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UTAH ARCHAEOLOGY

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No. 1

31

Instructions to Authors

Authors submitting manuscripts are requested to follow the Society of American Archaeology (SAA) style. The most recent version of the SAA Style Guide can be found online at www.saa.org. Articles must be factual with some archaeological application. We seek submissions from authors affiliated with government agencies, cultural resource management firms, museums, academic institutions, and avocational archaeologists equally.

Paper categories include:

1. Articles: Synthetic manuscripts, reports of analysis, overviews, and reviews of past research.
2. The Avocationalist's Corner: Topical articles written for the nonspecialist. Articles for this section are encouraged from avocational and professional archaeologists alike.
3. Reports, notes, and comments: Shorter manuscripts including descriptive reports on focused topics; notes or points of interest with a minimum of interpretive discussion; comments on current issues or previously published works. Comments on previously published works will be submitted to the author of that work for review and reply.
4. Photo/illustrative essays: Photo or illustration based articles with descriptive and/or interpretive text to supplement the visual media.
5. Book Reviews: Reviews of current publications that are broadly relevant to archaeology of Utah.

Submission:

Manuscripts should be submitted in an electronic format, as *Utah Archaeology* cannot retype papers. Authors are encouraged to send files as e-mail attachments to the editors, although manuscripts may also be submitted on a CD. Microsoft Word (.DOC or .DOCX) files are strongly encouraged. All manuscripts are submitted for outside review. Authors are sent reviewers' comments and a letter from the editor as to whether the manuscript is acceptable with revision, acceptable in current form, or rejected with a recommendation for substantial revision. The editors reserve the right to evaluate manuscripts for appropriate subject matter, quality, length, and compliance with the style guide, and will likely reject submissions which do not conform to the stipulated requirements.

Formatting:

Manuscripts must be typed on 8.5 by 11 inch paper with 1 inch page margins in 12 point font and double-spaced. Submissions should contain appropriate headings and subheadings and have a brief abstract of 150 words or less. Manuscripts should be paginated consecutively beginning with the title page.

Tables, Figures, and Illustrations:

Authors are responsible for submitting illustrations, photos, and tables of publishable quality, as *Utah Archaeology* will not be responsible for making them presentable and will only make minor adjustments. Figures should be submitted electronically (one figure per file) and authors are responsible for providing a high resolution (minimum 300 dpi at printed size. Maximum size is 6.25 x 8.5 inches or 1825 x 2550 pixels) file in either a .TIFF, .JPG, .PSD, or .PDF file format. Please DO NOT paste figures or tables into word processing document files. Tables should be submitted either as separate files (one per file) or combine into a single workbook or similar format with one table per worksheet. Table formatting should follow the SAA style guide (see above). For all photos, illustrations, and tables please include captions in a separate text file. Please name all figure and table files with their corresponding association in the text (e.g. Figure 1.jpg or Table 1.xls) and use matching names in the caption text file.

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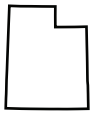

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David T. Yoder and Katie K. Richards

Technical Editor:
Haylie A. Ferguson

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Utah Division of State History

Cover: Photo of a site in San Juan County. Photo courtesy of James H. Gunnerson (see page 27 this volume).

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Message from the Editors

Utah Archaeology has been in publication since 1988; however, its less formal predecessor, *Utah Archaeology A Newsletter*, was produced (occasionally infrequently) four times a year from 1955 until its transition to the journal in 1988. The *Newsletter* was initiated by James H. Gunnerson of the University of Utah who envisioned it as a place for both professional and advocational archaeologists to report their findings and research and share their interest in the fascinating and diverse archaeology of Utah. The *Newsletter* contains articles that are still of interest today, both because they contain information that is difficult to find elsewhere and because they provide a history of the Utah Statewide Archaeological Society and of archaeology in Utah.

In this issue of *Utah Archaeology* we are reprinting some of the more relevant articles from the Newsletter to make them more readily accessible. Many of these articles provide the history of both advocational and academic archaeology within the state that we hope you find interesting. The transcription of these articles was completed using PDFs of the *Newsletter* provided by the Museum of Peoples and Cultures as well as those accessible through the Utah Division of State History at issuu.com/utah10/stacks.

Editing this issue provided a unique set of challenges. Many of the articles contain grammatical errors that we have left intact to better reflect the original source material. However, occasionally we corrected errors when the mistakes were obvious and they made a sentence difficult to read. We also did not change the style of references to match current SAA standards, with the exception that all underlined words in the original references are now italicized. Figures were pulled from PDFs of the newsletters, and consequently their quality varies from article to article (and some did not include figure captions). If you would like to see a complete copy of all the newsletters, they can be found at the Museum of Peoples and Cultures archives or through the Utah Division of State History at issuu.com/utah10/stacks. Finally, we would like to thank Joseph Bryce who donated many hours of his time to help us transcribe the newsletter.

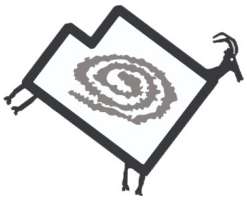
We hope you enjoy this historical look at Utah archaeology!

The Editors

Katie K. Richards and David T. Yoder

The **Utah Division of State History** invites you to join the

UTAH PUBLIC ARCHAEOLOGY NETWORK!



Utah Public Archaeology Network (UtahPAN) facilitates archaeological **stewardship** and **education** for the benefit of Utahns, indigenous communities, tourists, and the archaeological record by **connecting people** and fostering a **network of supportive partners**.

>> UtahPAN helps you engage with Utah's diverse archaeological heritage by sharing up-to-date news and events with archaeology enthusiasts, professionals, and fellow partners.

UtahPAN helps you lead the way in responsible stewardship!

>> UtahPAN supports archaeological education and stewardship by hosting workshops, lectures, guided hikes, and online content. UtahPAN aids in project collaboration, providing a network of volunteers and advertising to make these events a success.

Connect With the Past!

You can learn more about UtahPAN and sign up for our newsletter by visiting history.utah/gov/antiquities/upan

Utah Division of State History

Do You Want a Utah Archeology Society?

1955 Vol. 1 No. 1

James H. Gunnerson
Field Director, Department of Anthropology, University of Utah

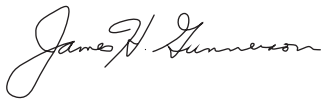
During the development of the Statewide Archeological Survey of the Department of Anthropology at the University of Utah it has become evident that there are people throughout the state who are keenly interested in the archeology of Utah. It seems probable that these, and other individuals who may become interested, might wish to organize a Utah Archeological Society, the sole and simple purpose of which would be to increase and diffuse knowledge of Utah archeology. There is no way, as yet, to determine the amount of interest in such a society, but I have suggested that a newsletter, *Utah Archaeology*, be published and mailed to potential members.

For the present, at least, it is anticipated that the cost of distributing such a newsletter will be low enough that the members of the society would not have to pay dues. The Department of Anthropology will, for a trial period, make the facilities of the department available for duplicating and mailing the newsletter, providing there is sufficient interest to justify it.

It is anticipated that *Utah Archaeology* will be prepared from two to four times a year. Both amateur and professional archaeologists are encouraged to submit articles pertinent to Utah archeology. Such articles could be anywhere from a short paragraph to a few pages in length. Since the newsletter must be produced at minimum expense, illustrations will have to be limited to simple line drawings.

If you are interested in organizing a Utah Archaeological Society and in receiving the newsletter, *Utah Archeology*, please fill out and return the attached membership application form. Be sure to list the names and addresses of other individuals who would also be interested in joining.

Until such time as the activities of the society may become great enough to warrant formal organization and the election of officers, I am prepared to serve as editor of the newsletter. I will greatly appreciate your suggestions, comments, expressions of interest and—above all—articles to be printed in the newsletter. In the beginning stage, articles should deal with descriptions of interesting archeological sites, collections, or even individual artifacts. ■



Editor's Note

1955 Vol. 1 No. 2

James Gunnerson
Department of Anthropology, University of Utah

Response to the inquiry concerning the organizing of a Utah Archeological Society has been encouraging. More than sixty application forms have been returned, most of these with the names of other possible members, and many with useful and constructive comments and suggestions. Although new applications continue to arrive in almost every mail, it seems advisable to release a second number of the newsletter at this time. This issue is intended as an acknowledgement to members that their applications have been received and their names placed on the mailing list for the newsletter.

Additional names of persons who might be interested in joining will be welcome at any time. It was emphasized in the last newsletter that articles written by members are needed and will be much appreciated.

