

WYOMING
ARCHAEOLOGICAL
SOCIETY

THE WYOMING ARCHAEOLOGIST



SEPTEMBER ISSUE 1978

VOL. XXI NO. 3

THE WYOMING ARCHAEOLOGIST is published quarterly by the Wyoming State Archaeological Society, George W. Brox, Editor. Address manuscripts and news items for publication to: The Editor, 1128 - 11th Street, Rawlins, Wyoming, 82301.

NOTE: Membership period is from January through December and includes all issues published during current year regardless of the month the subscription commences. All subscriptions expire with the Winter issue and renewals are due the first part of January each year.

NOTE: If you move or have a change of address, please notify the Executive Secretary, Judy Pinner, Anthropology Department, University of Wyoming, Laramie, Wyoming, 82071. Your WYOMING ARCHAEOLOGIST will not be forwarded unless a payment of 50¢ is received for return and forwarding postage.

NOTE: Checks for Chapter Subscriptions and renewals should be sent to the Chapter Secretary involved. All other checks, subscriptions, and renewals should be addressed to: Milford Hanson, Route # 1 - Box 1080, Cody, Wyoming, 82414. Correspondence and orders for back issues should be addressed to Judy Pinner, Anthropology Department, University of Wyoming, Laramie, Wyoming, 82071.

* * * * *

1978 MEMBERSHIP NOTICE

WYOMING ARCHAEOLOGICAL SOCIETY, INC.

- _____ Individual Associate Membership @ \$6.00 per year.
- _____ Single Active Membership @ \$5.00 per year. _____ Chapter Name.
- _____ Family Active Membership @ \$7.50 per year. _____ Chapter Name.
- _____ Institutional Membership @ \$7.50 per year.
- _____ Other Membership, including: \$10.00 Supporting, Yearly
(circle one) \$20.00 Contributing, Yearly

Please make your checks payable to WYOMING ARCHAEOLOGICAL SOCIETY, INC.

NAME _____

Address _____

City _____ State _____ Zip Code _____

The 1978 summer meeting of the Wyoming State Archaeological Society was held August 5th and 6th. The location was the Dennison Ranch 26 miles southeast of Dubois near the Lookingbill site.

Forty persons attended from Cheyenne, Laramie, Saratoga, Rawlins, Casper, Lander and Riverton, Wyoming and Longmont, Colorado.

Saturday morning the group went to the Lookingbill site and enjoyed a brief resume given by Dr. George Frison about the site. Because of the moisture present, the state archaeological crew was not digging the site. It is possible that they may work there later this year if conditions permit. Some of the group walked approximately two miles to a nearby quarry site and speculated on the activities there.

Later in the morning Dr. Frison led the group to an easily accessible mountain sheep trap and explained how it was used some 200 years ago, by the pedestrian Shoshone Indians.

After returning to camp for lunch, two groups were formed. One group hunted artifacts near Goose Lake Saturday afternoon. The other group of eight hearty souls followed Dr. Frison $1\frac{1}{2}$ miles up a steep mountain to view a magnificent sheep trap which is shown in Dr. Frison's new book Prehistoric Hunters of the High Plains.

Saturday evening around the campfire, the Fremont County Chapter treated the group with plenty of delicious watermelon.

Sunday morning Jim and Lucille Adams led an interested group some thirty-four miles to Trail Lake to view the magnificent petroglyphs there.

Beautiful weather augmented the wonderful time enjoyed by all attending.

Report by: Ray S. Gossett, D.D.S.
Fremont County Chapter

TABLE OF CONTENTS

	<u>Page</u>
Wyoming Archaeology Society	Appendix A
Wyoming Recreation Commission	Appendix B
Membership and Subscription	Appendix C
Table of Contents	1
Editor's Notes and Archae Annie	2
Some Problems in the Analysis of Glass Beads from Post-Contact Burials in Southeastern Wyoming by Gene Galloway	3
The Sand Creek Burial from Central Wyoming by Wm. E. Scoggin, DDS, HBP	10
Appendix I: The Sand Creek Skeleton by George W. Gill	21

EDITOR'S NOTES

Wyoming summers are noted for their brevity, so we feverishly crowd in all the activities possible. (To the exclusion of some activities that shouldn't be ignored.)

By the time this issue is published (and hopefully read), summer will about be concluded and life may slow to a more normal pace. At that time, I'm sure someone from each chapter will supply a record of activities to be published in the December issue. This is your publication and we welcome your contributions toward this end. The Sand Creek Burial is an excellent example of amateur participation. We need more effort in this direction.

The report of the annual meeting failed to acknowledge Irene Morgan's contribution to the land survey done by the Fremont Chapter. She was co-chairman of the project and did much of the typing and preparation for publication. Irene also received the Golden Trowel Award at the April meeting.

Please accept my apologies Irene, and bear with any oversights past or future on my part.

* * * * *

ARCHAE ANNIE

There has been very little response to our questions or answers from the reader-members of the Wyoming Archaeological Society. Certainly somewhere out there, there are amateurs interested enough in Wyoming's pre-history to wonder about the "how comes" and the "what fors" we find when we hunt for artifacts. Please let us hear from you. It would be great to have some good discussions going. How can we be the Ann Landers of archaeology without reader involvement? Dog-gone-it! We need questions and answers.

Doesn't anyone have any ideas concerning the possible use of jade or coal by prehistoric man in Wyoming?

Here is another question. Did only paleo man grind the bases of his projectile points? He did. Did others? Why did he?

Does anyone have any ideas on how long it takes to make "fire rock" change its color? We know a gal who put two white Platte River cobbles in her fireplace. Over one hundred fires later the rocks were still white after the black was wiped off. How long does it take? Or were the conditions different?

Come on gang! Produce some thoughts. Send your ideas to Archae Annie, P.O. Box 703, Saratoga, Wyoming 82331.

You will share with all the members of the Wyoming Archaeological Society through the WYOMING ARCHAEOLOGIST.

SOME PROBLEMS IN THE ANALYSIS
OF GLASS BEADS FROM POST-CONTACT
BURIALS IN SOUTHEASTERN WYOMING

By

Gene Galloway

An Indian burial dating from A.D. 1800 or later on the High Plains rather obviously calls for some speculation concerning the date of interment and the tribal affiliation of the decedent. The association of trade goods of European manufacture automatically places the maximum probable date at no earlier than A.D. 1800. The trade goods themselves provide the most logical framework for more precise dating due to the rapidity of cultural, social, and technological change in that period. Geographical location of the burial site or feature may be a significant factor in analysis.

European goods could be associated with burials of earlier date in eastern Wyoming but these instances must be quite rare. The only Caucasians present in the area before 1806 were members of the LaVerendrye expedition who apparently did get into what is now Wyoming (Larson, 1965). Some Spanish, French, and English trade items must have travelled within aboriginal circles to the High Plains before A.D. 1800. Secoy's "Gun Frontier" (1953) is thought to have closed with the "Horse Frontier" in the Wyoming area around A.D. 1750. If this is the case, certainly other foreign goods were present also.

By and large, however, European goods were by no means common anywhere in the Wyoming High Plains until after the Lewis and Clark Expedition of 1804-1806. Manuel Lisa followed this expedition rather closely in establishing a trading post at the mouth of the Bighorn River in 1807. Trader traffic along the Missouri and Yellowstone Rivers increased rather rapidly thereafter. Although the present Wyoming area was penetrated by such intrepid frontiersmen as Colter, Rose, Greenwood, and the Wilson Price Hunt party, Robert Stuart's Astorians, and the Ashley Expedition, little effort was made to trade with the Sioux, Cheyenne, or Arapaho until the middle 1830's. This was due in a large measure to the addition of robe trading emphasis to the earlier heavy orientation toward beaver hunting. Permanent trading posts were established in rapid order on the High Plains from the Arkansas to the North Platte. The aborigines were little spared from the already established cutthroat competition between fur companies. Robes were in demand and the most efficient, and perhaps the only, way to get them in paying quantities was to poison the most Indians the fastest with a vile concoction known as "trade whiskey". The unsophisticated savage was inclined to feel that if the trader's potion did not include such meaty additives as tobacco juice and red pepper, he was being cheated. Few robe traders desired to lose their hair or their customers over charges of offering wishy-washy firewater (Hafen, 1956). The robe trade of the 1840's especially, from the trader's point of view was one which tolerated little room for scruple.

