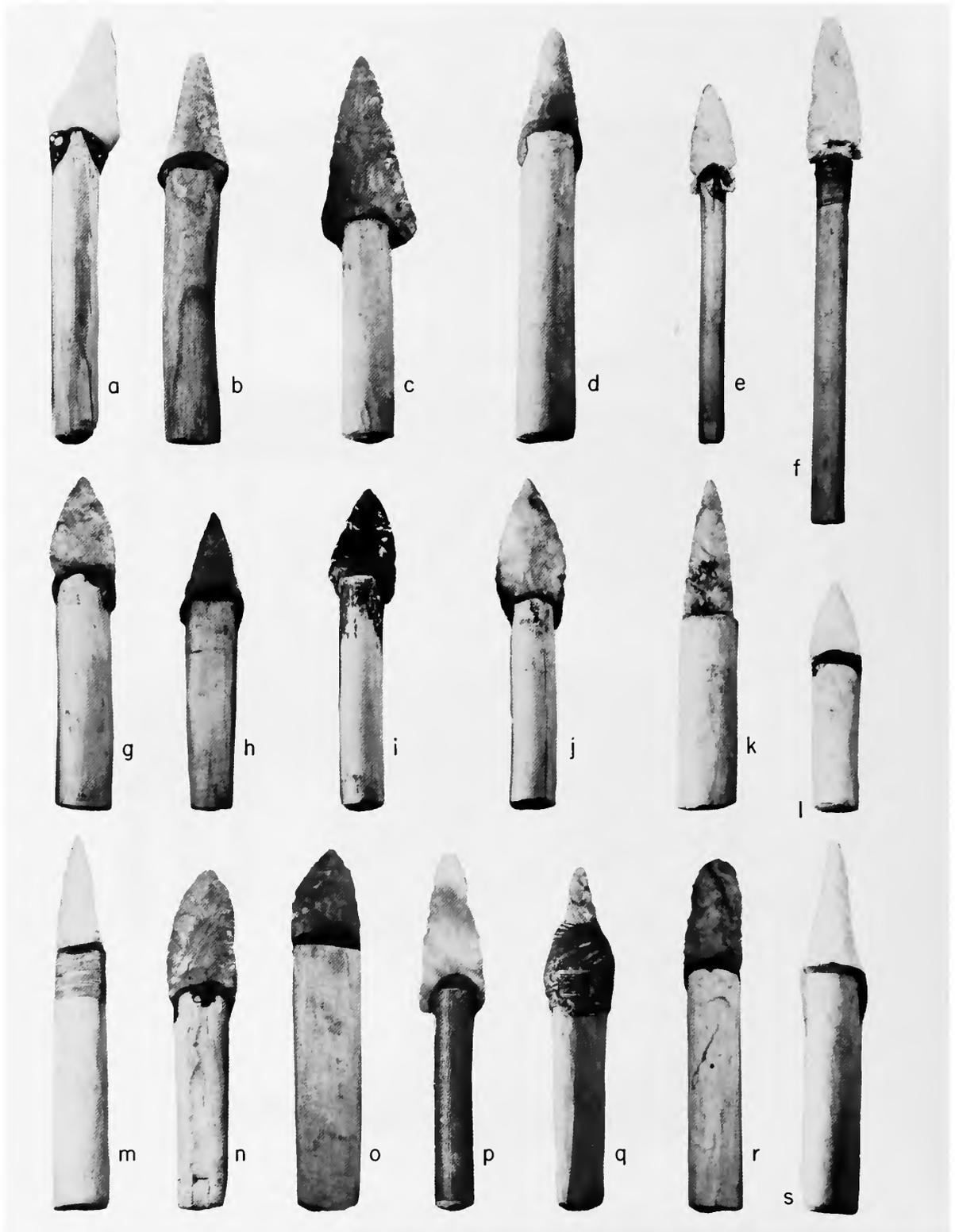


FIGURE 56.—Hafted stone knives, SPSU: *a-s*, USNM 14329/1-19. (Scale: 1/2.)



FIGURE 57.—“The Arrow-maker and his daughter.” Kaibab Southern Paiute. Note hafted stone knife in man’s hand. (Photo by Hillers or Powell, October 1872, BAE neg. 1609.)

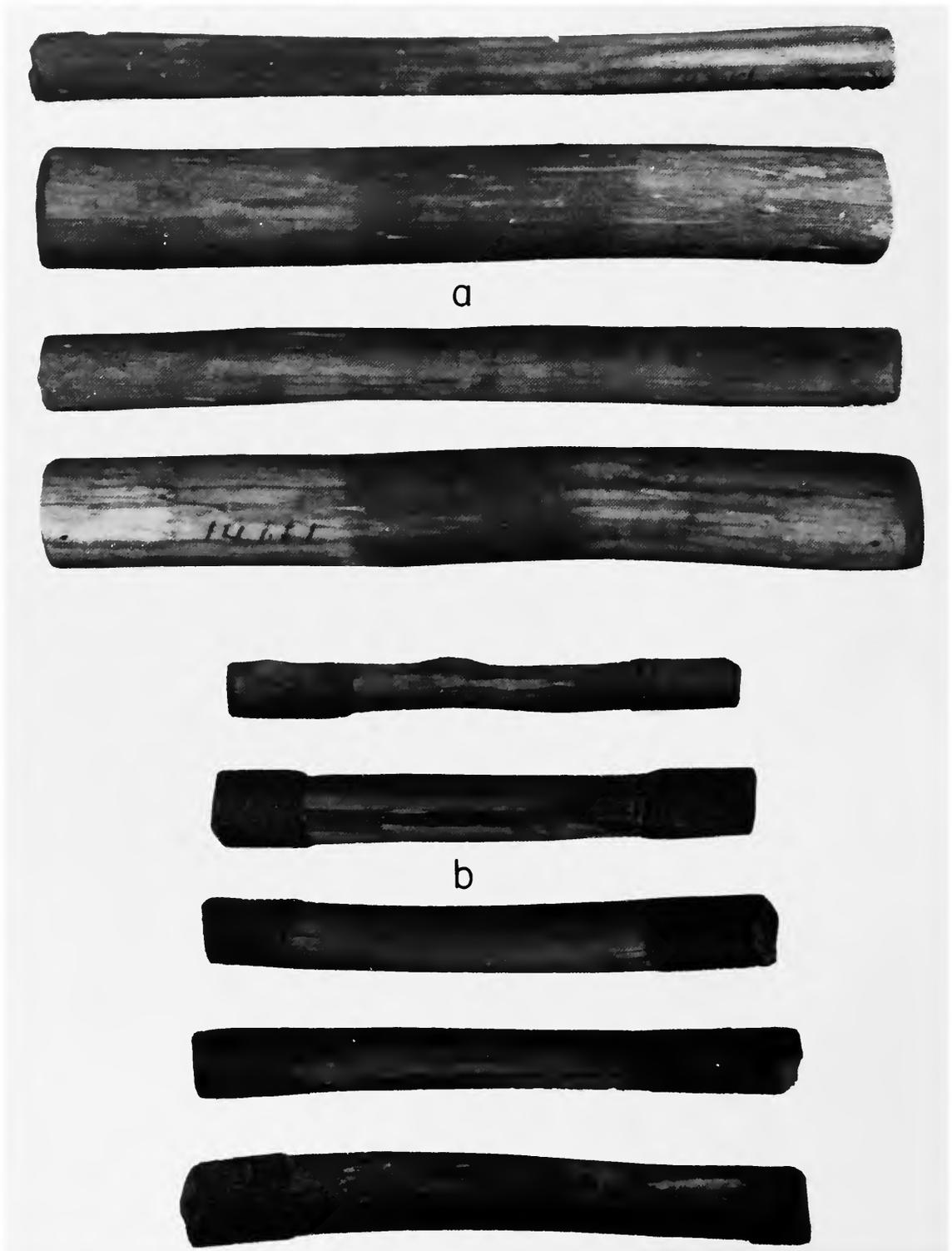


FIGURE 58.—Gaming implements, SPSU: *a*, four-stick game billets, USNM 14661; *b*, hand-game tally sticks, USNM 14663. (Scale: ca. 4/5.)