The March 1955 issue of *Utah Archeology* will be considered as Vol. 1 No. 1, making this issue, Vol. 1, No. 2.

This seems a good opportunity to inform members of archeological activities which are being carried out in Utah this summer.

The Department of Anthropology of the University of Utah is conducting an archeological field school between Ferron and Salina. Excavation is under the direction of Dr. Jesse D. Jennings and runs from June 12 to August 1.

The Department of Anthropology of the University of California is holding its summer archeological field school for the second year near Paragonah, Utah. This year, as last, it is under the direction of Dr. Clement Meighan. This party will be in the field from about June 20 to July 30.

Archeological field schools have two primary functions. The first is to train students in archeological techniques and the second is to obtain basic data which will further our knowledge of prehistory. Members of the USAS may be interested in visiting these excavations to get an idea of the field methods and techniques.

The Statewide Archeological Survey is continuing its activities this summer in the southeastern quarter of Utah, but mostly north of the San Juan drainage. No intensive archeological excavation will be undertaken by the survey, which will concentrate on covering as much of the area and locating as many sites as possible. The survey will also conduct some salvage archeology where sites are to be damaged by road construction. ■

Utah Archeology: An Outline of its History

1955 Vol. 1 No. 2

Elmer R. Smith
Associate Professor of Anthropology, Department of Anthropology, University of Utah

An interest in Utah Indians, both in an archeological and ethnological sense, was brought to the Great Salt Lake Valley by the early Mormon pioneers. Brigham Young stated the attitude the pioneers should have towards the Indians of Utah in a number of utterances. The basic policy was first, to bring the Indians to terms with the pioneers; second, to teach them the ethics of the white man; third, to convert them to Mormonism (Dibble 1947). The Mormon pioneers were interested in the archeological wealth of the area because of their belief that the American Indian was descended from the Hebrew, who arrived here between 2200 BC and 588 BC. With the keen interest based on this religious background, it is understandable that much has been written by members of the Mormon church relative to archeology and ethnology of the Utah area. Many diaries, kept by the early pioneers, are rich source materials for descriptions of Utah Indian way of life, belief and lore, as well as full accounts of archeological sites and "relics" from mounds and cliff dwellings in various parts of Utah. *The Improvement Era*, an official publication of the Latter-Day Saints Church, has many articles of interest to the anthropologist.

The scientific development of anthropology in Utah has followed the general pattern found in other parts of the United Sates. The early stage was one of collecting and display with little interest in the theoretical and practical aspects of the materials collected. The next period was one of formulation of theories and the practical application to the various aspects of the anthropological material. This first period dates about 1876 with E. A. Barber's articles on pottery published in the *American Naturalist*. Major J.W. Powell and G.W. Ingalls did, however, report on the conditions of the Utah Indians in 1874. Henry Montgomery, Professor of Natural History at the University of Utah, was the first Utahn to publish a report in a scientific journal. He published "Prehistoric Man in Utah", in *The Archeologists* in 1894. This was followed in 1899 by an article written by Don Maguire entitled "Antiquities of the Southwest," and published by the Historical Society of Utah. Two other early archeological reports of significance to Utah anthropology during this period were George H. Pepper's paper on the Utah Basketmakers and T.M. Prudden's studies of prehistoric ruins of the San Juan watershed. In 1910 Dean Byron Cummings, then with the University of Utah, published his now famous "The Ancient Inhabitants of the San Juan Valley," and followed it in 1915 with "The Kivas of the San Juan Drainage." Between 1908 and 1913, Dr. Ralph V. Chamberlin, when he was associated with Brigham Young University and the University of Pennsylvania, published the first specific classic studies of Utah Indians, and these are still classic studies in their field. Archeologist such as A.V. Kidder, Neil Judd, and J. L. Nusbaum worked the southeastern part of Utah from 1908 to 1926, when the first step was made to establish some theoretical problems for Utah archeology.

The second period in Utah anthropology can be said to have begun with the publication of Neil M. Judd's "Archeological Observations North of the Rio Colorado" in 1926. Dr. Julian H. Steward in 1930 continued the scientific elaboration of anthropological research in Utah, and this type of study has continued to the present. There have been a number of research anthropologists working on Utah problems both from within the state and elsewhere since 1926, but four seem to

have published more than others to the present time. These four, arranged in order of their number of publications, are Albert B. Reagan, Julian H. Steward, Carling Malouf, and Elmer, R. Smith. Each of these anthropologists has shown an interest in both archeology and ethnology.

The University of Utah has tended to take the lead in the development of anthropology in Utah. The Utah State Agricultural College located at Logan does not have a department, a museum or classes in anthropology. The Brigham Young University at Provo has a collection of anthropological material. Dr. George Hanson, of the Department of Geology of the BYU has published short papers on some of this material excavated from the vicinity of Provo and Utah Lake. Ten years ago a Department of Archeology was organized at Brigham Young University, and some work has been done on sites in the Utah Lake area; more extensive work has been carried out in Mexico. Dr. Albert B. Reagan was, for a few years before his death, Special Professor of Anthropology at Brigham Young University. The University Archeological Society has been organized under the auspices of the BYU, and a series of bulletins of archeological material has been made available.

The Latter-Day Saints Museum located on the Temple Square Grounds, Salt Lake City, has primarily archeological displays with some ethnological material from various parts of the world. No research and no publications have as yet been made concerning the archeological and ethnological material available there.

The development of anthropology at the University of Utah can be said to be basically the history of this science in Utah. The principal highlights will be presented in the following account in chronological order of anthropology at the University.

1891—The first mention of "An archeological collection, and much that may be classed under the head of curiosities" as being part of the University of Deseret (Utah) is found in the University catalogue for this year. The collection was under the care of Henry Montgomery, Professor of Natural History. Montgomery collected a few archeological items through expeditions, but most of the collections from various communities throughout Utah [were] donated by collectors.

1893—Byron Cummings came to the University of Utah, and held the position of Assistant Professor of Latin and Greek, and later that of Dean. He immediately became interested in the archeological material of the area, and assisted Montgomery in increasing the collections for the Museum. In 1895 the Museum listed one hundred complete anthropological specimens and two hundred curios. From 1895 through 1914 Cummings headed the archeological expeditions into the "four corners" area and into southern Utah, and made collections of Basketmaker and Pueblo artifacts. In 1914 Cummings gave the first specific courses in archeology at the University of Utah. These consisted of two courses in archeology (American) and one in Greek archeology. At this time the Department of Archeology was organized. Cummings, before leading the university in 1915, published two bulletins describing some of the archeological and geological studies carried out during the preceding years.

1916—Professor Levi Edgar Young of the History Department of the University was put in charge of the Department of Archeology and archeological expeditions when Cummings left Utah. This arrangement existed until 1922. It was during this period that Andrew A. Kerr and Neil M. Judd (two native Utahns) conducted archeological expeditions to various parts of southern Utah. Judd collected basic materials for his initial publications of Utah archeology during these expeditions. During this period of 1916-22 a division was specifically made between anthropology and archeology. In 1917 the Department of Sociology was reorganized and named the Department of Anthropology and Sociology under the direction of Professor Young, who taught a few classes on American archeology. Dr. Andrew R. Anderson of the

Latin and Greek Department taught Old World archeology.

1922—Dr. Andrew A. Kerr returned to the University of Utah from Harvard, where he had Just received his Ph.D. under B. Dixon and started a new series of classes in archeology. It was not until 1926, however, that anthropology was separated from the Department of Anthropology and Sociology, and a new Department of Anthropology was organized, including both archeology and anthropology. During the time Dr. Kerr was in charge of the anthropology department, many artifacts were added to the archeology collection. This collection was housed in the Museum of Archeology located on the top floor of the administration building on the University campus. Dr. Kerr published very little dealing with his archeological investigation in Utah, and many of the specimens were collector's items with few scientific or descriptive notes recorded. The Museum's ethnological material also increased during this period, most of it being in the form of gifts from prominent Utahns and returned LDS Missionaries. The bulk of the ethnological material was brought from the "South Seas" where many missionaries had spent from two to four years on missions for the LDS church.

1930—After the death of Dr. Kerr in 1929, Dr. Julian H. Steward was appointed chairman of the Department of Anthropology in the fall of 1930. Utah anthropology then definitely entered on its second period of development. From 1930 to the fall of 1935 Steward carried on intensive archeological and ethnological research in the Intermontane area, collecting material for his later publications on archeology and ethnology. Steward truly established anthropology on a scientific basis at the University and introduced many of the theoretical problems developed by his and later research. A number of future anthropologists and anthropogeographers obtained much of their initial field and class training under Steward during this period.