Trade whiskey apparently did not become a "necessity" in the eastern Wyoming trade until about 1840. There were only three permanent trading posts in the whole of Wyoming prior to that: Fort William, Fort Bonneville, and Portuguese Houses. These were all primarily supply bases and wintering quarters for beaver hunters.

In 1841, Lancaster Lupton brought part of his South Platte drainage operation north and located near the mouth of the Laramie River near Fort William. The beaver kill had declined and the market was badly bent. Buffalo robes would sell and could be had if they could be pried away from the Indians. Fort William was replaced with a new post at somewhat greater distance from Lupton's Fort Platte and the race for robe trade was on. Traders armed with kegs of firewater and piles of trade goods emanated from the competing forts in all directions, following the bands over much of their territory. Fort William's replacement, Fort John, proved to be the most durable, and Fort Platte folded in 1845. The owners of Fort John were glad to sell when the U. S. Army made an offer for it in 1849 in order to occupy its location. This military post, Fort Laramie, was one of the major frontier installations of its kind until its abandonment in 1890 (Hafen, 1938).

Most of the Indian trade along the North Platte and throughout the rest of eastern Wyoming was handled by small operators after the demise of Fort Platte. Squawmen like Bordeau and Bissonette scattered themselves along the North Platte to trade with relatives and the kinsmen of relatives, and the growing numbers of emigrants on the way west. After the Civil War, many of the small traders were half-breed sons of earlier traders and trappers (Hanson, 1955).

Few Plains Indians cared to involve themselves seriously in supplying beaver skins for trade. Buffalo robes, however, were a traditional commodity. Horses stolen from Peter and traded to Paul, meat, buckskins, and other goods were always marketable to the Europeans. These brought in some trade goods to the eastern Wyoming tribes from the time of contact onward. The distribution of trade goods among all the front range tribes in Wyoming and Colorado accelerated rapidly with the establishment of permanent trading posts and increased demand for robes in the 1830's.

A quite high percentage of European goods distributed was probably interred with an Indian owner at death. If a comprehensive comparative table of each of the permanent trading post's annual inventory between 1830 and 1875 could be assembled, it would seem possible to trace a majority of historic burial assemblages to one or more sources during a relatively brief span of time.

Unhappily, no such inventory lists exist that would be very useful for this purpose. Further, most of the trading stations themselves seem to have been plowed through by farmers, built over by later entrepreneurs, or have been excavated with inadequate techniques and reported with inadequate coverage.

Of the hard goods which survive the ravages of time, if not some of the other threats, glass beads seem to be the most sensitive indicators of temporal changes in taste or the spatial variability of demand. In the writer's experience, the common beads are the only variety which can be depended upon for informative distribution. The larger

fancy beads were more expensive, had greater care, and were less easily lost to turn up again in a random sample from some trading post.

In the vicinity of Fort Laramie National Historic Site, there are at least ten sites of Indian trading posts. On the National Historic Site itself, there are four: the Sutler's Store, Fort John, Ward & Guerrier's Deer Creek post, and Bissonette's. Located elsewhere are the sites of Fort William, Fort Platte, Fort Bernard Bordeaux's, Gratiot Houses, and Ward & Guerrier's Sand Point post. The writer has examined three of these which exhibit strikingly individual traits in the common bead samples recovered. The other sites mentioned have either not been examined, cannot be found, were subject to excessive intrusive influence, or were occupied for too long a period to provide temporally significant traits.

Fort Platte: 1841-1845.

This site is mutilated by farming and land-levelling activities. The majority of the common bead sample recovered is fairly coarse--comparable to the present size #8 or #10. Most are medium blue; ca. 45 in number. Next most common is opaque white; ca. 15 in number. These average a little larger than the blue. Red with white centers are represented by seven specimens, one of which is a very large "pony bead" size, and additionally there are four yellow, two white with pink stripes, and one black specimen complete the inventory.

Gratiot Houses: 1849-ca. 1868.

Most of the sample is thought to date from August, 1854, when the Sioux made off with stored annuity goods after the Grattan disagreement (McCann, 1956). About 95 percent of the common beads suitable for embroidery work from this site are about equally divided between red with white centers and plain white. The average size is perceptibly smaller than at Fort Platte.

Ward & Guerrier's Deer Creek Post: 1857-ca. 1860.

Part of this sample is very similar to the Fort Platte sample, being coarse sizes of blue, white, black, and yellow. The other part is made up of markedly smaller specimens, many smaller than the size # 13 of today, in a gamut of colors from clear to black, with many pastel shades.

At one time the writer was willing to make more of these obvious differences than he is now. This partly stemmed from the instantly evident comparability between a small sample recovered from the scaffold burial site of Mini-Aku and the newer variants from Ward & Guerrier's. Mini-Aku and her family are known to have dealt with Seth Ward from the late 1850's to the mid-1860's (Clough, 1967). Additionally, samples from various campsites appeared to compare well with the Fort Platte material in size range and color distribution, giving the appearance of discernable time-bracketing.

Many specimens from the North Platte River drainage were handled. After extensive

consideration of the many variables potentially affecting the selection of common beads at a given burial site, it was necessarily concluded that the three datable trading post samples were simply not adequate bases for chronology judgement, even in the nearby area.

Personal preference in selecting size and color might influence a total burial sample to the extent that all of a purchase from Fort Platte could very well appear as though it came from typical Gratiot Houses stock. In turn, the Gratiot Houses sample may, if of treaty goods derivation, be deviant from what would ordinarily be in greatest demand in that area at that time. Appropriate selection of a purchase from Ward & Guerrier's might be wholly typical of the earlier Fort Platte material. To make matters worse, the smaller variant at Ward & Guerrier's is observably very similar to a burial sample known from the 1880's or 1890's.

Although the situation is not hopeless, cross-correlations by visual comparison of common bead samples is chancy at best. After some experience in handling trade goods, and beads in particular, the writer is inclined to the view that sheer subjective impressionism and "hunch" are as valid and practical as any other guidelines available today for dating the common beads from eastern Wyoming. This of course presupposes a good deal of experience in handling reliably dated material. About the best that can be reliably conjectured on this basis is a "pre-Civil War" or "post-Civil War" judgement.

Statistical analysis of bead color or dimensional data from dated locations would appear to have very limited applicability to any serious problem. The potential variables determining size and color content and ratios to be found at any burial site are very numerous and not all are predictable. Embroidery pattern, size and nature of the decorated item, gender and age bracket of the owner, influences of current popularity, personal taste and wealth, etc., etc., could all strongly affect the nature of the ultimate sample.

It would appear that the only practical means of dating glass beads from burials with relative certainty calls for a direct dating technique. Man-made glass is much more susceptible to attack by water than is obsidian (Brill, 1963), and at least some kinds of glass beads are no doubt suitable for dating by means of the weathering crust (Brill, 1961).

The source of a common tale alleging that "seed beads" were not available in the Plains country before about 1840 is unknown. It is perpetuated by Lyford (1940), who indicates that the somewhat larger "pony beads" (comparable to most of the Fort Platte and Spring Creek Burial samples) were the kind brought on pack ponies by mountain man-traders before that date.