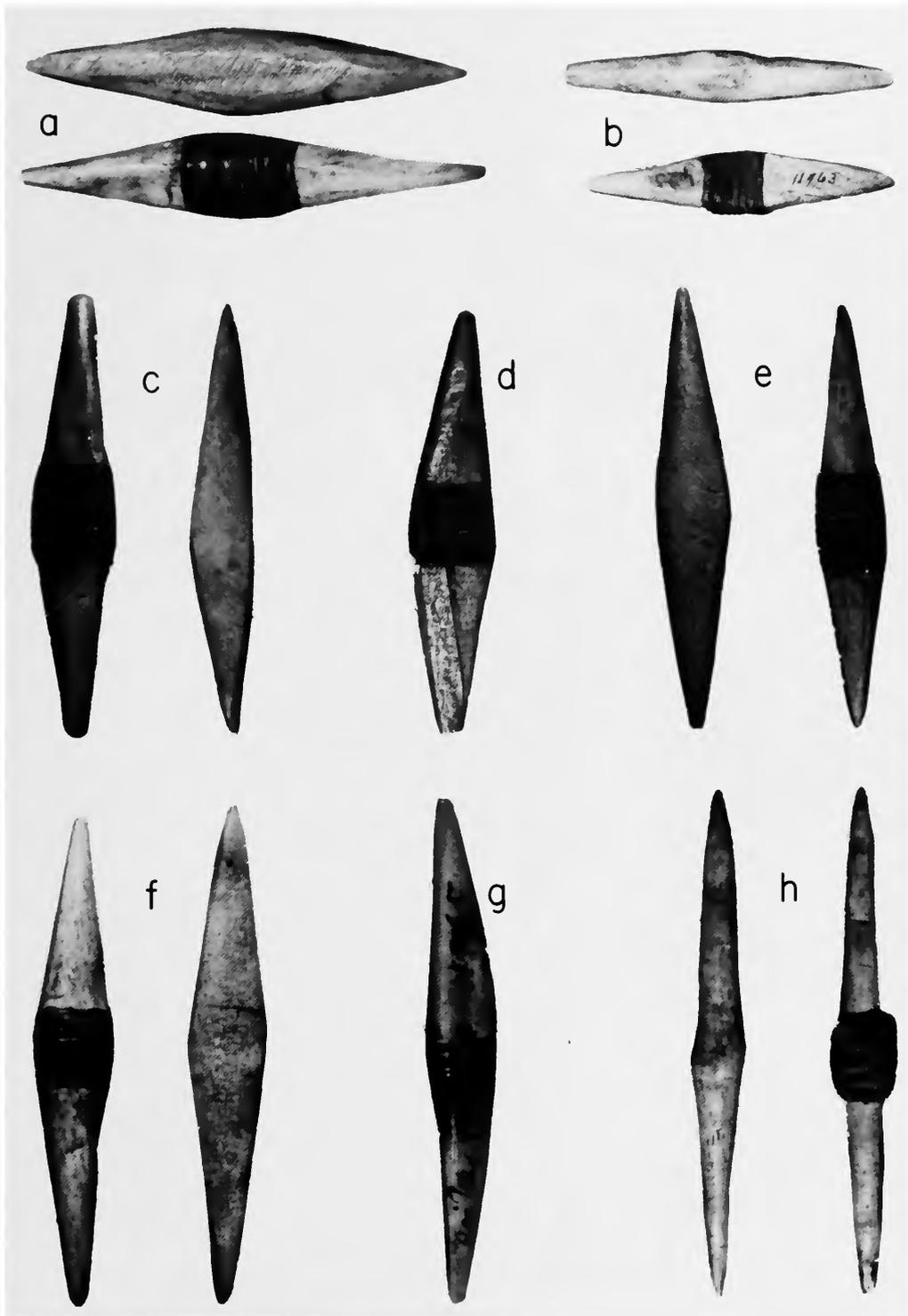


FIGURE 59.—Hand-game bones: *a*, USNM 11968, DCG; *b*, USNM 11963, USP; *c*, USNM 11956, SSP; *d*, USNM 11962, USP; *e*, USNM 11970, KSP; *f*, USNM 11975, MSP; *g*, USNM 11965, SPSU; *h*, USNM 11959, USP. (Scale: *ca.* 3/4.)

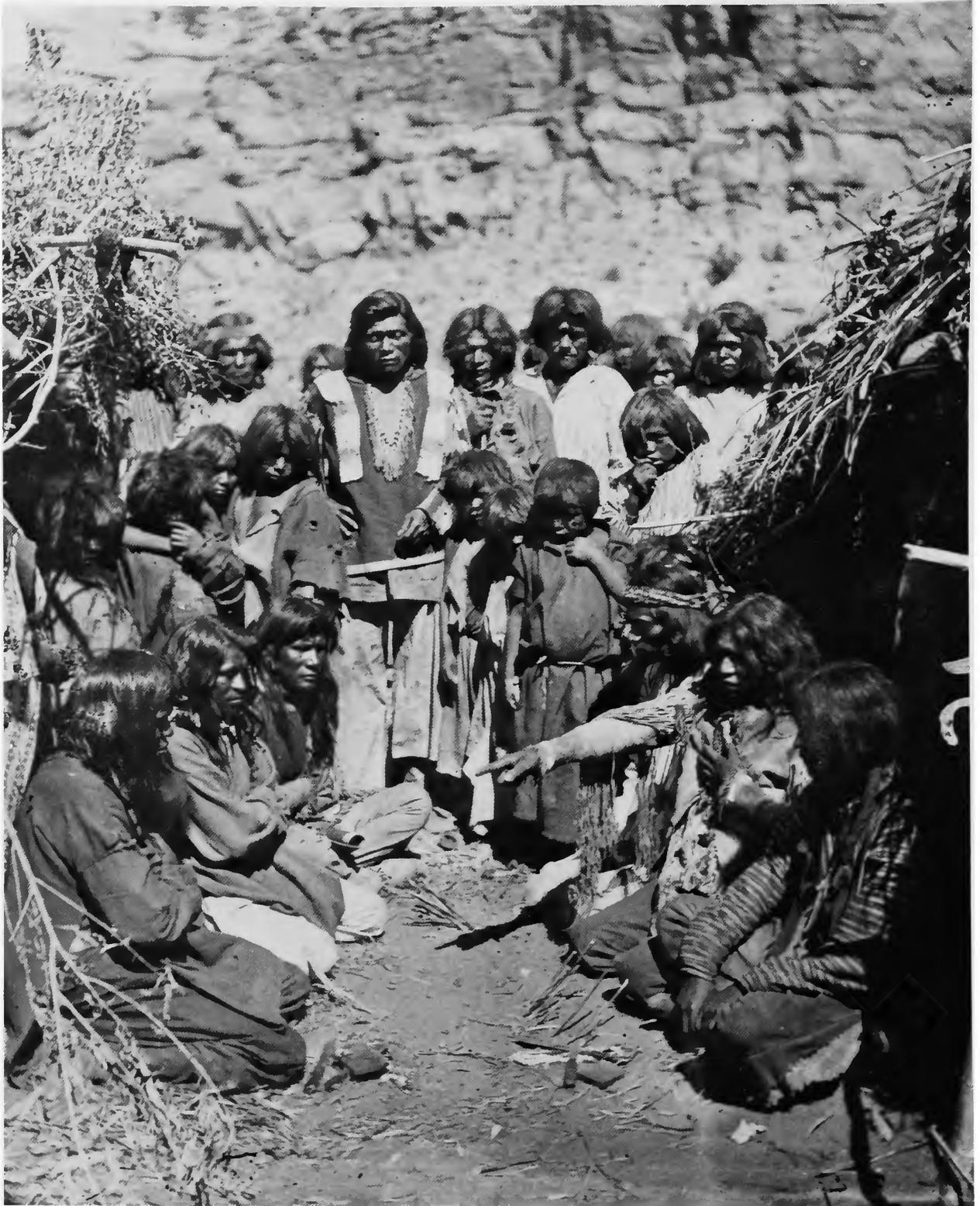


FIGURE 60.—"The game of kill the bone." Kaibab Southern Paiute.  
(Hillers photo 1873, BAE neg. 1624-R.)