All direct work and teaching in anthropology was suspended for three years following Steward's departure from Utah in 1933. However, because of the interest of President George Thomas, and with the cooperation and interest of Dr. Arthur L. Beeley of the Department of Sociology, survey work in archeology was carried on during the summers 1934-36 by Elmer R. Smith, who at that time was associated with the Social Science Department at Snow Junior College, Ephraim, Utah. The archeological surveys consisted in mapping and making surface collections and test digs of all the then available and known sites in the state. It was during this period that a museum of Central Utah was established at Snow College for the purpose of salvaging much archeological material in the immediate area of Central Utah. This Museum, after making a small collection of artifacts and publishing one small bulletin on "Utah Type Metates," was disbanded in 1937.

1935—The Anthropology Department was once again incorporated with the Sociology Department under the chairmanship of Dr. Arthur L. Beeley. Dr. John P. Gillin was appointed assistant professor of Sociology and Anthropology and held this position until 1937 when he resigned to accept a position at Ohio State University. During Gillin's stay archeological excavations were carried out at Nine Mile Canyon, Witche's Knoll and Central Utah near Ephraim, Marysville in southern Utah, and at Tooele, 40 miles southwest of Salt Lake City. Gillin advanced the scientific study of archeological materials in Utah, and published discussions of some of the theoretical aspects of his work in relation to the previous work of Steward.

1937—Elmer R. Smith was appointed to the Department of Sociology and Anthropology as instructor in Sociology and Anthropology and Curator of the Museum of Archeology. In 1940 Charles E. Dibble joined the Museum as assistant curator. Research interest through this period (1937-48) was primarily centered on the cave cultures of the Great Salt Lake area, but some work in ethnology was done with the Gosiute and Washakie Indians as well as in race relations in various areas of Utah and Idaho.

Dibble continued his work on Aztec codices begun in Mexico before he joined the staff at the University of Utah. Marie Wormington of the Colorado Museum of Natural History and the University of Denver, conducted archeological investigations at Cisco, Utah, and cooperated with the University of Utah in a number of surveys.

1948—Anthropology was reestablished as a separate department under the chairmanship of Dr. E. Adamson Hoebel. Dr. Jesse D. Jennings joined the staff as Associate Professor of Anthropology and Curator of the Museum of Anthropology. Dibble and Smith remained in anthropology. Under the direction of Dr. Hoebel an extensive and well-defined program for research and training in all aspects of anthropology was instituted at the University of Utah. Initial steps have been made to investigate the life of early man in Utah along with ethnological and community studies to be conducted in various parts of the state among both aboriginal and non-aboriginal groups. The Museum of Anthropology was moved from its old quarters in the administration building to a building formerly occupied by the Armed Services at Fort Douglas.

1950–1955—The Anthropology Department expanded its research program to include studies on Ute and Paiute Indians; an extensive survey of the demographic situation and acculturation on the Ute reservation, begun in 1950, has been revived and accelerated this year. The Statewide Archeological Survey, inaugurated in July 1951, continues this year on the last leg of intensive, long needed survey of the rich archeological sources of the state.

Nineteen numbers of the *University of Utah Anthropological Papers*, begun in 1939 as *The Archeology and Ethnological Papers*, have been published to date. Seven more are in press.
From four in 1950, the staff of the Department of Anthropology has increased to six in 1955. ■

Archeological Evidence of Hunting Magic

1955 Vol. 1 No. 3

James H. Gunnerson
Department of Anthropology, University of Utah

The Museum of Anthropology at the University of Utah has recently been given several unusual wicker animal figurines (Figure l). These were found by Mr. M. J. Leventis, P. G. Saltes and N. J. Comas in a dry cave on the Colorado River, about twenty miles downstream from Lee's Ferry, at the mouth of Marble Canyon, Arizona. These are not the first such specimens to come from the cave (Anonymous, 1943:87) and Leventis estimates that a total of at least thirty have been recovered over a period of several years. The figurines were reported as having been found under several inches of fine sand which could have sifted down from the roof. The depth of the cave was not determined but a draft suggested a second opening. A search of the cave failed to disclose any other cultural manifestations. This lack of associated material makes it impossible to assign to them a cultural or temporal position. Almost identical figurines found in Etna cave in southeastern Nevada appear to be associated with late Basketmaker material, about 1200 to 1400 years old (Wheeler, 1942, pp. 23–24.) Still others have been found in northern Arizona (Farmer and De Saussure, 1955).

The nine whole and fragmentary specimens donated to the museum by Mr. Leventis are very similar in appearance and in technique of manufacture. They range from eight to twenty-two centimeters in height at the head. Each was made form a single willow stick[1] (Figure 1), the thicker end of which forms the rear foot. The stick extends vertically to the top of the rump where it is bent forward to form the top of the back. At the shoulder the stick splits, one half is bent down at a right angle to form the foreleg. At the foot it doubles back on itself and extends upward to form the neck. At the top of the head it is bent forward at an acute angle and back at an even more acute angle to form the head and nose. It is then bent down parallel with the neck, passes under the body behind the forelegs and up along the neck again. The end is then wrapped around the head and neck and tucked in. The body was filled in solidly after the foreleg was finished but before the head and neck were finished by wrapping the second half of the split stick spirally around the front and hind legs (Figure 2). This same pattern is evident in all the specimens insofar as they are complete. The bark was left on the sticks, which ranged in maximum diameter from five to twelve millimeters.

Several of the specimens have what appear to be horns. One has the end of the split stick wrapped around the neck projecting back as though to represent a horn. Another specimen, although fragmentary, has one complete horn which is a separate element and has been inserted into the wrapping of the head. This horn is of special interest in that it has been wrapped spirally with a very slim twig, giving the impression of a mountain sheep or goat horn, although it is straight. It is impossible to tell whether or not the remaining figurines originally had horns.

The proportions of the animals, also, are suggestive of sheep or goats. The legs and neck are moderately short and the body somewhat blocky. There seems to be no attempt to represent a tail.

Of special interest are the sticks, apparently representing spears, thrust through some of the animals. In one case the spear is of willow; in the other it is made from a reed. These spears strongly suggest that the figurines represent fetishes used for hunting magic. Further, if the cave in which they occurred is indeed devoid of other evidence

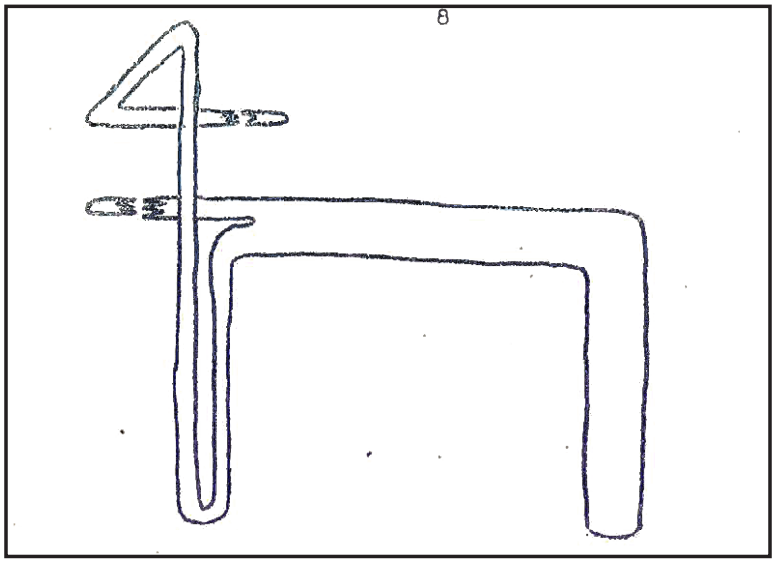


Figure 1. Basic frame of wicker figurine before body, neck and head are wrapped.