Although the coarser sizes may have been popular early due to greater ease in embroidery with an unfamiliar medium, the "seed beads" were certainly not unavailable. The writer has two "seed bead" specimens dating between 1834 and 1838 which came from one of Captain Bonneville's trading stations. These smaller sizes were on the market and very popular in the eastern United States by A.D. 1600 (Ritchie, 1954).

Murray (1964) appropriately observes that common beads in the Fort Laramie collection do not bear out the concept of two specific size ranges, i.e., "pony beads" and "seed beads", but more nearly form a continuum. However, the Fort Laramie collection is made up of a miscellany of samples from the general area. Many of the samples are simply labelled "surface finds" without regard to locality, and some are from archaeological work at Fort John and the Sutler's Store. Represented in this assemblage is material from 1834 or earlier to 1876 or later, and it is not possible to observe cross sections from given localities and brief time spans with any certainty.

At this time, dating estimates derived from experience-based subjective evaluation of bead samples seems to be at least as reliable as laborious quantitative analyses. Very little money should be wagered on either technique if there is any possibility of using some direct dating method such as oxidation crust lamination counts.

REFERENCES CITED

- Brill, Robert H.
1961 The Record of Time in Weathered Glass. Archaeology, Vol. 14, No. 1, pp. 18-22.
- 1963 Letter, to Don Grey.
- Clough, Wilson O.
1967 Mini Aku, Daughter of Spotted Tail. Annals of Wyoming, Vol. 39, No. 2, October, 197, pp. 187-216, Cheyenne.
- Hafen, Leroy, and Francis Young
1938 Fort Laramie and The Pageant of The West, 1834-1890. Arthur H. Clark Co., Glendale.
- Hafen, Leroy, and Ann W. Hafen
1956 Rufus B. Sage, His Letters and Papers, 1836-1847. The Far West and Rockies Series, Vols. 4 and 5, Arthur H. Clark Co., Glendale.
- Hanson, Charles E., Jr.
1955 The Northwest Gun. Publications in Anthropology, No. 2, Nebraska State Historical Society, Lincoln.
- Larson, T.A.
1965 History of Wyoming. University of Nebraska Press, Lincoln.
- Lyford, Carrie A.
1940 Quill and Beadwork of the Western Sioux. Indian Handcraft Pamphlets, No. 1, Education Division, U.S. Office of Indian Affairs, Haskell Institute, Lawrence.
- McCann, Lloyd E.
1956 The Grattan Massacre. Nebraska History, Vol. 37, No. 1, March, 1956, Lincoln.
- Murray, Robert A.
1964 Glass Trade Beads at Fort Laramie. The Wyoming Archaeologist, Vol. 7, No. 3, pp. 13-19, Cheyenne.
- Ritchie, William A.
1954 Dutch Hollow, An Early Historic Period Seneca Site in Livingston County, New York. Researches and Transactions of The New York State Archaeological Association, Albany.

Secoy, Frank Raymond

1953

Changing Military Patterns on The Great Plains. Monographs of The American Ethnological Society, Vol. 21, J.J. Augustin, Publisher, New York.

THE SAND CREEK BURIAL FROM CENTRAL WYOMING

By

Wm. E. Scoggin, DDS, HBP

Rawlins, Wyoming

Introduction

This report concerns a burial which was found on the eighteenth of November, 1973, and which is of particular interest because of the associated inclusions in the grave.

The grave was discovered by Rodgers Duthie of Rawlins, Wyoming, while with this author. The skeletal remains were easily recognizable because they had been exposed by wind and erosion. Because of this exposure, the bones were being scattered and destroyed, and to avoid complete loss of the burial, it was decided to excavate the remaining intact portion of the burial.

The Site and Burial

The burial occurred in the vicinity of Sand Creek, a small stream in south-central Wyoming, which arises from the Ferris and Seminoe mountain ranges. At present Sand Creek empties into the backwaters of Pathfinder Reservoir, but prior to Pathfinder Dam, it drained into the North Platte River.

The location of the grave appeared to have no reference or orientation to any existing feature of the surrounding topography. The burial was in loose blown sand in the northern slope of a large deflation basin. Depth of the original burial was impossible to determine, but the burial pit, as excavated, was approximately 40 cms deep. The sand surrounding the skeletal remains had assumed a darker coloration, but the borders of this darker zone of sand were indistinct and irregular. There was no discernable evidence of a grave lining or wrap of any kind around or beneath the individual.

The skeletal remains represented a primary burial in a flexed position. The skull and vertebral column were directed generally to the north with the individual on his left side facing east. The legs had been flexed together to a 45° angle with the vertebral column and the lower part of each leg tightly flexed against the upper leg. The right arm was extended straight and parallel to the vertebral column so that it rested on the individual's side and the fingers extended over the pelvic area. The left arm was extended at an angle to the rib cage so that the wrist rested beneath the knees and the fingers extended in front of the femus. (Figure 1).

A large mano, a number of bone pendant and tube beads, and a bead-making kit were

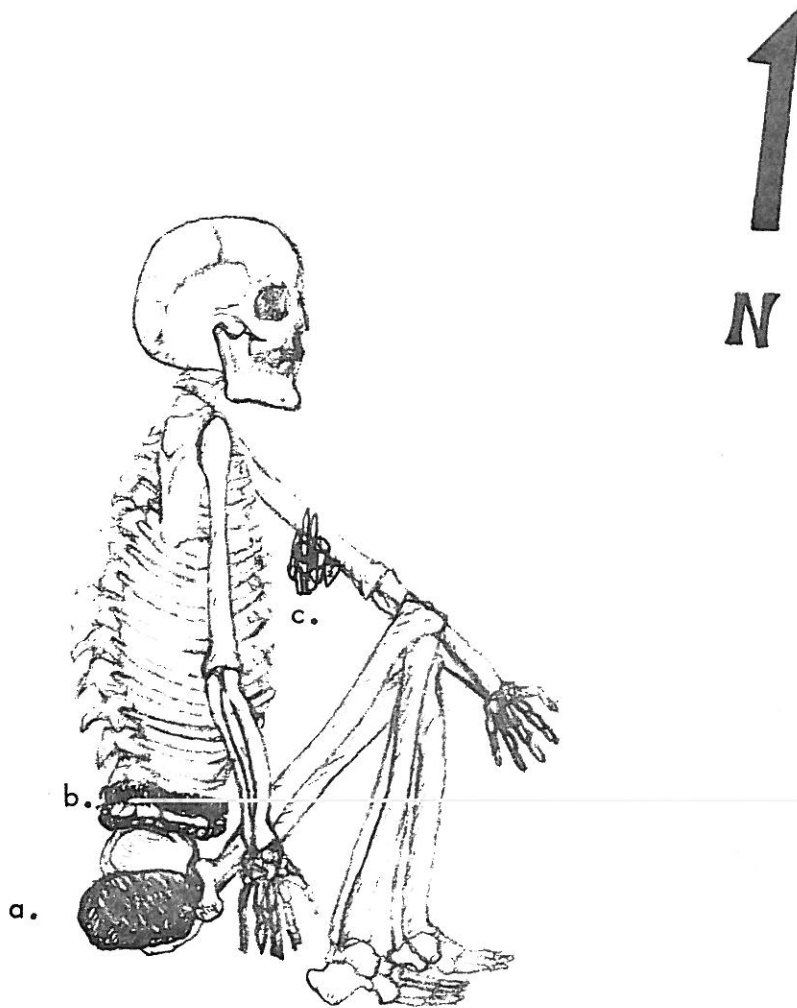


Figure 1. Burial with grave inclusions

- a. Mano
- b. Tube and pendant beads
- c. Bead-making kit

associated with the skeletal remains.