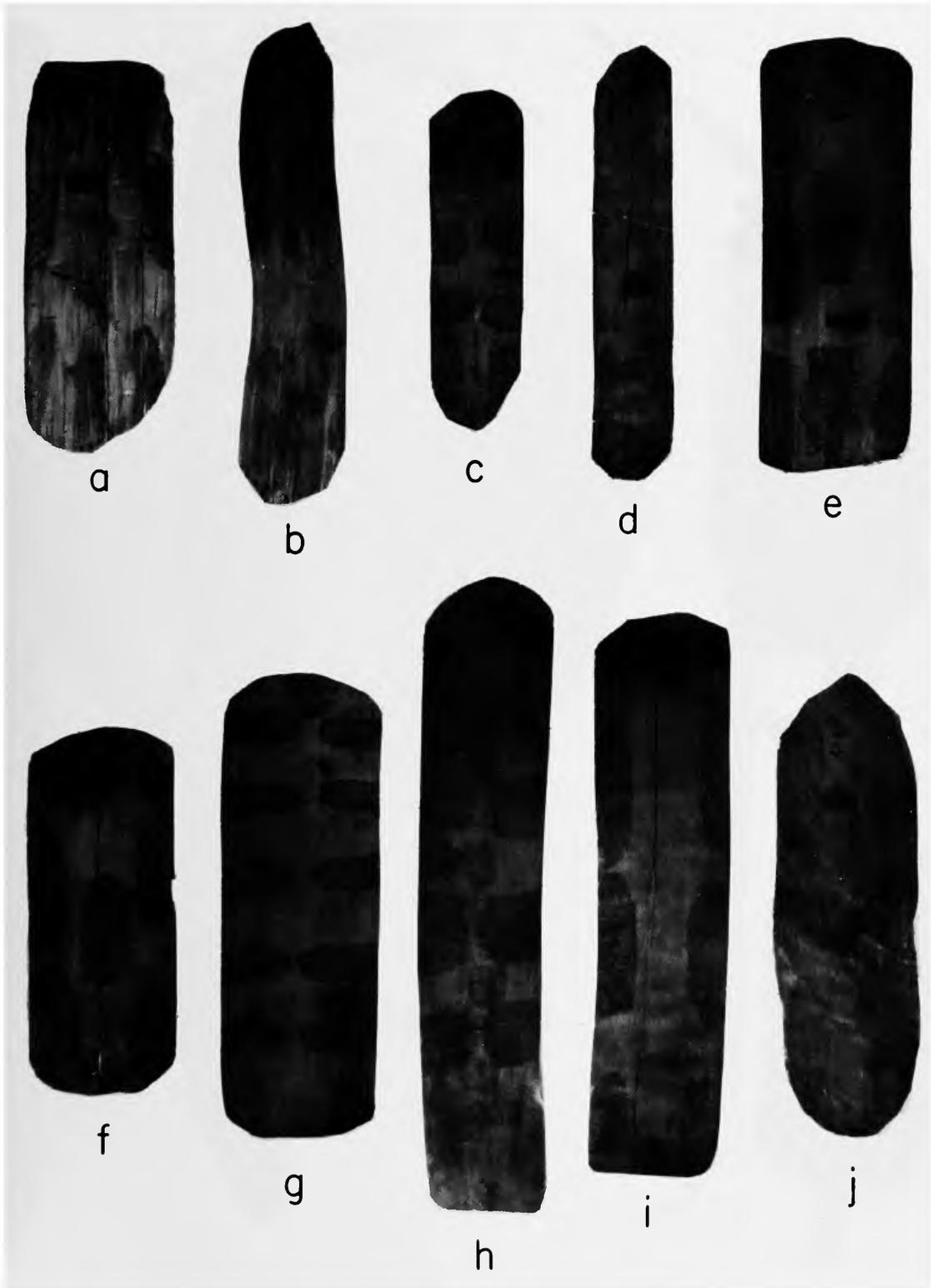


FIGURE 61.—Bark "playing cards, Southern Paiute," USNM 11217. (Scale: *ca.* 1/3.)

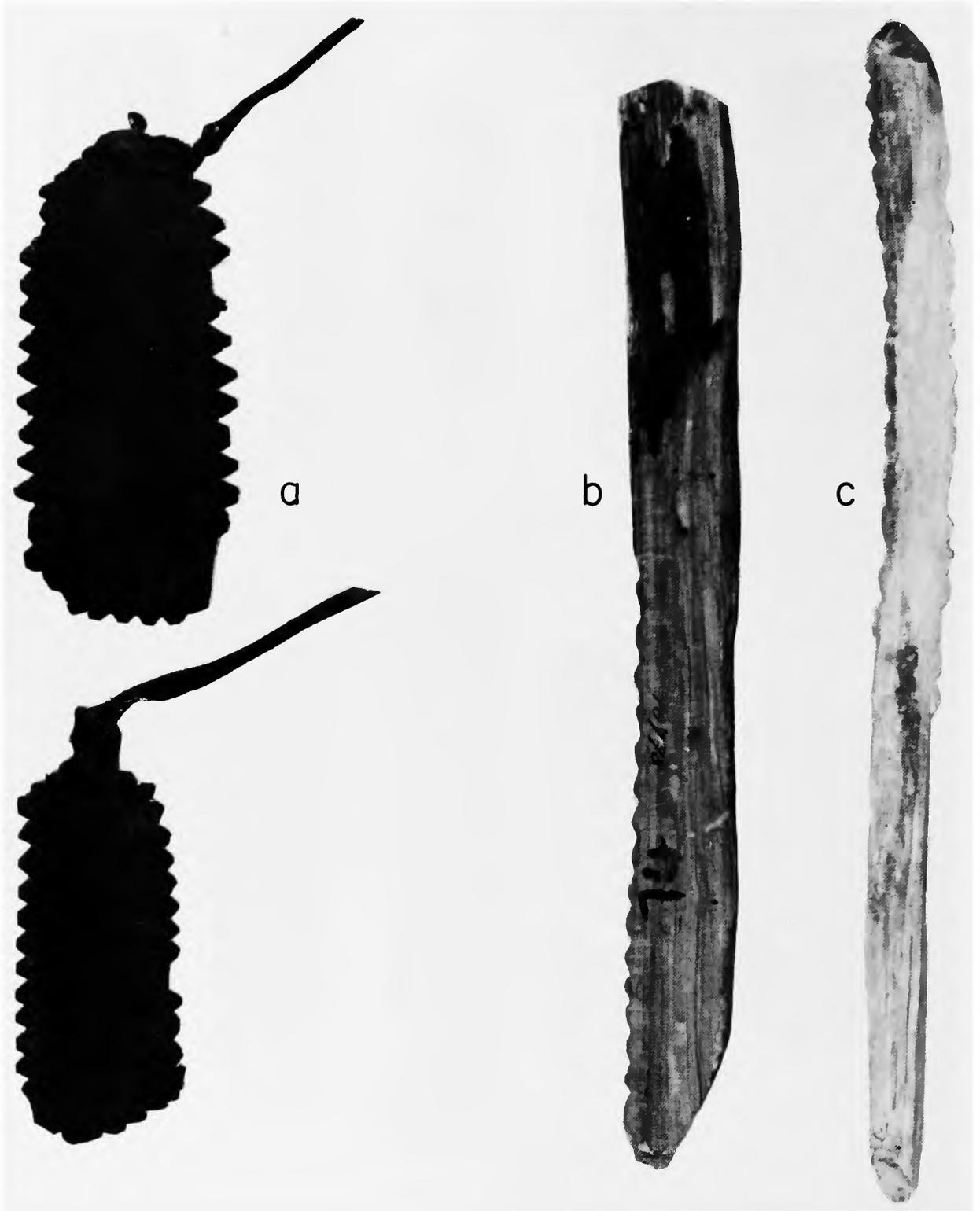


FIGURE 62.—Musical instruments, KSP (?): *a*, bullroarer "whirrers," USNM 10773/1; *b*, rasp, USNM 10773/2; *c*, rasp, USNM 10773/3. (Scale: *a*, ca. actual size; *b*, *c*, ca. 1/2.)



FIGURE 63.—Musical instruments, WRS: *a*, drum with stick, USNM 22013;  
*b*, rasp set, USNM 22027. (Scale: ca. 1/5.)



FIGURE 64.—Miscellaneous items: *a*, wooden sword, USNM 14531, SPSU; *b*, hand drum, under-side and top views, with drumstick, USNM 17220, UU; *c*, fiber brush, USNM 12019, KSP; *d*, tobacco pouch, USNM 10782, UCT; *e*, tobacco pouch, USNM 22005, GCS. (Scale: *ca.* 1/6.)