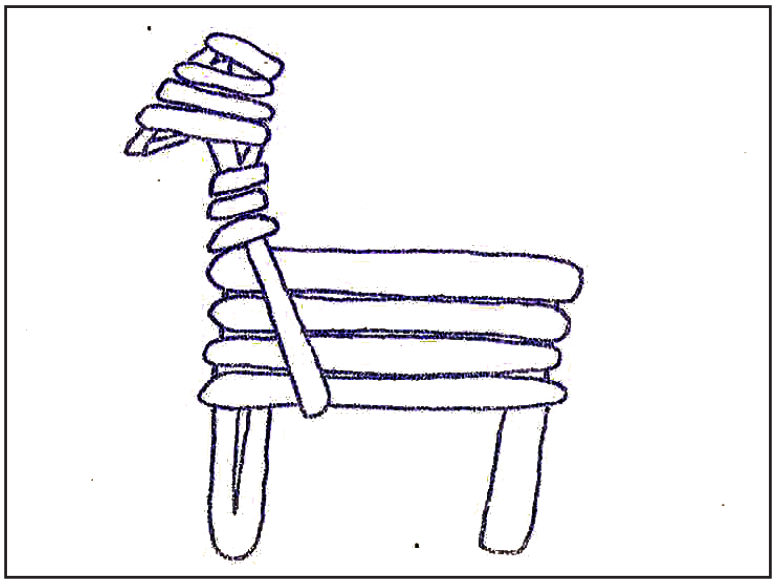


Figure 2. Complete wicker animal figurine .

of occupation, it may well represent a ceremonial retreat reserved for the practice of hunting magic.

Mr. Malcolm Farmer of the Museum of Northern Arizona is at present preparing an extensive report on such figurines. ■

Endnotes

1. Dr. Walter P. Cottam, Head of the Department of Botany, University of Utah, kindly identified the wood.

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Anonymous
1973 Report on the Condition of the United States National Museum for the Year Ended June 30, 1942. Washington.

Farmer, M. and R. De Saussure
1956 Split-Twig Animal Figurines. *Plateau* vol. 27, no. 4, pp. 13–23.

Utah Statewide Survey Activities 1955

1956 Vol. 2 No. 1

James H. Gunnerson
Department of Anthropology, University of Utah

The Statewide Archeological Survey centered its 1955 activities in the drainage of the Dirty Devil River (Figure 1). It was in this area that Morss (1931) did the work resulting in the first description of the Fremont culture. The Survey relocated a few of Morss' sites, found other open sites in the area, and established the fact that Fremont sites occurring continuously from Ferron (in Castle Valley) to the Fremont-Dirty Devil, and beyond, are essentially identical. The new data obtained do not provide conclusive answers to questions concerning the Fremont culture, but they suggest where and how the answers may be obtained.

The range of the Survey was restricted to some extent by its transportation, a half-ton pick-up without four-wheel drive. In a few cases it was necessary to secure horses or a jeep to get to sites difficult of access. The policy was to visit as many sites as could be reached without excessive difficulty even though this meant passing up a few sites which from descriptions, sounded promising. Some of the sites missed may have been more spectacular and less vandalized than those visited, but the larger sample seemed more desirable

Background Material

Most of the previous work in the Fremont-Dirty Devil drainage has been sponsored by the Peabody Museum of Harvard University. In 1928-29 Mr. Noel Morss excavated sites in the vicinity of Fruita and Torrey, Utah. His report (Morss, 1931) which also mentioned work
done along the Dirty Devil River by Henry Roberts in 1929-30, provided the first scientific account of the Fremont culture and gave this complex its name. The work of Morss was undertaken at the suggestion of W.H. Claflin and Raymond Emerson who had made a brief reconnaissance into the area in 1927, and by Donald Scott, who had spent a short time in the area in 1928. Previously, local collectors had taken an interest in the archeological material of the area and two in particular, Messrs. Lee and Pectol, had amassed sizeable collections. Part of the material collected by these two men are on display in a small museum in Torrey, Utah, and part is in the Museum of the L.D.S. Church in Salt Lake City; except for descriptions by Morss, the material has not been reported. The Fremont culture has been recently re-examined by Wormington (1955).

The University of Utah's 1954 survey reached the headwaters of the Muddy River, the northern branch of the Dirty Devil. (The name Muddy is also often applied to the Dirty Devil River, which begins at the confluence of the Muddy and the Fremont.) The 1955 survey, then, was an extension of the 1954 work.

Survey Activities

During the 1955 season, the Utah Statewide Archeological Survey located 112 archeological sites. These consisted of village sites, campsites, pictographs, petroglyphs, and chipping areas. For the most part, these sites are assignable to the Fremont culture. A few sites discovered in San Juan and Garfield Counties are of Anasazi affiliation. Findings will be summarized by area with no attempt to give a detailed description of each site.

Castle Valley

Castle Valley runs nearly north and south between the Wasatch Mountains and the San

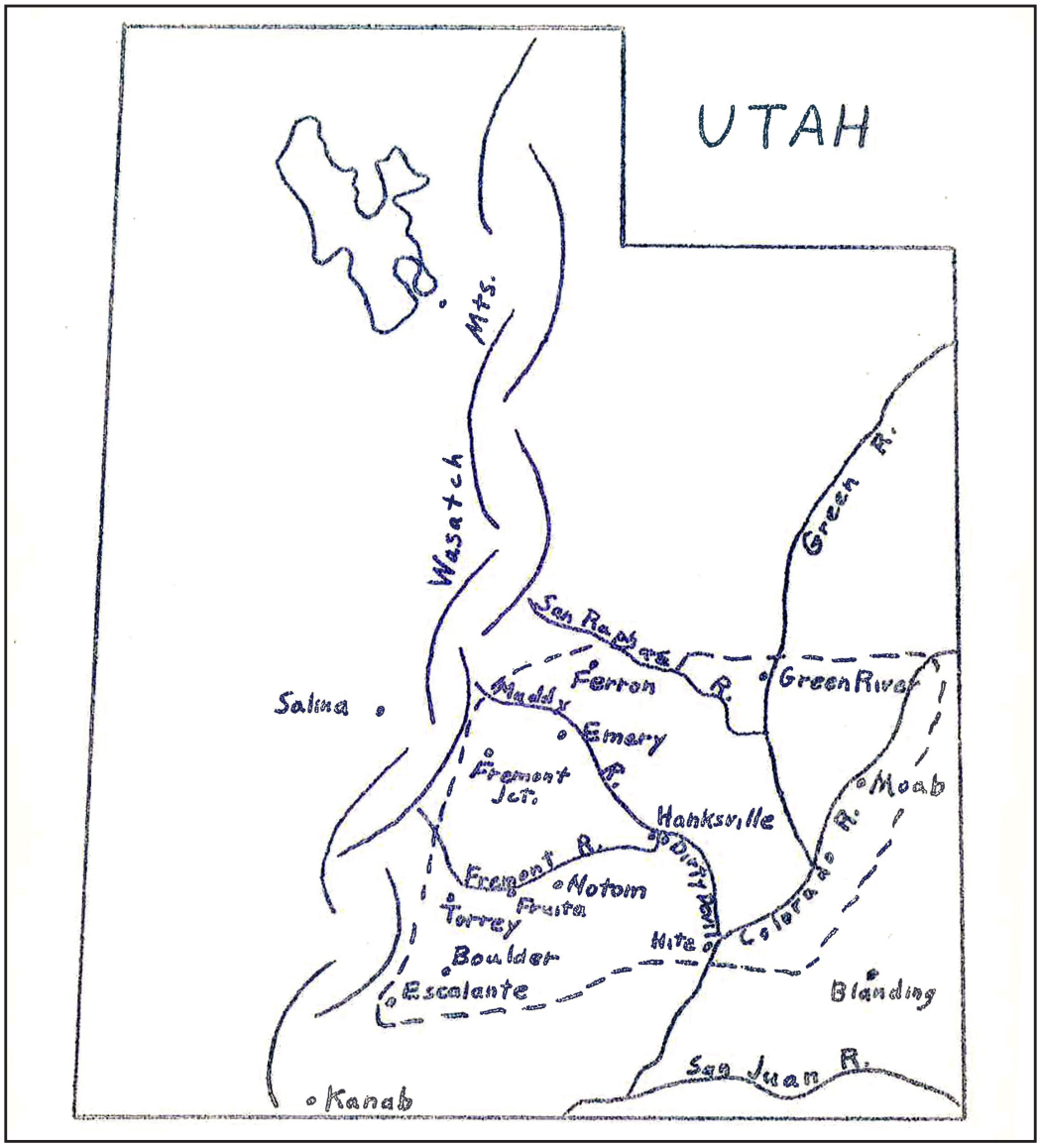

Figure 1. The area of the 1955 Utah Statewide Archeological Survey is included within the dashed line.

Raphael Swell. It extends from Price almost to Fremont Junction. Here, on the east face of the Wasatch, erosion has left "castle towers" of soft, gray stone. The northern part of Castle Valley is in the San Raphael drainage, while the southern part is drained by the Muddy River, and hence, by the Dirty Devil.