Artifacts

An apparent association with the burial was a large mano. This was found overlying the pelvic area of the skeleton and was not actually in the dark sand surrounding the bones. The mano appeared to have been a deliberate inclusion in the burial that because of its superior position had been completely exposed by the wind erosion. This mano, of a pale

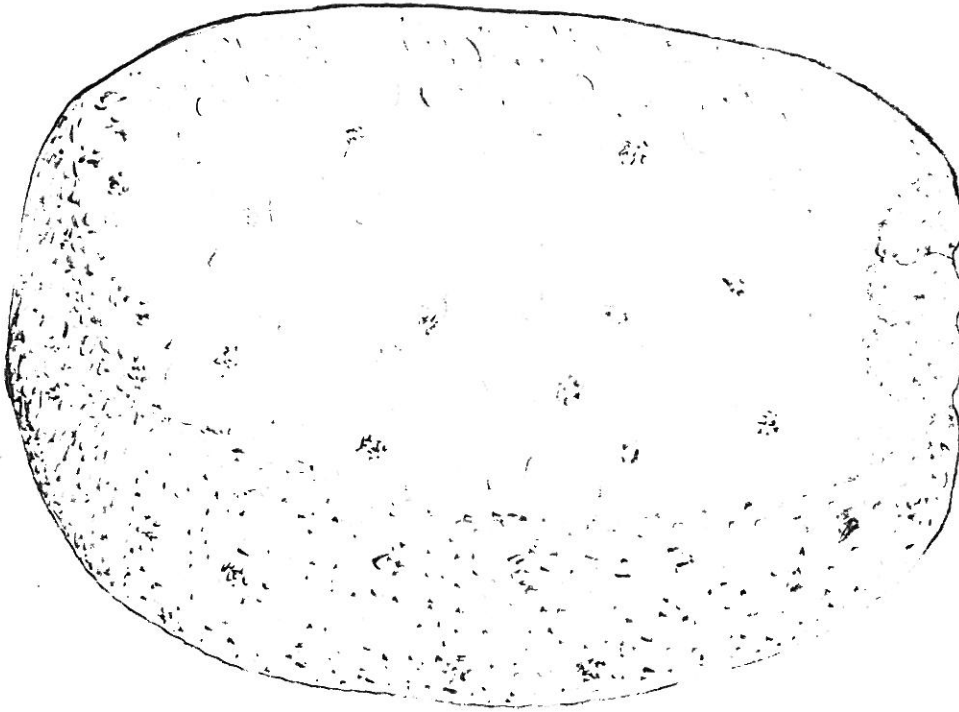


Figure 2. Mano

pink quartzite, is 12 cms long, $7\frac{1}{2}$ cms wide, and 4 cms thick. The stone shows pecking for deliberate shaping followed by grinding on both dorsal and ventral surfaces. One end has also been ground to produce a degree of smoothness while the other end exhibits the removal of several large chips as a result of a number of heavy blows. (Figure 2).

At the time of discovery of the burial, a large number of complete and fragmentary bone beads were found scattered within a ten-foot radius of the grave. These were being dislodged and blown free of the burial by the wind. The exposure and dessication of the bone beads resulted in a change from a light brown color to white, followed by rapid deterioration.

The beads were found to consist of two types--family large pendant beads (Figure 3) and smaller tube beads (Figure 5). The scattered beads were gathered up and an attempt made to preserve as many as possible. (All the beads from the burial were treated with a mixture of Elmer's glue and water.) Eighteen pendant beads and fifteen tube beads were recovered but an equal number were too badly fragmented to salvage. Both types of beads were weathering out from around the pelvise area of the skeleton. As the sand

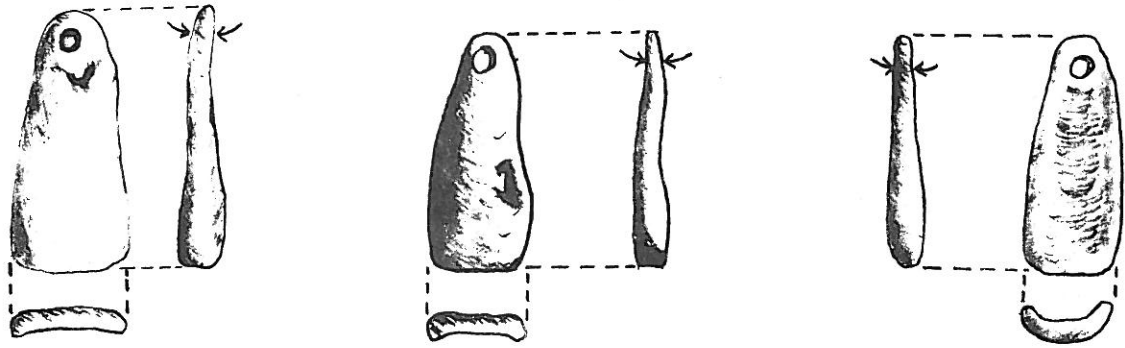


Figure 3. Examples of pendant beads

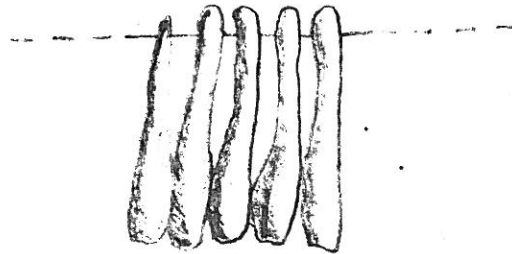


Figure 4. Pendant beads as strung in burial

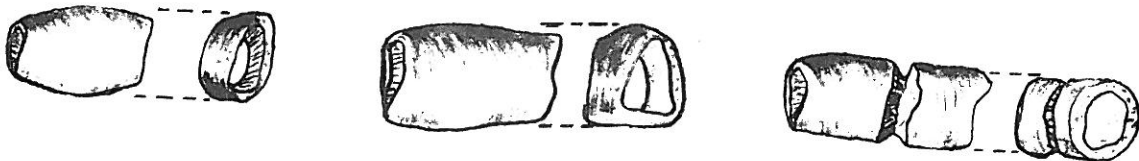


Figure 5. Examples of tube beads

was cleaned away from the skeletal remains, it was found that each type of bead had been strung separately from the other type of bead so that there were two "belts" encircling the lower abdominal area of the individual and there was no mixing of the bead types.

The pendant beads were strung side-by-side (Figure 4), so that they were stacked on edge in the burial. Upon loosely restringing the eighty-seven pendants recovered, a "belt" of 40 cms resulted. Each pendant bead had been cut and shaped to a basic tear-drop design, the edges polished, and a single hole drilled at the narrow end. Most of the holes had been drilled equally from each side, but a few of the bone sections were thin enough so that the uniform hole diameter of approximately two mms was drilled from just one side. These pendant beads show a size variation of 31 mms to 45 mms in length, 11 mms to 22 mms in width and two mms to seven mms in thickness. Although several of the beads still show evidence of cutting marks, none exhibit any incising for decoration. Because of the alteration of the bone in manufacturing of the beads, it was impossible for Danny Walker of the University of Wyoming to determine from what type of animal bone the pendant beads were made.

The ninety-eight tube beads when restring produced a belt length of 112 cms. These beads were produced by making a circumferential cut at the desired length, using bones from some member of the canine family. After a cut was made about half way through the bone cortex, the bead section was snapped off and the cut edge was smoothened and polished. The soft marrow portion of the bone was cleaned out to produce a hollow bead with walls of one to one and one-half mms in thickness. These beads exhibit a dimension variation of 7 mms to 20 mms in length and 7 mms to 18 mms in diameter. Two of the beads as found were still joined and, for some reason known only to the maker, had never been separated (Figure 5, c). These tube beads did not show any form of decoration.