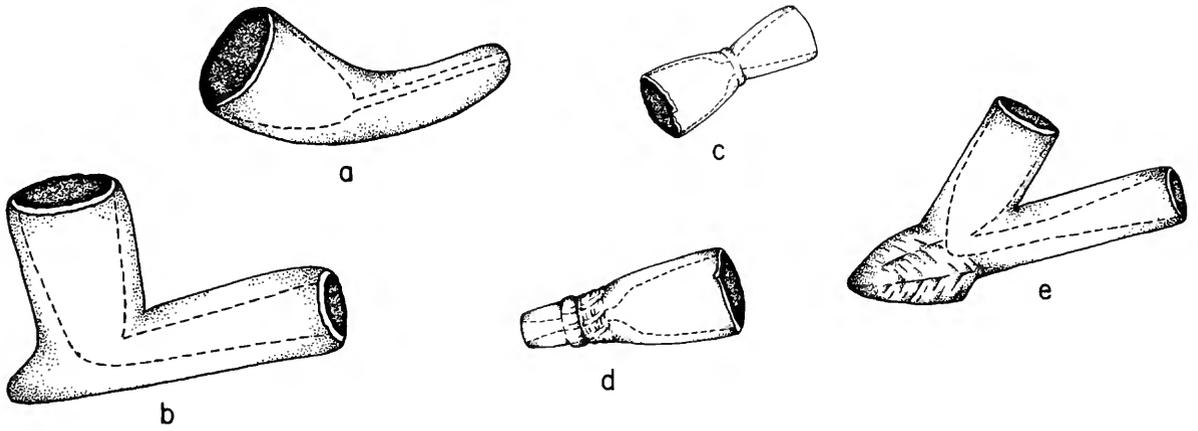


FIGURE 65.—Stone pipes: *a*, USNM 11301, KSP; *b*, USNM 16765, DCG; *c*, USNM 11889, KSP; *d*, USNM 16788, DCG; *e*, USNM 16782, DCG. (Scale: one-half actual size.)

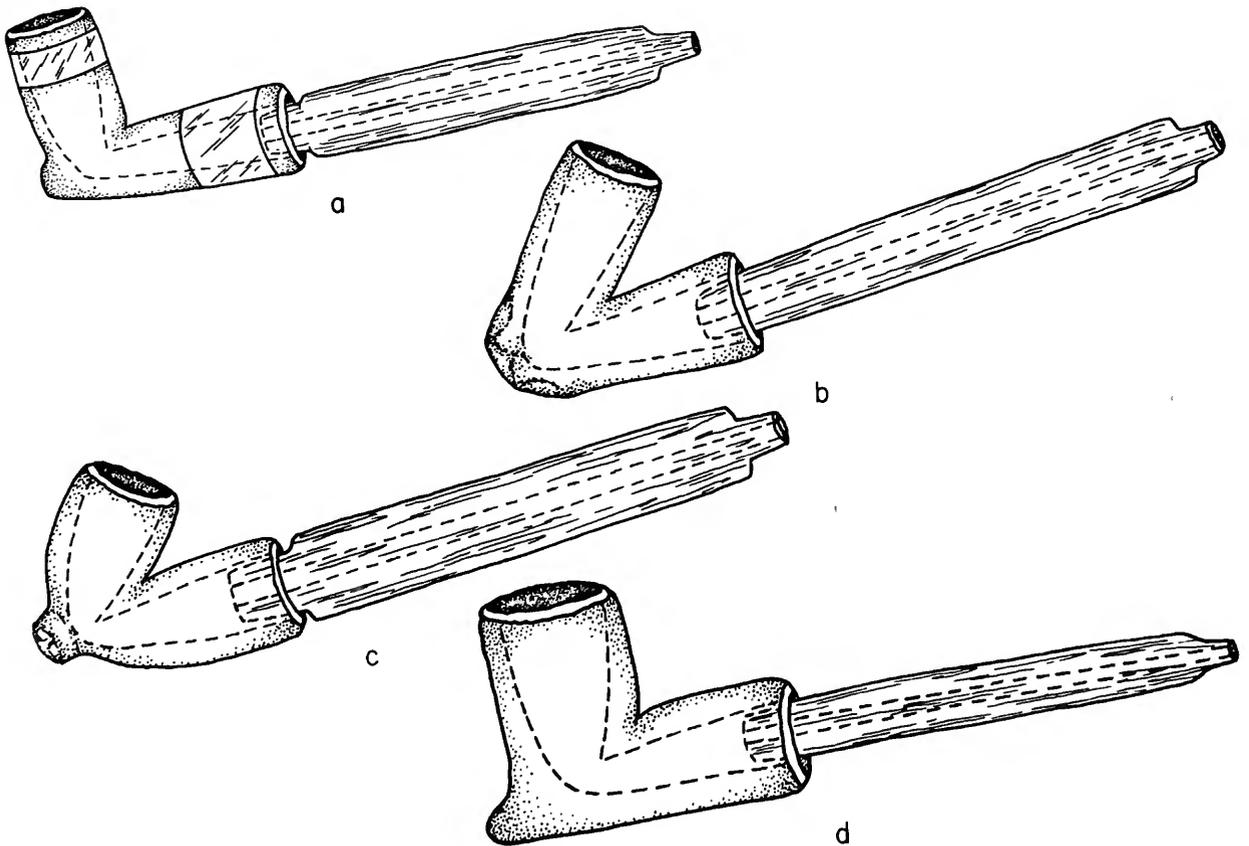


FIGURE 66.—Stone pipes, DCG: *a*, USNM 16787; *b*, USNM 16783; *c*, USNM 16781; *d*, USNM 16784. (Scale: one-half actual size.)



FIGURE 67.—"Kindling fire by friction." Kaibab Southern Paiute.  
(Photo by Hillers or Clement Powell, 1872, BAE neg. 1619-a.)



FIGURE 68.—Hide processing tools and miscellaneous items: *a*, hide scraper, USNM 19893, GCS; *b*, graining tool, USNM 19894, UU; *c*, hide scraper, USNM 19883, UU; *d*, toy bison, USNM 11297, UU(?); *e*, "hairbrush," USNM 14438, SSP; *f*, rabbit hook, USNM 14606, SPSU; *g*, hair ornament, USNM 14614, MSP; *h*, wooden bowl, USNM 11233, KSP. (Scale: *ca.* 1/2.)

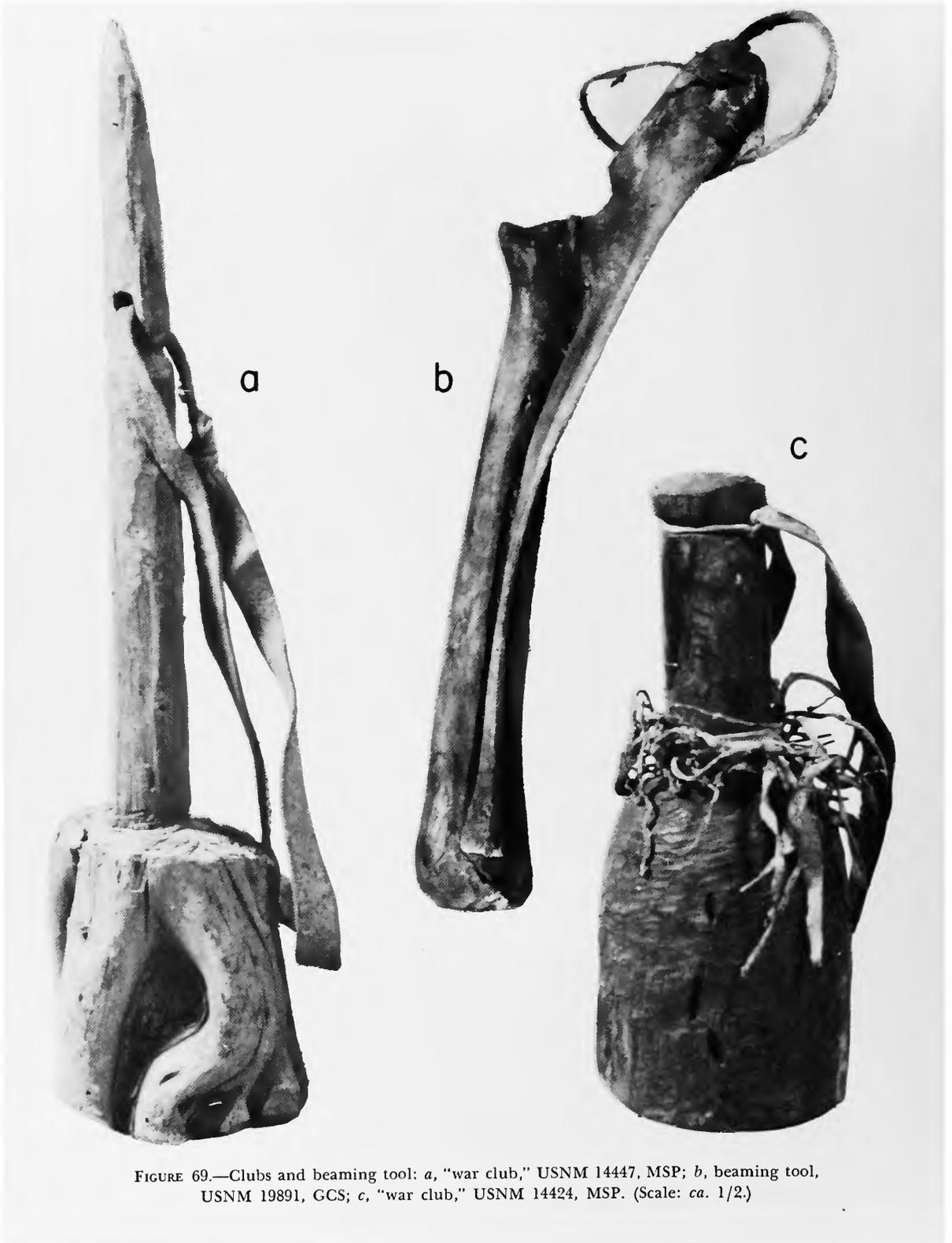


FIGURE 69.—Clubs and beaming tool: *a*, "war club," USNM 14447, MSP; *b*, beaming tool, USNM 19891, GCS; *c*, "war club," USNM 14424, MSP. (Scale: *ca.* 1/2.)