Several small streams cross Castle Valley, providing fresh water and tillable soil in an otherwise nearly desert area. Along these streams, close to the Wasatch, is centered the present population. Archeological evidence shows that the Fremont people clustered in the same favorable area, and there is much to suggest that in ancient times conditions were better for agriculture than they are now. In some places, especially between the Muddy River and Emery, Utah, Fremont detritus is found thickly

strewn over areas dissected by deep washes which are gradually eating away the land. The only remaining vegetation is extremely sparse. Everywhere in the valley, widening gullies and abandoned farmsteads suggest that the agricultural situation has deteriorated in recent time, and local informants confirm this.

It is possible that that Fremont farmers practiced riverine irrigation; more probably, they diverted flood waters to their fields, although they may have used both methods. Actually, run-off from the Wasatch is so rapid here at times that water streams out over the slopes and flats without seeking established channels.

Evidence of structures is rarely apparent on the surface of the ground except for scattered pieces of burned adobe. Amateur excavation at one site suggests that structures were shallow pithouses. No evidence of masonry was noted in this area. Small squares outlined by black stain (probably storage bins or rooms) were noted at one site.

Artifacts from near Emery are not distinguishable from those found elsewhere along Castle Valley or Range Creek. Pottery is, for the most part, plain, smooth and gray, although incised gray sherds, black on gray, and black on white (slipped) sherds are also found. Corrugated sherds are scarce.

Near Fremont Junction additional village sites were located, including Poplar Knob, which was excavated by the University of Utah Archeological Field School (Taylor, 1955) later in the season. In this general area several non-ceramic sites were also found. It cannot be demonstrated that all of these were of Fremont authorship, but on one a few Fremont sherds were found. These sites seem to correspond to the "sand camps" found by the 1954 survey in the foothills of the Uintah Mountains and may be seasonal camp sites of the Fremont people. In the Fremont Junction area, the sites are not as sandy as near the Uintahs, but in both localities they are in juniper-pinon wooded areas, often on ridges or slopes; they show no evidence of structures and yield little or no pottery.

About 120 man hours were spent in additional work at the Silverhorn site (42EM8) at which Mr. Homer Behunin had found a fluted point. The additional work failed to produce diagnostic artifacts. More unprepared hearths were encountered, and one shallow, unburned pit containing some charcoal was uncovered. The site is not yet completely dug out, but the probability of finding diagnostic artifacts does not seem great. The evidence suggests that this shallow rock shelter was occupied briefly at many different times while it was being filled rapidly with alluvial deposits. A report of work at this site will appear in the April 1956 American Antiquity.

Hanksville Area

Near the northeast "corner" of the Henry Mountains, about twelve miles south of Hanksville, is an area of about two square miles, which is thickly covered with Fremont sites. This area is nearly level, slightly rolling, and quite sandy. It lies between two dry washes which originate some distance apart in the Henry Mountains but which, in the area under discussion, are only about a half-mile apart. One of the washes (Bull Creek) carries water frequently enough to support a few scrawny cottonwood trees in its bottom. During the summer rains in the mountains, torrents of silt-laden water come down these washes; in earlier times these floods could have been diverted onto the nearly level, sandy flats. (Dark stains in the sand could be accounted for in this manner). At present, vegetation is very sparse and small blow-outs are common. The entire region is useless for agriculture, but when it was first settled, tall, lush grass was supposedly present. The change to near desert is attributed to erosion; the run-off is rapid and deep gullies have been cut.

The occupation areas are found on low knolls or ridges. Evidence of two types of structures was observed. One site, which was protected from the north by a rocky ridge, has the remains of three round, masonry rooms, which were apparently built on ground level. More common, however,

are slight circular depressions suggesting pithouses.

The artifacts from this area fit into the Fremont assemblage. Pottery, for the most part, is smooth gray; but incised and painted (black on gray and black on white slipped) sherds are not uncommon. A few sherds of corrugated ware and one sherd with "coffee bean" applique were also found.

The sites were known by at least one local collector but there has been very little vandalism or digging, even though access to the site is easy. This area would make a most interesting community study.

From about ten to twenty air miles to the east and north of Hanksville, across the Dirty Devil River, small camp sites are to be found around the occasional springs in the Robber's Roost area. It is quite probable that even the few sites with pottery represent temporary camps of hunters or travelers. At present a fair amount of game exists, including a small herd of antelope, but very little of the area would support even small gardens. Any gardening would have to be done around the springs, which would also have served to water the game. Local collections contain a wide variety of projectile points, suggesting a long occupation of the area.

Aquarius Plateau

To the west of Hanksville and the Henry Mountains, on the east slope of the Aquarius Plateau, was found an especially interesting area. Straight south of Notom about twelve miles, on a ridge extending east from the plateau and forming the high south bank of Oak Creek (also called Sandy Creek), are two series of sites. On the Oak Creek side of the ridge, on the highest level and also on lower terraces, are several ceramic sites. They are small, with no evidence of structures. Associated with these sites were manos and metates of several types. Mainly on the basis of pottery, these sites can be assigned to the Fremont culture, and the remainder of the artifact assemblage is consistent with the Fremont complex. A few sherds of very coarse, finger-impressed ware were found at a site which otherwise yielded only Fremont pottery. This ware has not yet been identified.

On the opposite side, the ridge (which varies from on-fourth to one-half mile in width) breaks away gradually to a dry valley far below. The broken land consists mainly of fine-sand blowouts and rock outcrops. The slope is to the southeast, so that there is shelter from the north. Here the sites are non-ceramic. They yield a profusion of chips, infrequent pieces of worked flint, and occasional shallow mealing slabs.

Many of these sites are characterized by hearth areas, usually containing burned rocks, surrounded by small rocks, covering areas about 12 to 15 ft across. Sometimes the small rocks tend to be concentrated at the periphery as though they had been included in adobe walls, which have since melted down. Sites found elsewhere this summer had similar suggestion of adobe walls but these were usually not so pronounced.
About a mile south and a half-mile east of Notom, in broken country, is a bay containing several small sites. One consists of two small storage cists under a low rock overhang. They had been dug into the somewhat crumbly rock floor and cribbed over with small poles, which in turn had been plastered. The opening in the top had probably been closed with a stone slab. A few corn cobs were found in and near the cists, and sherds were found on the slope below.

Sites are common in the vicinity of Boulder, Utah, but many are non-ceramic. Within the limits of Boulder itself, there is a large PII-PIII site reported by Morss (1931 pp 2-3). To the south of Boulder, the highway to Escalante crossed the Escalante River at the mouth of Calf Creek. Here where the Escalante Valley is about a quarter of a mile wide, there are level areas (terraces?) at different elevations above the river, and small rock shelters in the valley walls. Two of the shelters have stone and mud storage cists, and a third, larger shelter shows evidence of occupation. There has been at least one room