Beads were not found at any other location on the skeletal remains other than these two side-by-side strings in the pelvic area.

During the clearing of sand from the chest area of the skeleton, a concentration of artifacts was found about 10 cms in front of (to the east of) the rib cage. It was readily apparent that this represented a unique and deliberate grouping of artifacts which, it is felt, comprised the bead-maker's tool kit. Included in this grouping were materials for beads, several apparently unfinished beads, and the necessary tools for making both types of beads.

A tightly mixed collection of pendant and tube beads was found together in the tool kit, but in no pattern or sequence which would indicate they had been strung. There were five of the large pendants which had been drilled with a suspension hole, but which were not as well shaped as those found in the pelvic area. Also found were three smaller pendant beads which were shaped and drilled identically to the other pendants except they were approximately half the size. None of these smaller pendants was represented with those found in the pelvic area. Of the tube beads, six of these were the same as those recovered from the skeleton, but the remaining seven were quite small and obviously had

been made from a different size of bone.

Mixed with the beads and aligned vertically in the sand were seven lengths of bone and a piece of deer antler. Five of these bones are tubular, incomplete bone sections (*Canis* sp.) in varying stages of conversion to the tube beads. The four largest pieces all exhibit circumferential cuts and the ends of each bone show a partial cut through the cortex with a subsequent fracture to remove a bead blank (Figure 6). The fifth piece of bone would appear to be the source of the seven small beads--it is identical in circumference and thickness and one end exhibits the cut and fracture technique for producing a bead (Figure 7).

The other two sections of bone have a smoothly worked and polished tip to produce an awl or punch. The remaining portion of these awls appears unworked and still shows the sharp edges of the original breaks as they were split from larger bone pieces (Figure 8). It is possible that these well-polished bone awls were wrapped to protect the hand of the user and to allow a better grip. The size and shape of the working tip has led to the conjecture that these bone awls were used to gouge away the medullary or "marrow" portion of the bone beads in order to hollow them out.

The section of antler is apparently incomplete (Figure 9). One end is smoothly polished but the other end has deteriorated and no other portions of this piece were found.

Also included in the tool kit were three specimens of shell. These shell pieces were very fragmented and powdered, and it was impossible to tell to what degree, if any, these pieces had been worked or altered. It is supposed that the shell was intended also for beads but no shell specimens were found associated with the skeleton.

To complete the tool kit were the necessary tools for cutting and shaping the bone. These lithic tools were found below the bone sections and included twelve flakes of various sizes and shapes and a corner-notch projectile point.

The twelve flakes, which are illustrated in Figure 10, exhibit very little modification. Flakes a, b, c, d, g and j on their convex side still retain some of the original weathered surface of the core from which they were removed. Flakes a, b, c, d, e, f and g are in fact all of a similar pale brown agate and probably were removed from a common core. Flakes h and i are of a similar lined, fine-grained brown chert. Flake j represents a purple-grey colored chert and flake k is a dark brown agate. Flake l is a yellow jasper with black dendrites. All of these materials are commonly found locally, although the sources are not necessarily local.

In some cases, these flake tools show no modification beyond the primary removal from the core. Extensive use however is well evidenced by polish on certain edges. The user seemed to be satisfied with a fairly straight edge or edges of a flake and even though these well-used edges became dulled and polished, they were not sharpened by secondary flaking. These polished edges are noted in Figure 10, by a single arrow. The other evidence of use is indicated by secondary flaking to shape and sharpen edges. This flaking in several instances produced concave edges of a "spokeshave" configura-