FIGURE 70.—“Ai-at-tau-a, ‘beautiful man,’ chief of the Mo-a-pa-ri-ats.” Moapa Southern Paiute. Man is holding “war club” USNM 14424 (Figure 69c). (Hillers photo, 1873, BAE neg. 1643.)

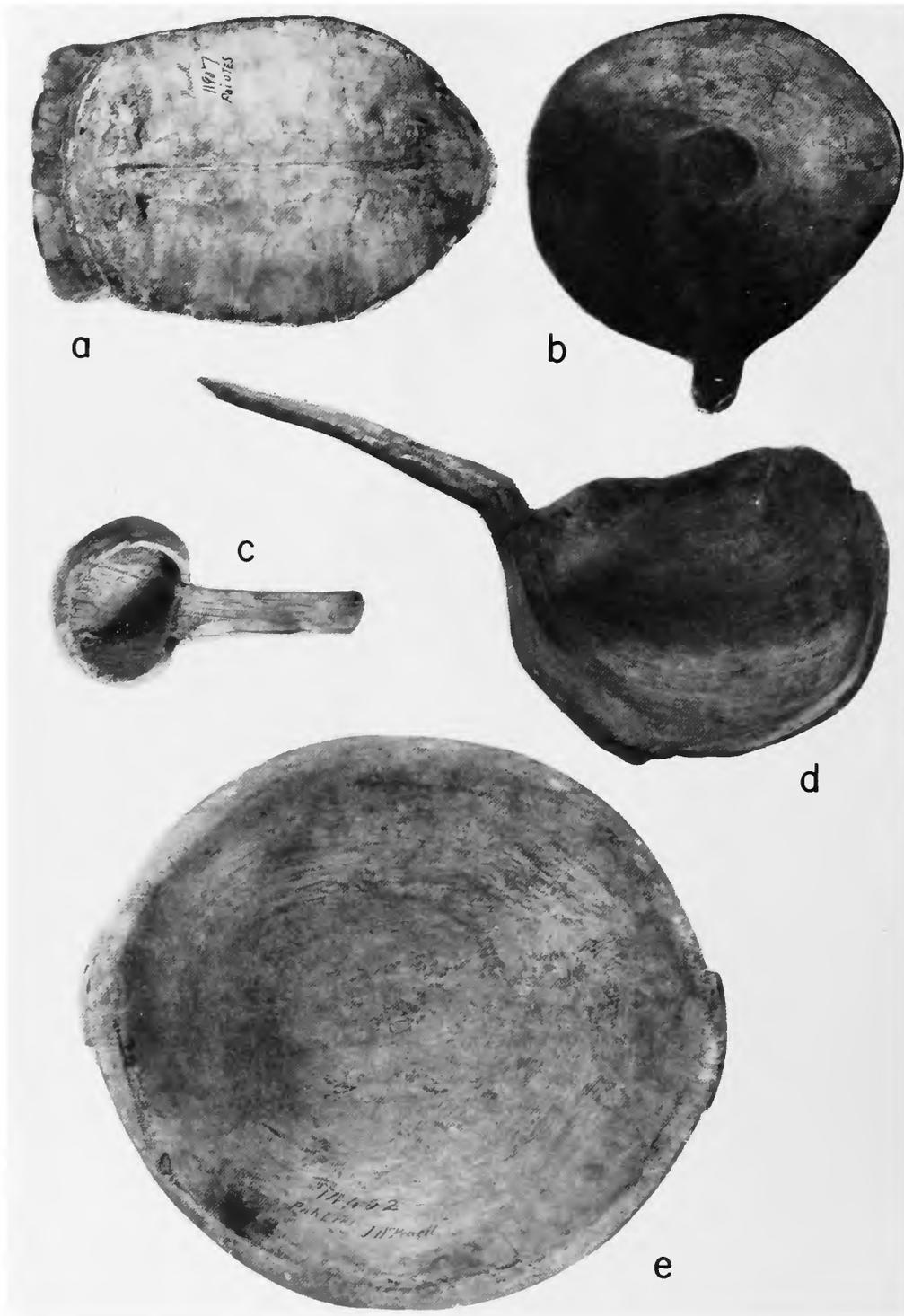


FIGURE 71.—Culinary equipment: *a*, tortoise shell bowl, USNM 11907, KSP; *b*, "meat tray," USNM 10747, KSP; *c*, wooden ladle, USNM 11232, KSP; *d*, wooden ladle, USNM 14455, KSP; *e*, wooden bowl, USNM 14452, KSP. (Scale: 1/4.)

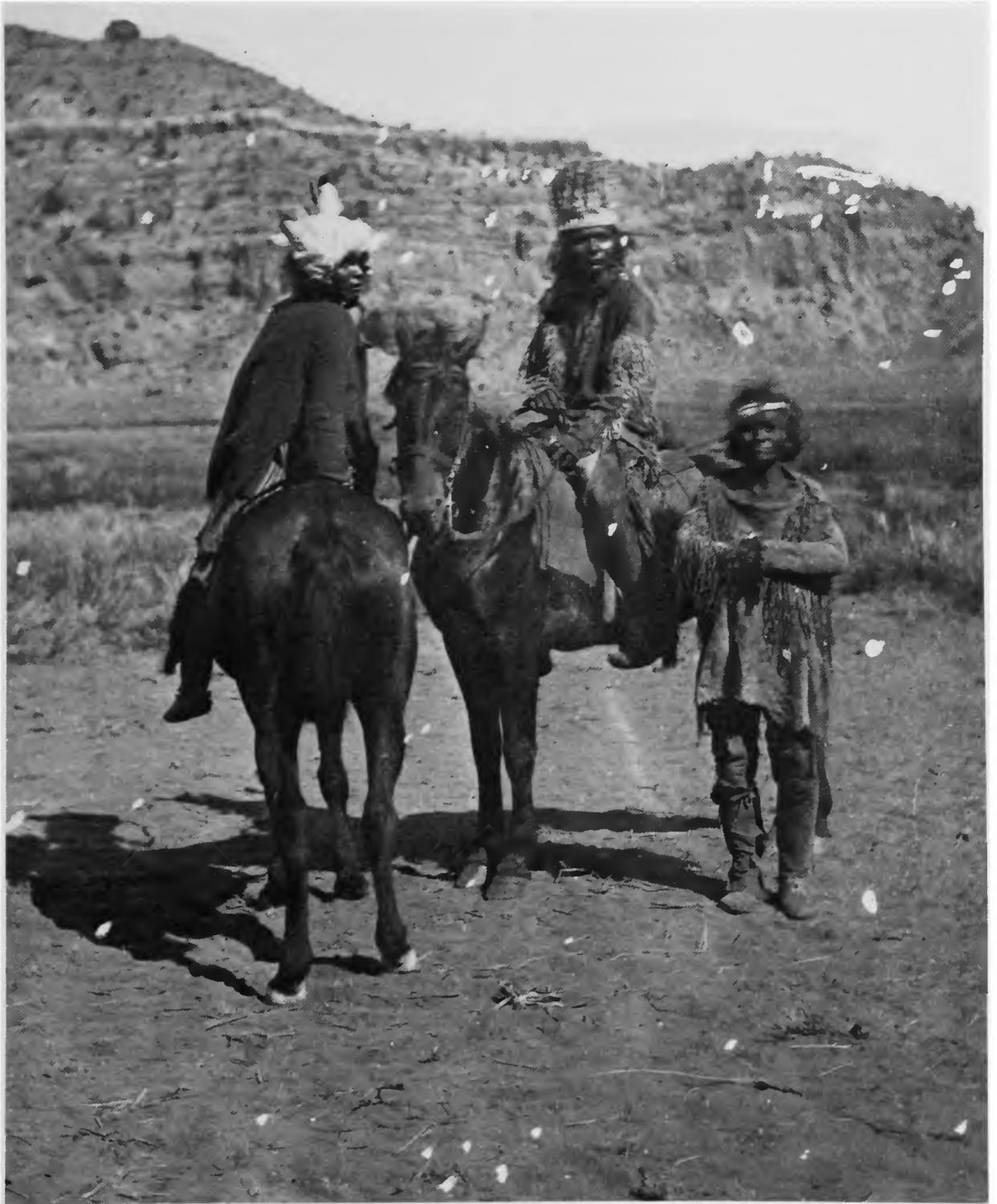


FIGURE 72.—“On the Trail.” Kaibab Southern Paiute men. (Hillers photo, 1973, BAE neg. 1596.)