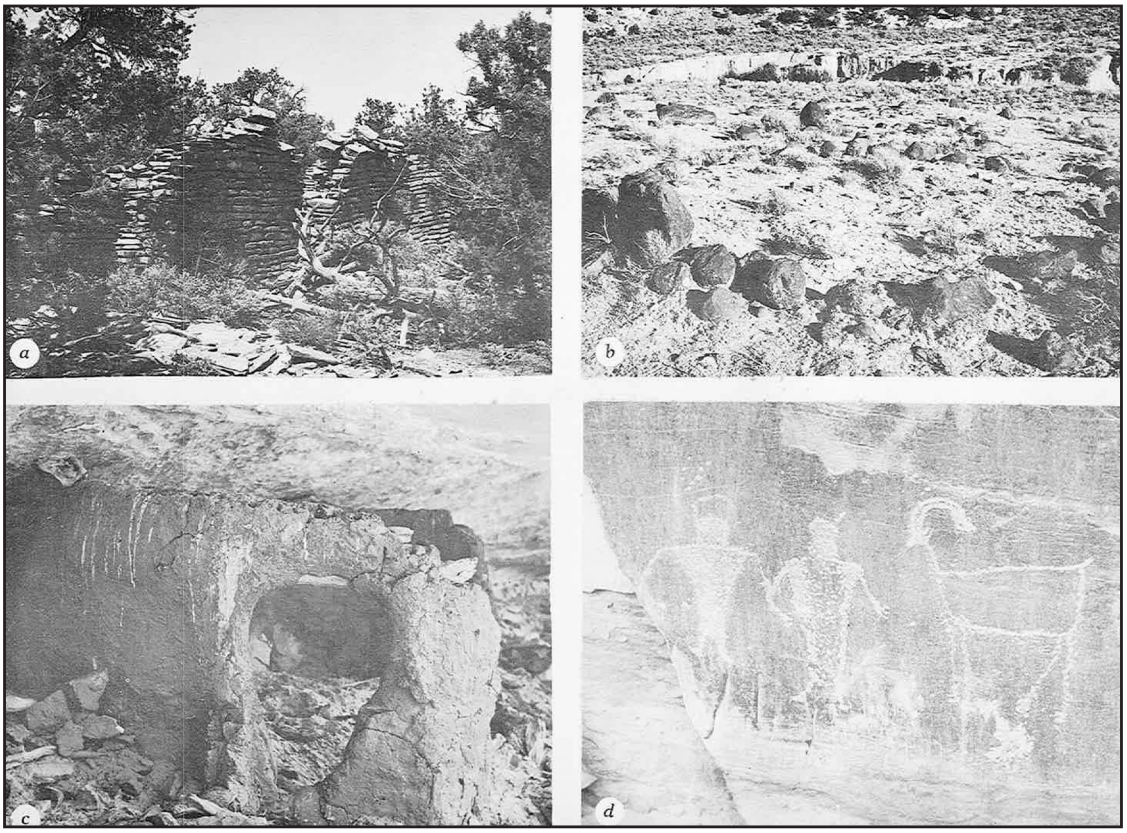

Figure 2. San Juan County Sites.

large enough to live in. A small road leading from the highway has cut through what was probably a structure in an open site but not enough was exposed to determine its nature. An interesting pictograph panel consisting of nothing but about 40 white handprints is also in this area.

In the immediate vicinity of Escalante are several sites, only two of which were visited. Surface indications suggest that they are small pithouse villages. Burned, stick-impressed adobe, and sherds are common at the sties, which do not seem to be attributable to the Fremont culture.

Several of the sites reported by Morss from near Fruita and Torrey were revisited and additional sites found. The pottery from these sites is very similar to that from Fremont sites in Castle Valley; a detailed analysis of the pottery from the summer has not yet been made, however. The range of structure types does not seem to be quite as great along the Fremont River as further north. Neither the isolated stone towers nor the multi-room structures on high points seem to occur. Remains of both adobe and stone structures are to be found on open sites.

San Juan County

None of the sites located east of the Colorado River seem to be attributable to the Fremont culture. Mossback Ridge, which is just south of the Natural Bridges National Monument, has been made accessible in the past few years by the construction of a road. Here are to be found numerous sites, some with walls still standing (Figure 2a). Other sites are apparently small pithouse villages and all would seem to be of Anasazi authorship, PII or later.

One interesting site (Figure 2c) midway between Mossback and Blanding and only a few feet from the new highway, consists of a rock shelter containing two nearly complete rooms and traces of two more. The two best-preserved rooms have been built of small logs laid horizontally and heavily plastered with mud both inside and out. The rooms are circular, with horse-collar-shaped doorways, and may have been built to the ceiling of the rock shelter. No sherds were found around the site, but corn cobs were numerous.

Salvage Archeology

The Utah Statewide Archeological Survey was engaged in two salvage programs. Several days were spent in checking right-of-ways where the Bureau of Public Roads was building mine access roads for the Atomic Energy Commission. Right-of-ways checked were in the Yellow Cat mining area south of Thompson, Utah; along Highway 24 from Green River to Temple Mountain turn off; from Trachite Creek to Shootering Mine; and between La Sal and La Sal Junction. In all cases, either most of the dirt-moving had been completed before the Survey was informed, or the construction involved only improvements on existing roads. No sites were found which had been damaged by construction, nor were any noted which would be threatened by future work.

A report received by Dr. Jesse L. Nusbaum, concerning a cave near Kanab, Utah, was forwarded to the Statewide Survey. A local informant had heard rumors that the cave contained archeological material and was to be looted. An examination of the cave by the Survey failed to reveal evidence of intensive or extensive occupation. Detritus, probably of Basketmaker origin, was sparse. Just outside the shallow cave was an interesting pictograph panel.

Survey activities were suspended for the month of July while the Field Director was on loan to Dr. Jesse L. Nusbaum to assist with salvage archeology in connection with the construction of a pipeline through eastern Utah and neighboring states.

As yet, no definite answer to major questions concerning the Fremont culture can be given on the basis of data collected by the survey. We do, however, find ourselves in a better position to phrase questions concerning this culture and we have some idea as to where the answers may be found. Some of the unanswered questions are:

- What are the local variants of the Fremont culture?
- How has the Fremont culture changed through time?
- What is the relationship of the Fremont culture to other complexes included in what was once called the northern periphery of the Southwest?
- What is the relationship of the Fremont culture to the Anasazi development?

Data collected during the past two years suggest possible answers to these and other questions, and laboratory analysis of the artifacts will contribute more to their solution. Conclusive answers, however, will require more field work. ■

Acknowledgements: Many people have assisted this past summer's survey in various ways. Among those who should receive special credit are: Duke Aiken, Jerry Alden, Arthur Alvey, Edson Alvey, Earl Rehunin, Mr. and Mrs. Homer Nehunin, J. L. Bybee, Mr. and Mrs. Arthur Ekker, Reo Hunt, Irvin Jacobson, Andrew Johnston, Charles Kelly, Irene Kin, Mr. and Mrs. Lurt Knee, H. D. Landes, Ade Meyerup, Rusty Muslemen, James Pace, Meredith Page, John Palms, Dixon Peacock, Paul Peacock, Bernard Tracy, and Bates Wilson.

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Radiocarbon Dates from Danger Cave

1956 Vol. 2 No. 2

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This summary is in response to inquiries caused by a short newspaper item recently released about the evidence of man's antiquity—a matter of 10,000 to 11,000 years—in western Utah. The information comes primarily from Danger Cave and was recovered during the routine operation of the summer Archeological Field School of the Department of Anthropology of the University of Utah during 1950, 1951, and 1953. While a detailed statement is not yet finished, the evidence for the age of man in Utah can be quickly reviewed.

Danger Cave is a deep cavern—l20 feet long by 60 or more wide—in the Desert Range. Its first value lies in the extensive evidence of human use—debris from occupation was 11 feet deep at the deepest point—and the wide range of organic material suitable for radiocarbon (C14) dating.

There are five major structural and cultural layers. The floor of the cave, before man began to use it, is of beach gravel of uniform size. Level I upon the gravel consists of two sand layers. Sand 1 is a thin water-laid layer upon which six little fireplaces were built. These yielded a radiocarbon date of 8320 ± 650 B.C. Man was in the cave, then, as soon as lake waters receded to an elevation of about 4310 feet. Soon thereafter the second thicker layer of sand was deposited by wind action and the cave was used briefly by mountain sheep alone. The radiocarbon dates from the sheep droppings found in Sand 2 average around 9500 ± 600 B.C. Note that the higher, hence more recent, material yielded an older date than the charcoal underlying it. The plus-minus figures, however, overlap and this is regarded as indicating that the two samples are essentially contemporary. The remainder of the deposit—levels II, III, IV, and V are all the "natural" accumulation of debris and waste products resulting from almost 10,000 years of continuous use of the cave by man. The relationships of the levels are clear in Figure 1.

During the whole period of use the aborigines subsisted about half on game of all sizes—from mountain sheep and bison down to rabbits and even smaller rodents—and half on vegetable foods. The vegetable foods include the small seeds of burro weed, which were harvested by the ton and ground on flat slabs (over 1000 grinding stone fragments were found) as well as bulbs, pine nuts, and berries.

From beginning to end, these people made string, excellent baskets, and varied classes of flint implements. The way of life was unchanged until pioneer times. The life-way observed in Danger Cave is called the Desert culture, and is found historically and archeologically over most of the West, between the Wasatch and Sierra Nevadas.

The age of the different levels of the cave can be seen both in Table 1 and Figure 1. As Table 1 shows there are two separate series of radiocarbon dates. One set was derived by the Chicago Laboratory by the solid carbon technique, from specimens collected in 1950. The other set was derived through the methane gas technique by the Michigan Laboratory from specimens collected a year later from different locations in the cave but from the same levels. The two series agree well; this agreement seems to satisfy the scientific requirement of independent observation and is an argument for accepting the accuracy of radiocarbon dates.