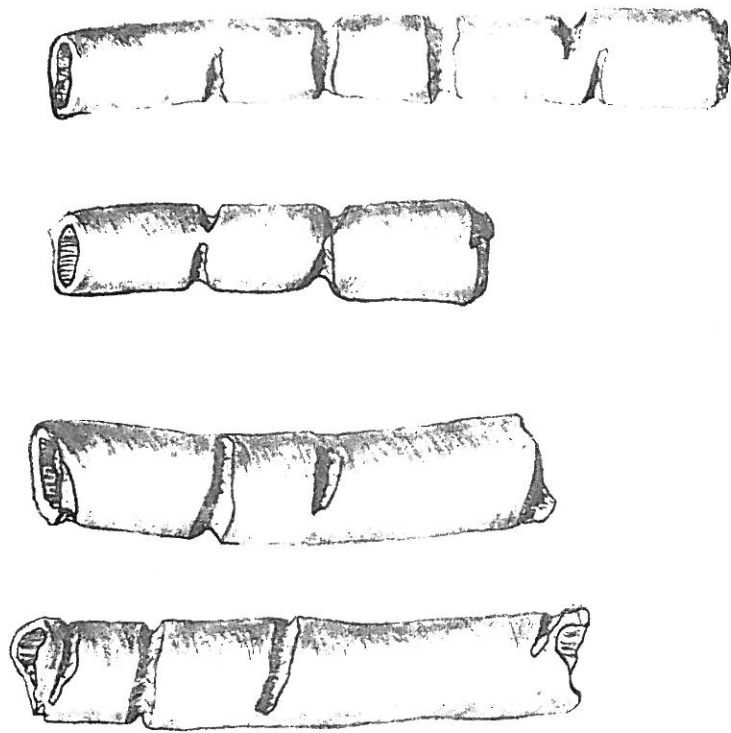


Figure 6. Bone sections for tube beads



Figure 7. Bone section for small tube beads



Figure 8. Bone awls from tool kit

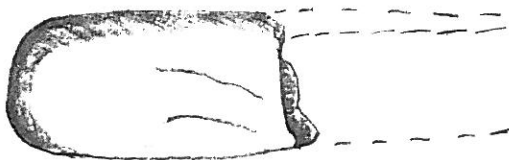


Figure 9. Antler section from tool kit

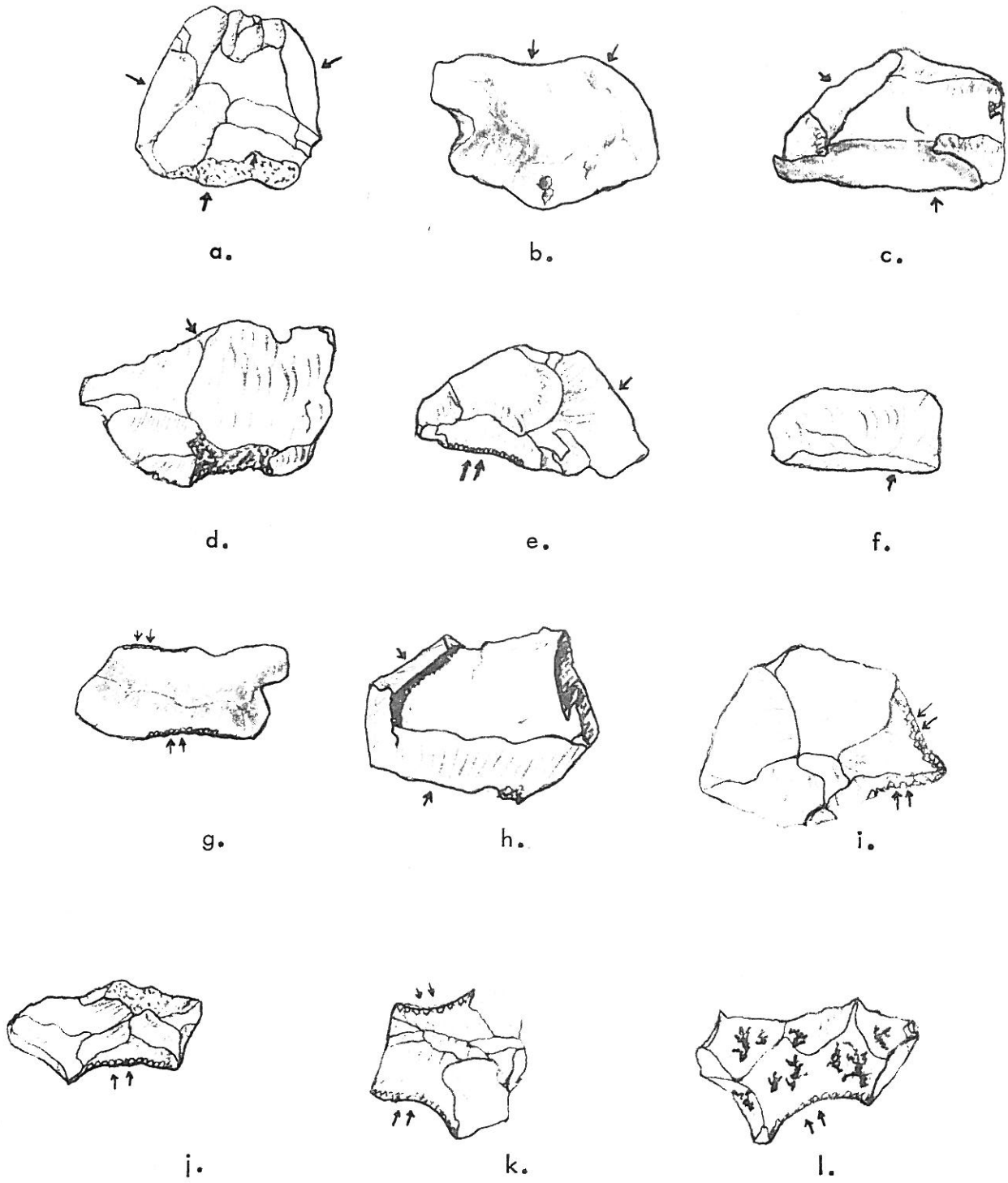


Figure 10. Flakes from the tool kit

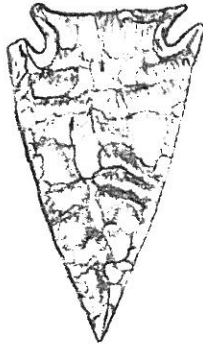


Figure 11. Projectile point from tool kit

tion and is indicated in Figure 10 by the double arrows. It is felt that these flake tools were used to cut and shape both types of beads to their basic form.

The final item in the tool kit was the corner-notch projectile point illustrated in Figure 11. This point of pale brown agate is characteristic of the Late Middle Period for this area of Wyoming. The point type is not necessarily diagnostic of the date of the burial--it could have been picked up and incorporated into the tool kit. It does however put an upper limit on the date of the burial. The function of the projectile point in the bead making suggests two speculative possibilities. One, it could have been used in conjunction with the flakes for cutting and shaping the bone; and secondly, it would have been ideal for drilling the suspension holes in the pendant beads. It alone is the only artifact in the tool kit which is suited for this purpose.

The Physical Remains

The physical remains and the dating of the burial is discussed in APPENDIX I by Dr. George Gill of the Department of Anthropology of the University of Wyoming.

REFERENCES

- Bass, William M. and R. Bruce McMillan, "A Woodland Burial from Boney Spring, Missouri," Plains Anthropologist, Vol. 18:62, 1973, pp. 313-315.
- Breternitz, David A., Alan C. Swedlund, and Duane C. Anderson, "An Early Burial from Gordon Creek, Colorado," American Antiquity, Vol. 2:2, 1971, pp. 170-182.
- Gill, George W., "The Glendo Skeleton and Its Meaning in Light of Post-Contact Racial Dynamics in the Great Plains," Plains Anthropologist, Vol. 21:72, 1976, pp. 81-88.
- "Two Mummies From the Pitchfork Rock Shelter in North Western Wyoming," Plains Anthropologist, Vol. 21:74, 1976, pp. 301-310.
- Gill, George W., and Rhoda Owen Lewis, "A Plains Woodland Burial from the Badlands of Western Nebraska," Plains Anthropologist, Vol. 22:75, 1977, pp. 67-73.
- Jackson, J. Brantley, "The Jared Site: A Comanche Burial at Fort Sill, Oklahoma," Plains Anthropologist, Vol. 17-58, 1974, pp. 316-325.
- Ubelaker, Douglas H., Human Skeletal Remains, Chicago: Aldine Publishing Co., 1978.

APPENDIX I
THE SAND CREEK SKELETON

By

George W. Gill

University of Wyoming

The Sand Creek skeleton is that of a very old American Indian male. This determination is made from a nearly complete skull and mandible (see Figures 1 and 2), both femora, and the right and left innominates. As indicated in Figure 3 the innominates are not entirely complete, but the left one (not shown) does at least possess a pubic symphysis. Both retain complete sciatic notches.

IDENTIFICATION

Sex was easily assessed from both visual and metric criteria (Krogman 1962, Bass 1971), and since the skull yields a full set of measurements the Giles and Elliot (1962) discriminant function analysis technique could likewise be applied. The Giles-Elliot formula produced a raw score of 907.14 which is 16 points into the male range. Yet the strongest evidences for maleness are the narrow subpubic angle shown by the left os pubis (Phenice 1969), and the strong neck muscle markings revealed not only by the robust mastoids (see Figure 2), but also the rugged nuchal line and projecting external occipital protuberance.

The mental eminence and other features of the mandible also strongly suggest maleness. As may be seen in Figure 2 the supraorbital ridges are moderately well developed but not as extreme as is usually found among males from the prehistoric northwestern Plains. Likewise femoral head measurements are not very large for a male (44 mm). Of course adult living stature, which was not very great for this particular individual, does affect femoral head measurement.

The femora measure 40.0 cm which suggests a young adult stature of 158.57 ± 3.80 cm, or approximately $5' 2\frac{1}{2}"$, according to the Trotter and Gleser (1958) formula for Mongoloid males. Previous studies on long bone proportions of the northwestern Plains Indians (Gill 1976, Gill and Lewis 1977) suggest that the formulae for Mongoloids actually fit the Plains Indian populations the best. Unfortunately the formulae most often used for North American Indians are those devised for Mexican Indians by Genoves (1967) and they do not fit the more northern Indians at all well. These were therefore not even applied in this case.

Due to the advanced age of the Sand Creek male, his actual living stature at the time of death, was probably much reduced from his younger years. Adjustment figures proposed by Trotter and Gleser put his old-age stature at not much above $5' 1\frac{1}{2}"$.

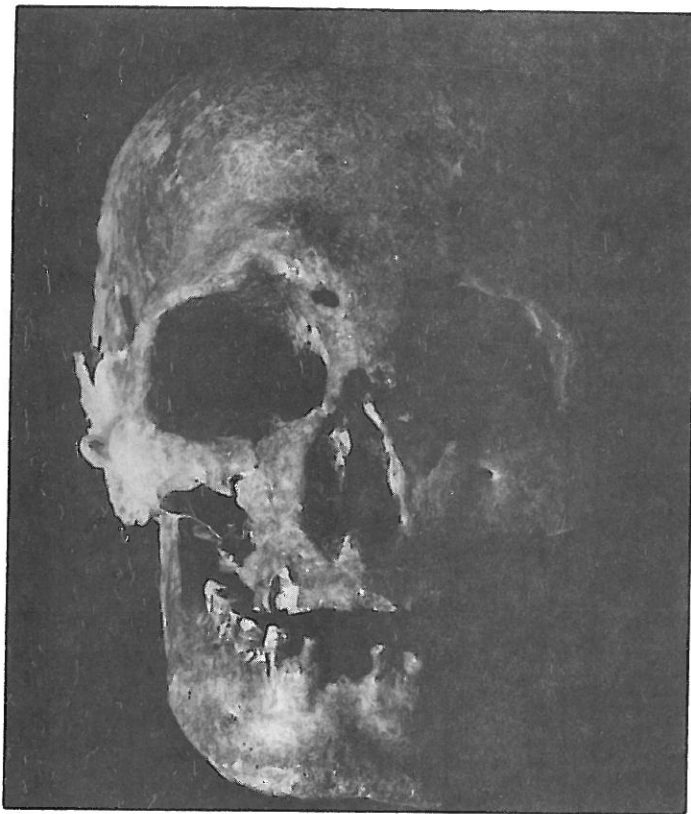


Figure 1. The Sand Creek skull in frontal view.