FIGURE 73.—“Met on the Trail.” Moapa Southern Paiute men in Moapa Valley, Nevada.  
(Hillers photo, 1873, BAE neg. 1620-R.)

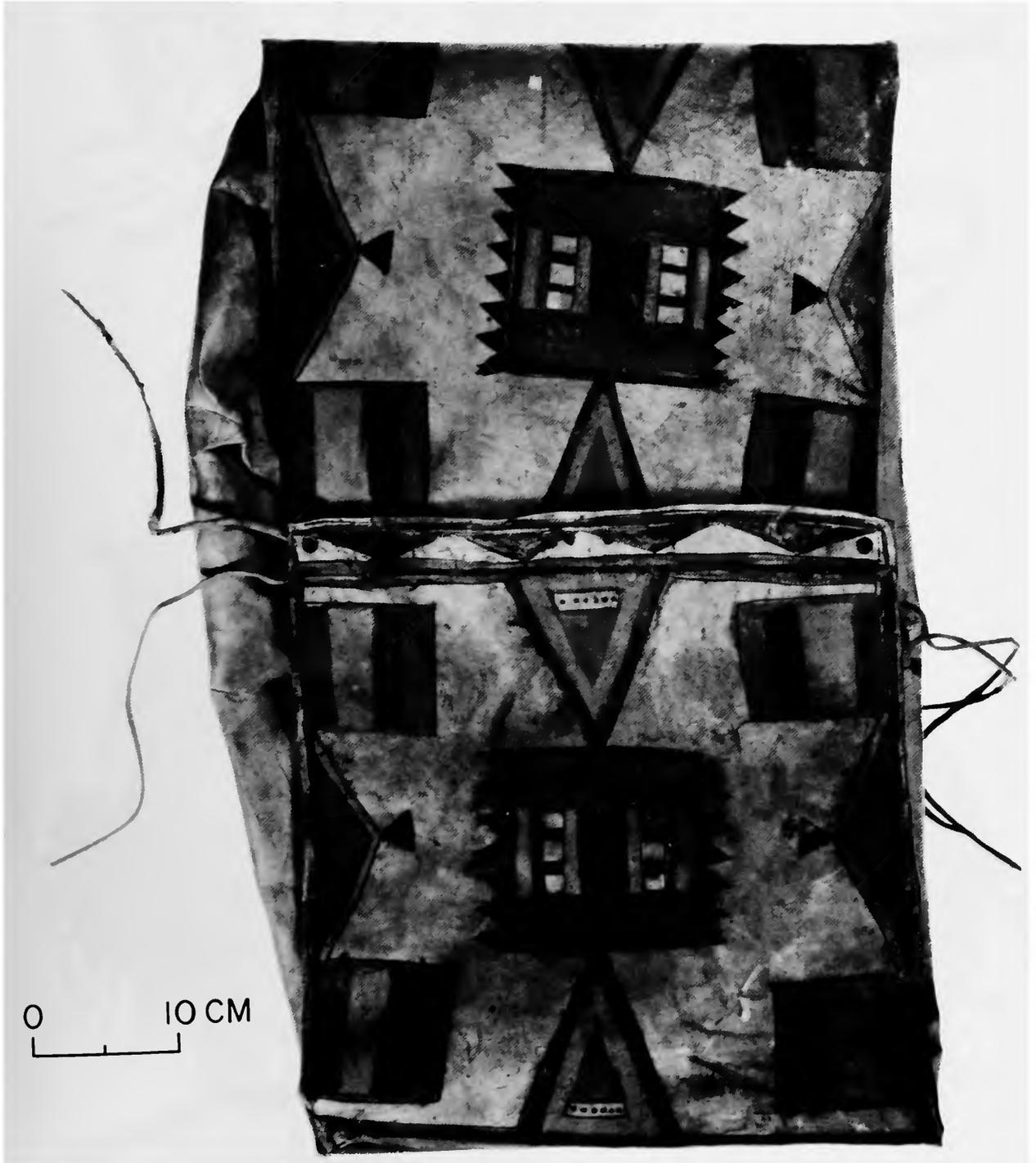


FIGURE 74.—Parfleche, USNM 17196, SU.



FIGURE 75.—Woman's saddle, USNM 11035, SU. (Scale: 1/5.)



FIGURE 76.—Woman's saddle, front and side views, USNM 17197, UU(?). (Scale: *ca.* 1/7.)



FIGURE 77.—Saddle bag, USNM 10793, SU.