In addition to evidence of man's antiquity, Danger Cave also provides information about the fauna and flora of the past 10,000 years in that all

Table 1. Ladder of twelve radiocarbon dates from Danger Cave.

	Michigan Series	Chicago Series
Level V (topmost)	M-201, uncharred twigs and leaves from middle of Level V-4000±500	C-635, charred bat guano and twigs-1930±240
	M-205, uncharred twigs and leave from base of Level V-4900±500	
Level IV	None	C-636, charred bat guano and twigs-3819±160
Level III	None	None
Level II	None	C-611, charcoal in pit originating at lower middle zone of Level II-9787±630
		C-640, charred rat dung from base of Level II-8960±340
Level I Sand 2	M-116, uncharred sheep dung-11,000±700	C-609, uncharred sheep dung-11,453±600
	M-119, uncharred woody material (twigs, leaves)-10,4000±700	C-610, uncharred wood (stem of large shrub)-11,151±570
Occupation area between Sand 1 and Sand 2	M-202, charcoal from one of 6 fireplaces on surface of Sand 2 – 10,270±650	None
Level I Sand 2	M-204, slightly charred sheep dung – 10,700±650	None

the plant and animal species are modern species, and are today (or were historically) to be found in the immediate vicinity of the cave.

Equally important is the location of the cave. As Figure 2 shows, the cave lies hundreds of feet below the Stansbury terrace. Geologists are not exactly agreed as to the time when the Bonneville lake waters receded from the Provo and Stansbury terraces but whatever the final so1ution to the problem may be, Danger Cave radiocarbon dates provide a minimum date for the lowering of lake water to the 4310 foot level (110 feet above present Great Salt Lake) of 8320 B.C., when the six fireplaces attest to the presence of man in the cave at a time when the waters had just released it.

On Figure 2, the elevation of other important Utah cave sites and of the terraces are also shown. ■

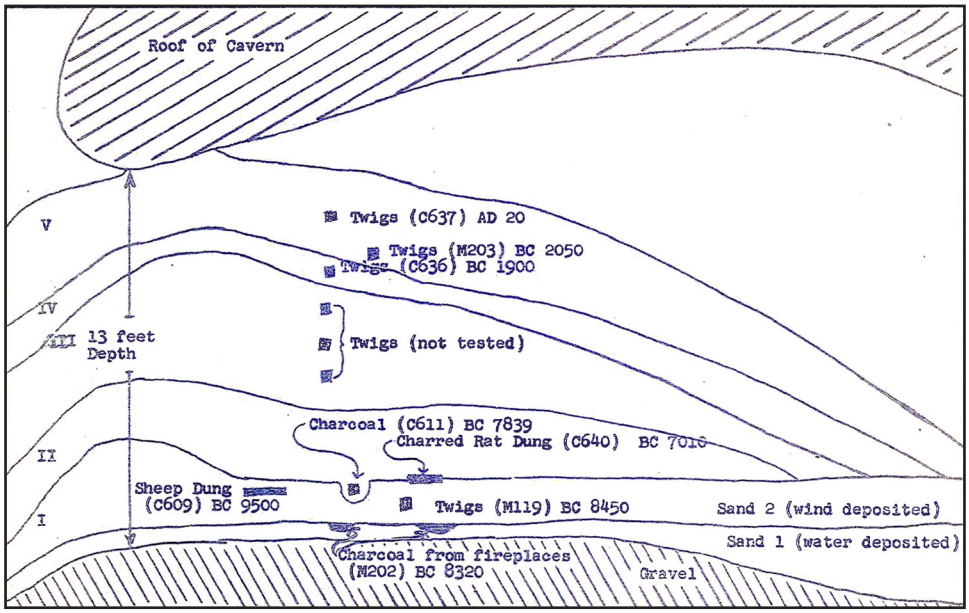

Figure 1. Much simplified cross section of Danger Cave from front to back, showing the 5 major cultural levels and the radiocarbon dates from each level. The M series are Michigan Laboratory dates; the C series are Chicago dates.

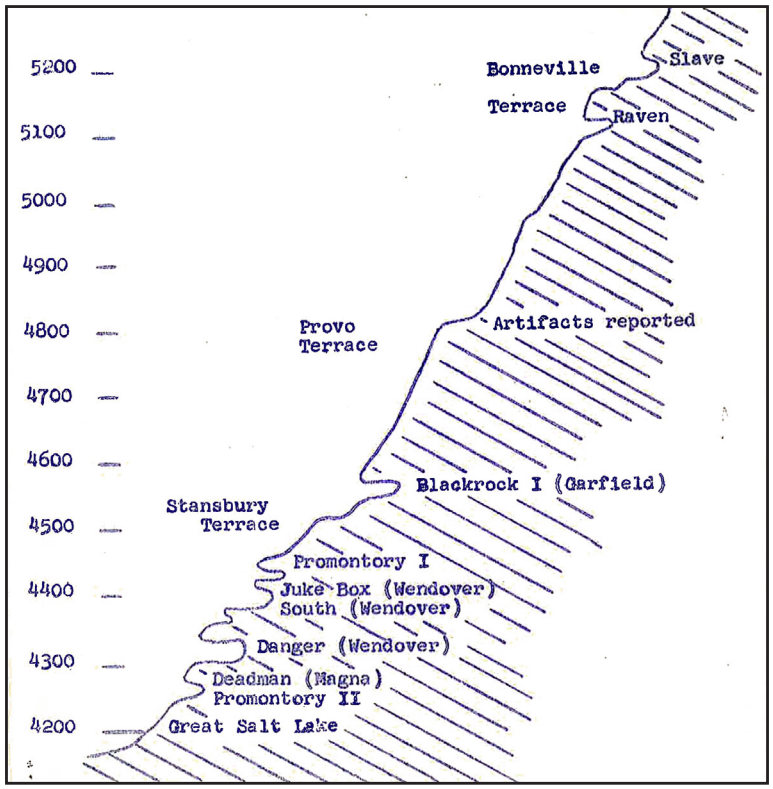

Figure 2. Elevation of Utah caves, and the three major terraces.

Salvage Archeology

1957 Vol. 3 No. 1

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In the past few years archeological sites in the United States have been destroyed by large-scale construction work at an alarming rate. The most destructive projects have been the construction of large dams, since river valleys were by far the most heavily occupied areas of aboriginal North America. Other activities which have also taken a large toll of our archeological resources include farming, city and town building and the construction of pipelines, roads and highways. Much of the damage to be done by farming and city building has been done already. The past few years, however, have seen an increase in tempo in the construction of dams, highways, and pipelines. Fortunately, a conscientious attempt has been made to salvage at least a sample of the archeological material.

There has been legislation since 1906 to protect archeological, historical and paleontological material on federal land. Hence, the government has been obligated to provide for the salvage of such material threatened by its own construction work. It has further insisted that private concerns, such as pipelines, agree to hire archeologists to locate and salvage material that would be damaged or destroyed by construction activities. Such stipulations have been included in the permits issued for pipeline construction across federal land.

The pipeline construction companies, to their surprise, found that they received so much favorable publicity with regard to their salvage activities that they frequently had salvage operations extended to cover the part of the right-of-ways on private land as well. Furthermore, they have financed the publication of the archeological reports. As mentioned earlier, dam construction is the most destructive to archeological sites. In fact, it would be difficult to plan a wholesale destruction of sites as effective as that which has taken place in the Missouri River Basins, for example. Three major dams across the Missouri River itself are producing lakes which extend nearly continuously from the Nebraska-South Dakota boundary across South Dakota-North Dakota and northern Montana. In addition, the damming of numerous tributaries of the Missouri has inundated many other archeologically rich areas in the plains. Much of the construction work is completed and many of the smaller reservoirs have been filled for several years. In other areas, the water has not yet reached its maximum pool level and salvage archeology is continuing. The number of published reports of salvage excavation and survey is constantly increasing and it is only through such publications that the information recovered can be preserved and made useful.

Since just after World War II, the government, through the National Park Service, has made funds available for the enormous job of locating archeological sites and excavating sites carefully selected to provide the best possible sample of the archeological material to be destroyed by dam construction. The actual field work has been carried out by the Smithsonian Institution and by many other capable cooperating agencies, such as universities and museums.

The recent construction of dams has not been limited to the Missouri River Basin. Other projects of somewhat smaller scale have been undertaken in several parts of the country. In most of these projects, the government has provided funds for salvage archeology. Earlier dam construction (in the 1930's) in the southeastern part of the United States was carried out without such a well

organized salvage program. Here, the limited salvage of archeological material in the Norris Pickwick and Wheeler Basins was carried out primarily with labor supplied by several federal relief programs and the reports of this work were published by the Smithsonian Institution.