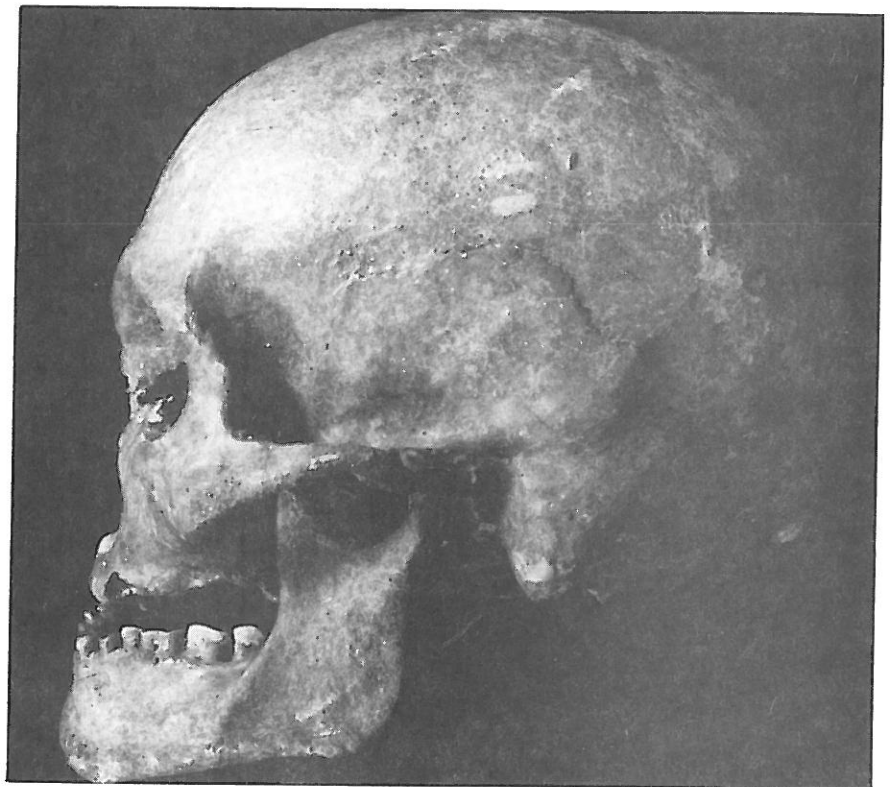


Figure 2. Left lateral view of the Sand Creek skull.

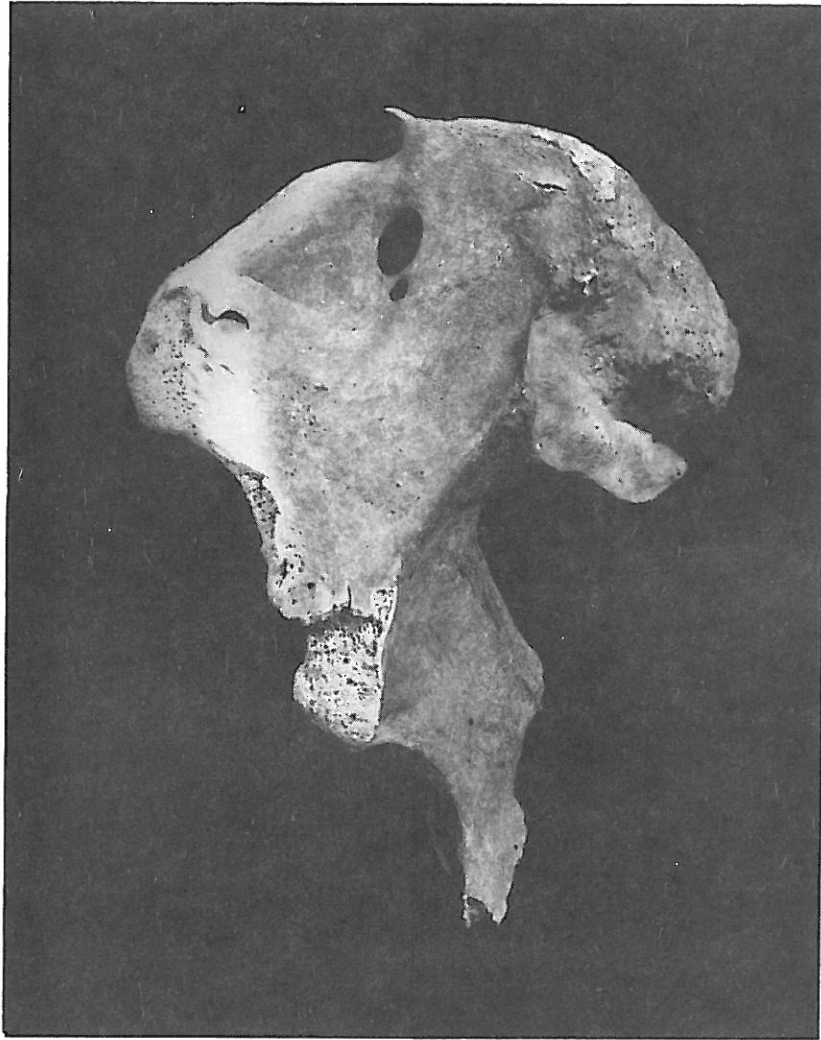


Figure 3. The right innominate which exhibits a displaced fracture of the iliac crest. Posterior to the fracture line are preparations due to resorption, and above these an abnormal bone spur.

Age could be reasonably well established for the Sand Creek specimen. Wear on the mandibular teeth (Hrdlicka 1952) yields an estimated age of over 60 years. At that age wear was virtually halted on the lower teeth, not because of death, but rather because of loss of the opposing teeth of the maxilla. Following this was another five to ten years of atrophy of the maxillary alveolas. So, this somewhat unique combination of features has resulted in an age estimate of approximately 70 years at the time of death. This age estimate is likewise supported by the old-age condition of the pubic symphysis (McKern and Stewart 1957), and the very advanced stages of cranial suture closure (Krogman 1962). In fact, the cranial sutures are fully closed and almost totally obliterated.

Race was determined as American Indian due to the form and patterns of wear on the teeth, the shape of the nasal bridge, and the form of the proximal femur.

A few important pathologies are evidenced on the skeleton. Perhaps most important is the healed fracture of the right ilium shown in Figure 3. It appears to have been a rather bad vertical fracture to the ilium which severed the iliac crest and resulted in displacement of the two portions of the fractured bone. It seems to have healed satisfactorily but in a displaced position. Due perhaps to changed mechanical stresses upon the misaligned bone, resorption eventually occurred just posterior to the fracture line. The thinning eventually resulted in actual perforations at two locations. A bone spur also formed along the iliac crest just above the area of resorption and perforation (see Figure 3).

Other pathological conditions involve the teeth and jaws. As indicated in Figure 2, malocclusion was a problem during life. Not only the alignment of the jaws indicate this, but wear patterns on the teeth as well. The mandibular teeth are badly worn on the lingual surfaces in such a way that could only happen if the mandible had jugged forward of the upper teeth.