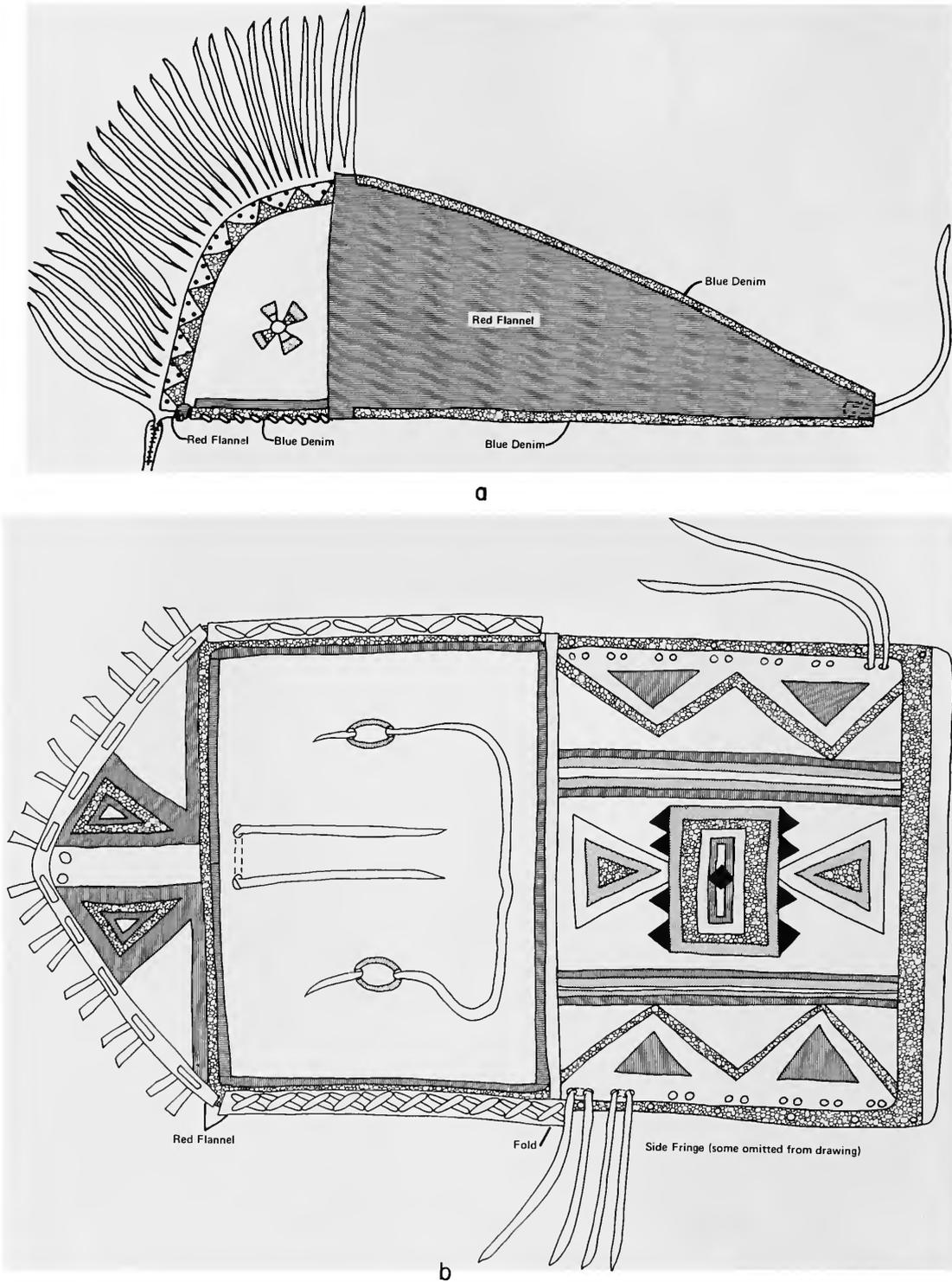
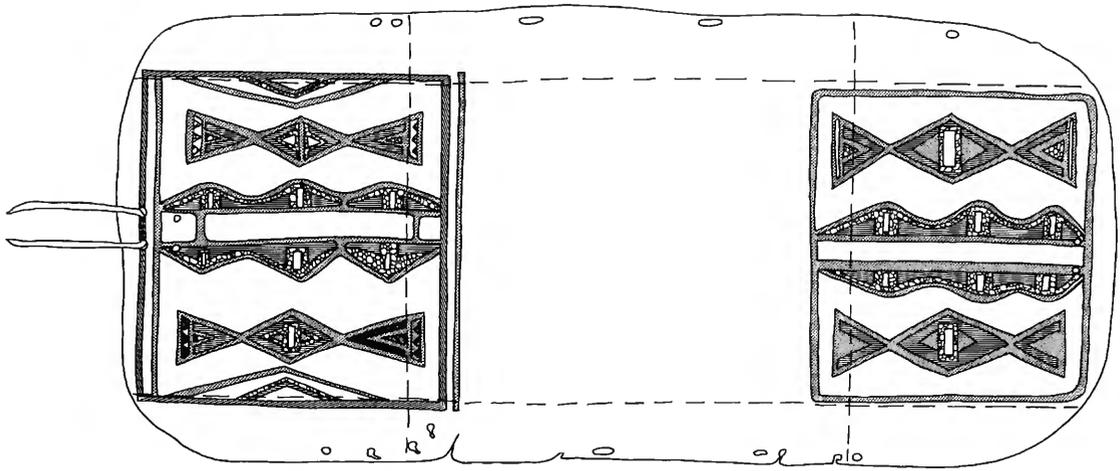
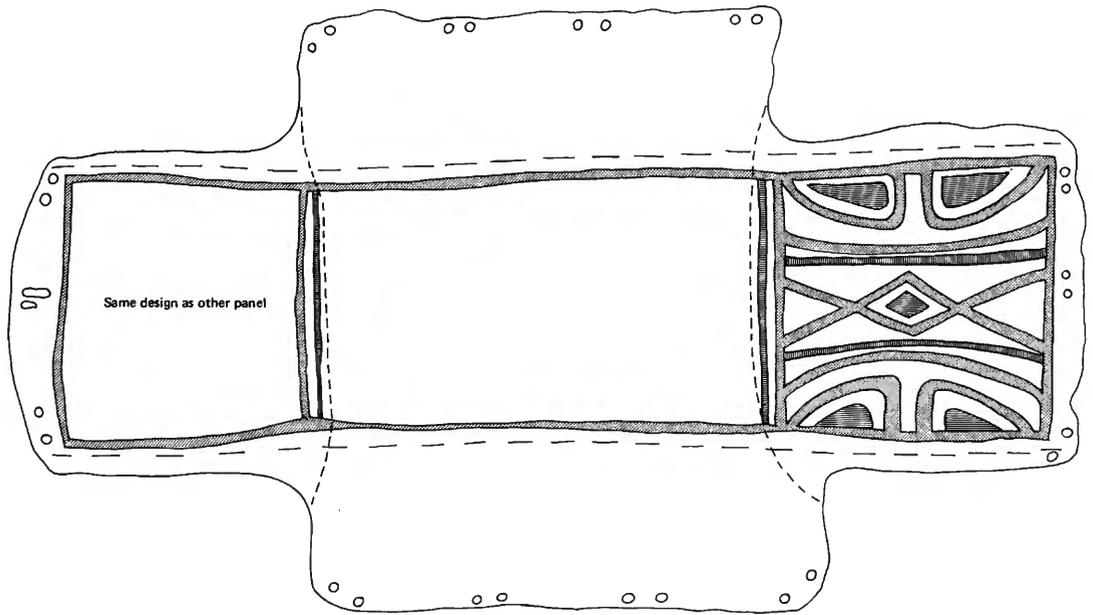


FIGURE 78.—Horse equipment: *a*, one side of crupper, USNM 14399, MSP(?);  
*b*, saddle bag, USNM 17222, UU. (Not to scale.)



a



b

FIGURE 79.—Parfleches, outside views: *a*, USNM 14641, KSP; *b*, USNM 14642, MSP.  
(Dashed lines indicate folds; not to scale.)