All maxillary teeth were lost rather late in life except the right canine, adjacent PM1 and the left M3. The premolar is worn off at the root, the canine was lost post-mortem and the molar badly worn (and quite unevenly). An abscess of the right mandibular M1 was in process at the time of death. Most of the other mandibular teeth, however, appear to be in sound condition, even though they are in a very advanced state of attrition.

FURTHER ANALYSIS

Due to the good state of preservation of the mandible and skull a fairly full set of cranial measurements and observations were obtained. Results from the metric analysis are given in Table I, and a list of selected discrete non-metric traits are presented in Table II. These observations and measurements were collected using standard anthropometric and anthroposcopic techniques, but if procedural details or specific definitions are desired, Gill (1971) may be consulted.

As may be seen from Table I the Sand Creek specimen is quite long headed, in fact well into the dolichocranic range, and the nose form is correspondingly quite narrow (leptorhine). The face and orbital proportions, however, are very medium.

The cranial vault is high as indicated by the orthocranic length-height index of 72.0, and by the even higher breadth-height figure of 102.3.

Nothing in particular need be said about the discrete traits in Table II, and the few continuous non-metric traits observed (such as orbital form, palatal shape, etc.) are also fairly typical for prehistoric Wyoming populations. Orbital form as may be seen in Figure 1 is rhomboid, and the palatal form elliptic. The nasal spine is small and the nasal sill absent (with resulting nasal gutter). As may be seen in Figure 2, the chin

TABLE I

Measurements and Indices*

Measurements

CRANIAL:

Cranial length	182
Cranial breadth	(128)
Basion-bregma	131
Endobasion-nasion	97
Endobasion-alveolar prosthion	91
Endobasion-gnathion	108**
Maximum frontal breadth	(111)
Minimum frontal breadth	86
Biauricular breadth	120
Auricular height	113
Cranial capacity	1336cc

FACIAL:

Nasion-alveolar prosthion	62**
Nasion-alveolar prosthion (as young adult (est.))	(66)
Nasion-gnathion	98**
Bizygomatic breadth	(132)
Nasal height	52
Nasal breadth	20
L. orbital height	34
L. orbital breadth	43
Biorbital breadth	95
Interorbital breadth	16
Cheek height	24
Palatal length	51
Palatal breadth	61
Porion-nasion	88
Porion-subnasale	88
Porion-prosthion	90**
Porion-gnathion	(113)**

MANDIBULAR:

Symphyseal height	26**
Symphyseal height (as young adult (est.))	(30)
Bigonial diameter	(96)
Bicondylar diameter	(108)
Ascending ramus breadth	30
Ascending ramus height	60

MANDIBULAR (cont.):

Corpal length	83
Gonial angle	29°

Indices:

CRANIO-FACIAL

Cranial index	(70.3) dolichocranic
Cranial module	(147.0)
Cranial length-height index	(72.0) orthocranic
Cranial breadth-height index	(102.3) acrocranic
Upper facial index (as young adult (est.))	(50.0) mesene
Nasal index	38.5 leptorrhine
Orbital index	79.1 mesoconch

* All measurements presented here are in millimeter unless otherwise designated.

** Measurements or indices affected by the extensive alveolar resorption of old age.

() Indicate an estimated measurement, or an index which is derived from an estimated measurement. Estimates are considered to be within ± 1 millimeter.

TABLE II

Discrete Non-metric Traits*

<u>Cranial Traits</u>	<u>Occurrence</u>	
	Left	Right
Parietal foramen	0	0
Mastoid foramen sutural	0	-
Mastoid foramen exsutural	+	-
Typanic dehiscence	0	0
Double anterior condylar canal	+	+
Accessory lesser palatine foramen	0	+
Supraorbital foramen	0	0
Frontal foramen	0	+
Accessory infraorbital foramen	0	-
Mylo-hyoid bridge	0	0
Accessory mental foramina	0	0
Palatine toras		+
Pharangeal fossa		+
Superior sagittal sinus-left		+
Metopic suture		0
Bregmatic bone		0

* Some discrete traits normally mentioned are not presented here because advanced stages of suture closure precluded assessment.

(+) Indicates presence of a trait

(0) Indicates absence of a trait

(-) Means that the particular trait could not be assessed

shows a medium degree of projection (almost pronounced) and the supraorbital ridge development is medium as well.

CONCLUSIONS

No firm date has been established for this skeleton even though the associated projectile point would suggest a Late Middle Period date. If confirmed, this date would be consistent with the morphological pattern. The rather high vaulted skull, shape of the frontal and certain features of the face would be exceedingly atypical for a Late Prehistoric or Historic Period cranium from this region of the Plains (Gill 1974). In fact, the Wyoming specimen that most closely resembles the Sand Creek male is the 5,300 year old skull from the Dunlap-McMurry site near Casper (Zeimens, et. al., MS and Gill MS). The two males show nearly identical cranial measurements (except for cranial breadth), and demonstrate a good deal of similarity in cranial and facial form and robusticity. In sum, the Sand Creek male demonstrates a pattern of physical traits that extends back into the Early Archaic in Wyoming and seems from the evidence here to continue until the Late Middle Period (Late Plains Archaic).

REFERENCES CITED

- Bass, William M.
 1971 Human Osteology: A Laboratory and Field Manual of the Human Skeleton. Missouri Archaeological Society, Columbia Missouri.
- Giles, Eugene and Orville Elliot
 1962 Race Identification from Cranial Measurements. Journal of Forensic Sciences, Vol. 7, No. 2, pp. 147-157.
- Gill, George W.
 1971 The Prehistoric Inhabitants of Northern Coastal Nayarit: Skeletal Analysis and Description of Burials. Doctoral Dissertation, University of Kansas, May 1971. Available through University Microfilms, Ann Arbor, Michigan.
- 1974 Human Skeletons from Wyoming and their Bearing on the Concept of Morphological Dating. In Applied Geology and Archaeology: The Holocene History of Wyoming, ed. by Michael Wilson. The Geological Survey of Wyoming, Report of Investigations No. 10.
- 1976 Two Mummies From the Pitchfork Rock Shelter in Northwestern Wyoming. Plains Anthropologist, Vol. 21:74, pp. 301-310.
- MS An Early Plains Archaic Skeleton from Central Wyoming.
- Gill, George W. and Rhoda Owen Lewis
 1977 A Plains Woodland Burial from the Badlands of Western Nebraska. Plains Anthropologist, Vol. 22:75, pp. 67-73.
- Hrdlicka, Ales
 1952 Hrdlicka's Practical Anthropometry. Fourth Edition, ed. by T.D. Steward, The Wistar Institute of Anatomy and Biology, Philadelphia.
- Krogman, Wilton M.
 1962 The Human Skeleton in Forensic Medicine. Charles C. Thomas, Springfield, Illinois.
- McKern, T. W. and T. D. Steward
 1957 Skeletal Age Changes in Young American Males. Headquarters, Quartermaster Research and Development Command, Technical Report EP-45, Natick, Mass.
- Phenice, Terrell W.
 1969 A Newly Developed Visual Method of Sexing the Os Pubis. American Journal of Physical Anthropology. Vol. 30, pp. 297-302.

Trotter, M. and G. C. Gleser

1958 A Re-evaluation of Estimation of Stature Based on Measurements of Stature taken during Life and of Long Bones after Death. *American Journal of Physical Anthropology*, N.S. Vol. 16, No. 1, pp. 79-123.

Zeimens, George, Danny Walker, Thomas K. Larson, John Albanese and George W. Gill

MS The Dunlap-McMurry Burial (48NA67).