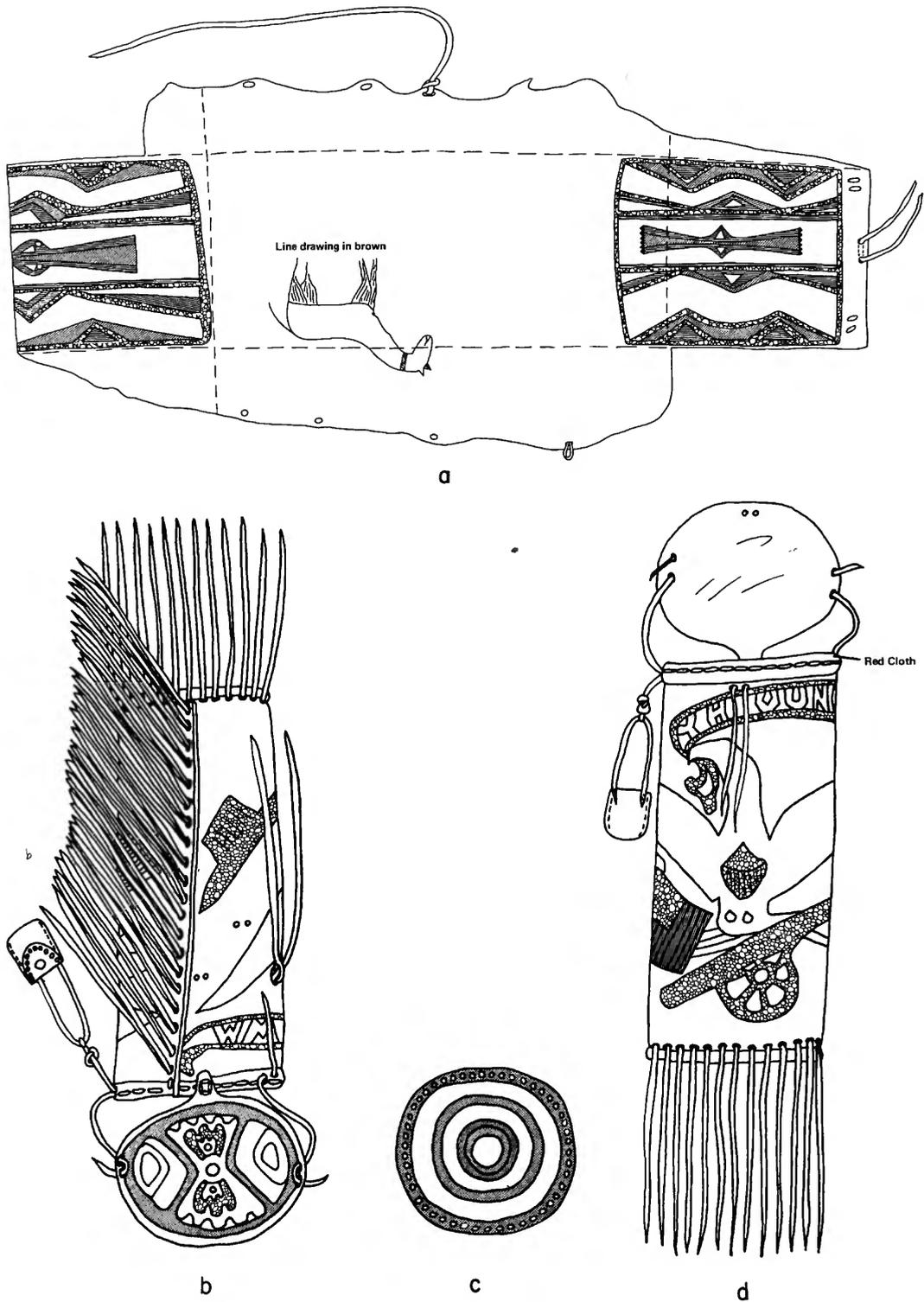
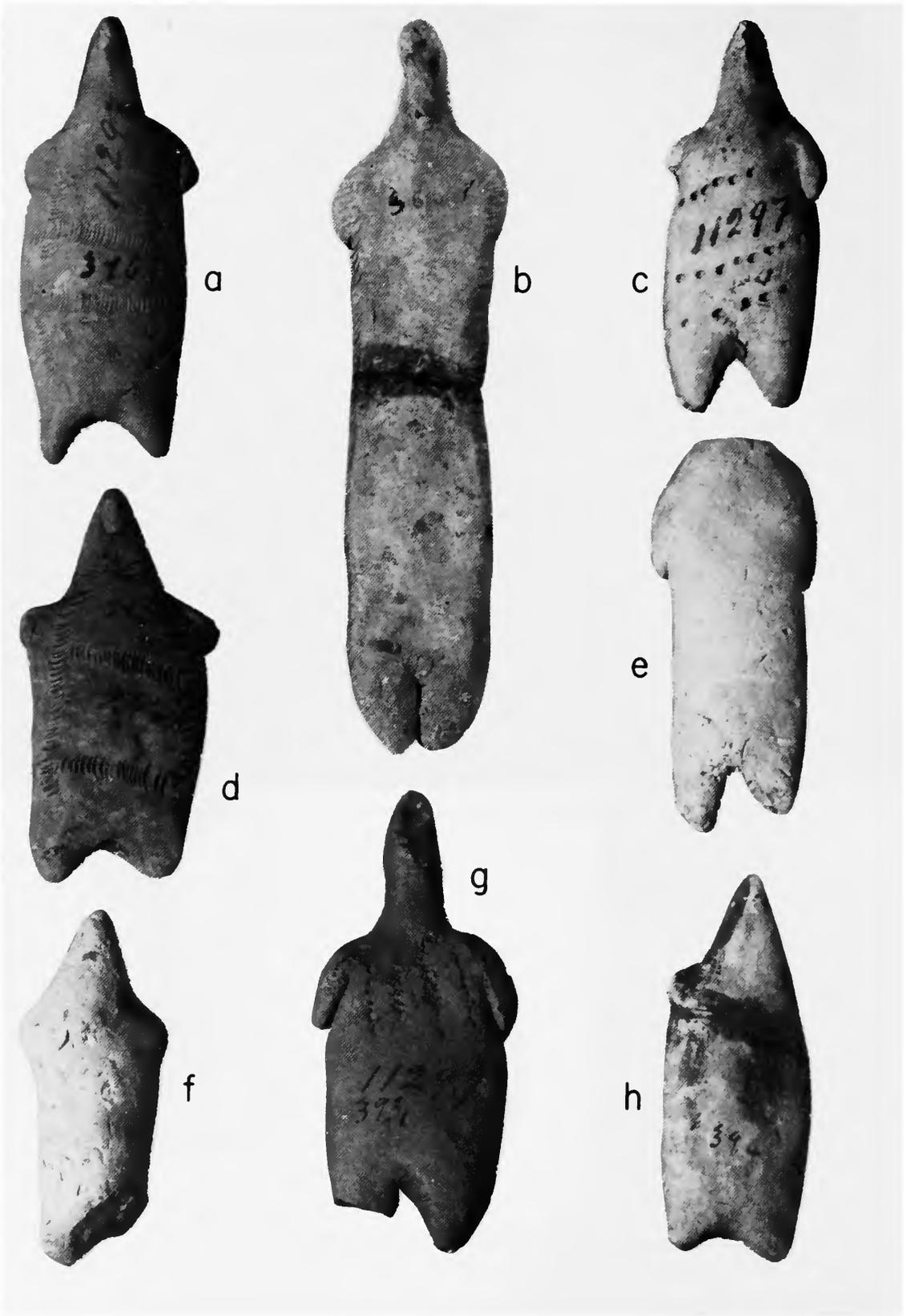


FIGURE 80.—Horse equipment. Parfleche: *a*, USNM 14640 (line drawing of horse in brown), UU. Rawhide saddle bag, USNM 27826, WRS: *b*, back view; *c*, bottom piece; *d*, front view. (Not to scale.)



FIGURE 81.—Las Vegas Southern Paiute man. (Hillers photo, 1873, BAE neg. 1644.)



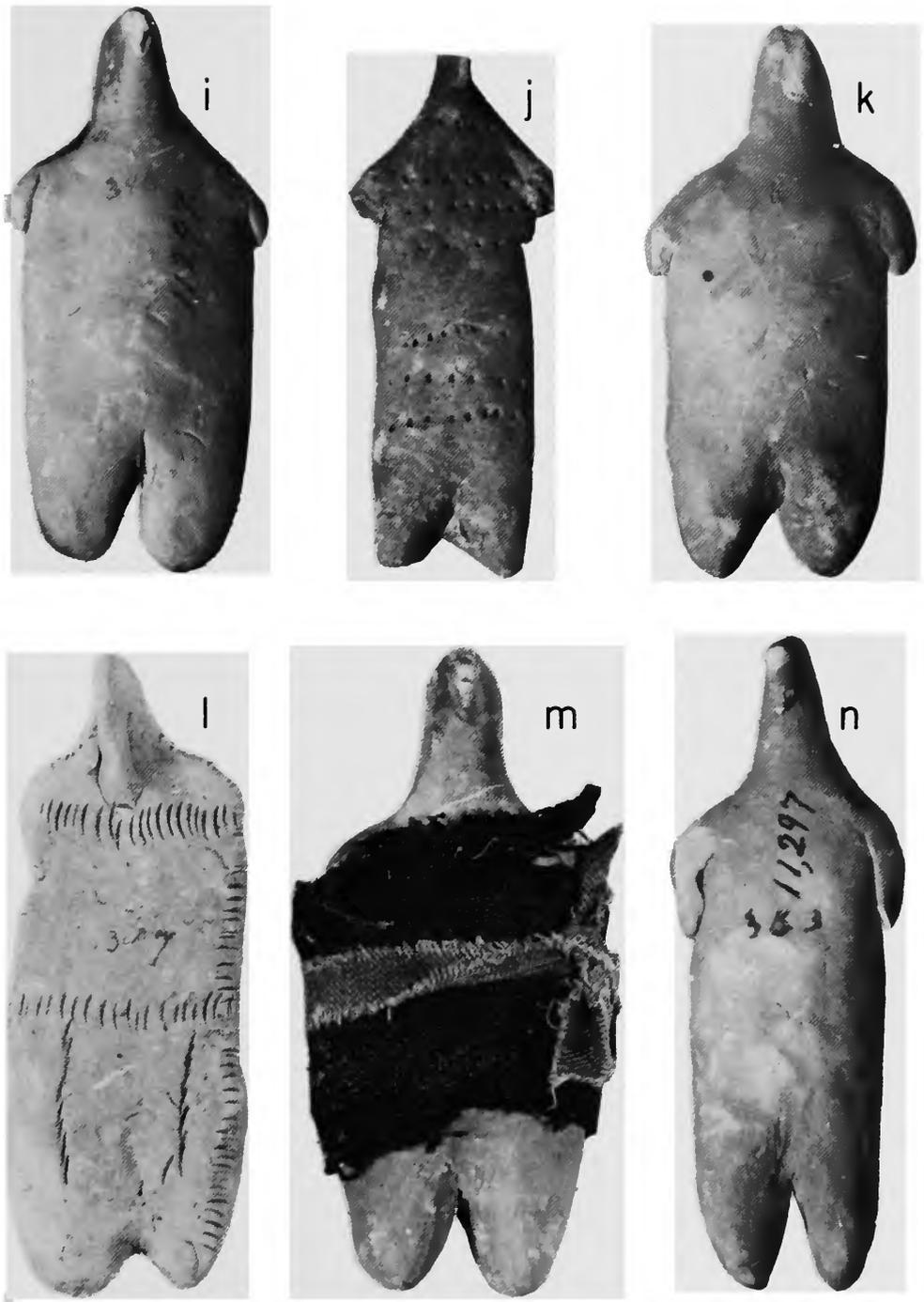


FIGURE 82.—Unfired clay figurines, USNM 11297, SPSU. (Scale: a-n, 2/5.)



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