We in Utah are being faced with many archeological salvage problems. In the southeastern part of the state many archeologically rich areas are becoming accessible to jeep travel through the construction of roads for use by uranium and oil prospectors. Sites in these areas are now vulnerable to looters and vandals. It is hoped that Utah's New State Park Commission will take control of these newly discovered rich archeological areas and protect them, thus preserving them for future scientific study. Utah can also expect a greatly increased rate of highway construction as part of the Federal Governments highway program. Government funds are available for salvage archeology necessitated by such highway construction, but trained archeologists and time are needed in addition to the money.

The largest salvage program facing Utah is, of course, that created by the Upper Colorado River program. Already commenced is the construction work on three dams— the Glen Canyon, Flaming Gorge and Navaho projects, which will result in the flooding of many archeological sites. Several smaller dams are planned in addition to these three large ones. The legislation authorizing the construction of the dams specified that the archeological resources be salvaged, and presumably the money will be appropriated for this. The University of Utah has been asked by the National Park Service to carry out the major portion of the salvage operations in the Glen Canyon and Flaming Gorge reservoirs.

The difficulties in doing archeological work in these reservoir areas will be more numerous, progress will be slower, and costs will be much higher than in areas which are easily accessible. Largely because of remoteness and isolation, these areas have received very little previous attention, and the need for sample salvage is even more important.

River parties going down the Glen Canyon of the Colorado have seen archeological sites and a partial survey of the main river channel has recorded well over l00 sites. The numerous tributaries which will be flooded are completely unknown. Many sites will probably be found on these tributaries if the same pattern holds here that is found further north along the Colorado and Green Rivers. The combined lengths of the tributaries will greatly exceed the 196 miles of the Colorado River and the 76 miles of the San Juan Rivers that will be flooded.

According to present planning, there will be only about ten years in which to complete salvage archeology behind the Upper Colorado River dams. Hence, if a significant sample of the archeological material in these areas is to be salvaged it is imperative that adequate funds be appropriated this year so that salvage operations can start this summer. Construction has started and some material has probably already been destroyed.

Archeologists look upon archeological salvage programs with mixed feelings. They are all grieved to see the irreplaceable sites with all the data they contain destroyed, although they realize full well that not all of the sites might ever be completely excavated even if they were not being destroyed. Archeologists know that there is much to be gained economically and in other ways with the construction of dams, highways, etc. Moreover, salvage archeology provides more money for field work than would ordinarily be available.

But because of the nature of the situation, the archeologist feels that he must recover the maximum amount of information he can in the time available, even though in so doing he is not able to recover some of the details that he could under less pressure of time. Also, there is constant realization that he is salvaging only a sample of the material and data and that the material and data which does not salvage will be forever lost. Furthermore, the archeologist will never know

whether or not the sample that he salvaged is actually a true sample of everything destroyed; for until a site is completely excavated no one can be certain what it contains.

The advent of large-scale archeological salvage programs has necessitated a change in one very basic approach of archeology. Ordinarily the archeologist plans his work around a problem. He selects sites for excavation which he has reason to believe will supply the information needed to answer the questions he is asking or fill the gaps in the body of knowledge with which he is dealing. Such problem-oriented research may take the archeologist over a wide area, or it may take him back to the same site to continue careful, painstaking excavation year after year. Salvage archeology, on the other hand, limits the archeologist to a particular area (which may be hundreds of miles long and a few feet wide in the case of pipelines and roads) and requires of him that he make as heterogeneous a study as possible and collect data bearing on every conceivable problem relevant to the threatened sites. To be sure, in a reservoir area for example, problems will become obvious to the archeologist and he can keep them in mind during salvage operations. Seldom, however, does he have the opportunity to pursue them as far as he would like. The main satisfaction that the archeologist gets from salvage archeology is the realization that he is rescuing data that would soon be lost without his efforts. ■

Upper Colorado River Basin Archeological Salvage Project: Summer 1957

1957 Vol. 3 No. 3

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The University of Utah received a contract from the National Park Service to conduct salvage archeology at sites threatened with destruction or damage by the construction of the Glen Canyon Dam, the resulting lake, and activities connected with the project in general. Work has proceeded on three different levels. The initial survey attempted to locate all archeological sites in the first segment of the threatened area. A second party carried out limited excavation to test sites which were thought by the survey party to be most significant. And the third activity was the excavation of sites selected on the basis of the test excavations.

Survey

The survey operated as a mobile four man team from June 22 until September 5. Work was confined to the right bank drainages and environs from immediately above the Glen Canyon dam site to the Escalante River, but did not include the main canyon. Search was first made, intensively, in the zone below full pool level. Subsequently, and less intensively, search moved into promising areas above full pool. These streams, moving up stream, are Wahweep, Warm, Cottonwood, Gunsight, Navajo (locally Padre), Kane, Last Chance, Rock, Cottonwood and Llewellyn creeks (or gulches) and the Escalante River with its right bank tributary gulches, Indian, Clear, Davis, Soda, Willow, and Coyote. Several short and unnamed gulches between Rock Creek and Cottonwood Gulch were already surveyed from the canyon side or are to be ignored. As of August 31, 1957, the survey search has revealed 109 sites in this entire area, about 80 being below the full pool elevation. A site, of course, is simply a location where evidence of human use or occupancy can be found. Great variation in the extent of the visible remains is therefore to be expected. So far as is now known, the sites will fall within the Christian era, nearly all being of Anasazi affiliation. The range is estimated to run from Basketmaker II times through Pueblo II. At present few Pueblo III ceramic specimens can be identified.

Many of the sites are in spectacular locations and have strong romantic appeal, but their value as scientific documents is unfortunately slight. They are, except for the 5 sampled (42Ka172, 42Ka174, 42Ka173, 42Ka24l, and 42Ka235) thin and skimpy. No large settlements or extensive occupancy can be inferred, nor can long use be reasonably assumed. Most lack diagnostic surface artifacts or architectural detail. The impression received is that the canyon and gulch sites represent single season or single family forays into the river from better locations in the highlands and stream headwaters. On the other hand, every gulch has a few sites in it. As might be supposed, the Anasazi here, as elsewhere, were not oriented toward the streams or the limited resources of these deep canyons. It is true that most of the structures observed were the small cist, or the above ground granary (both associated with agriculture) but these are not associated with discoverable settlements. Several sites, discovered with binoculars or from ledges, are today inaccessible; these are noted but not always accounted for in the survey total. Sites are essentially lacking in the large Wahweep, Wann and Last Chance drainages because, it is believed, of the soil. which is weathered Morrison formation not suitable for agriculture; and the rarity of potable water in the streams. Springs are

also rare. The over 100 sites discovered fall into 3 categories:

1) Open dunes and sand terraces—both non-ceramic and ceramic collections.

2) Cliff overhangs or rock shelters—yielding shallow middens, occasional structures (dwelling and storage) and storage cists.

3) Pictograph panels—alone and associated with other sites

The above statements are derived from field summary reports and represent the present thoughts of the field supervisors. Revised interpretations will perhaps follow a more leisurely examination of the notes and collections. Intensive search for sites in this vast and dangerous desert by jeep, pack train, and on foot was done systematically by Dr. Lister's crew: Edson Alvey, Wilford Wiseman, Richard K. Graham, Charles F. Hayes, III. The thorough work of this party, in some of America's roughest terrain, in daytime heats often exceeding 110 F., without logistic support except of their own devising, deserves special mention.

Excavation

Sample excavation was initiated on July 22, 1957 by Downey D. Raibourn and his research assistants: Barry G. Quinn, Ray Groussman, James Nielson, Orson Spencer Whitney, Kent Morgan, and Alan Matheson. This unit sampled 5 sites designated by Professor Lister as requiring tests to determine whether more intensive excavation was desirable. The results of these tests with appropriate recommendations will be the subject of a separate report sometime early in 1958.

Raibourn, in lesser degree, was also dependent upon his own resources; the nature of his assignment, however, made for much less rigorous problems in logistics. Even so, for the work in Davis Gulch (where two sites required extensive testing) tools, food and gear, all reduced to a minimum were transported by pack train over five miles of alternate stretches of naked rock and sand dunes impassable by jeep. Food was packed in at weekly intervals.

James H. Gunnerson took over the excavation unit as of September 15. Excavation activity during the month of September was devoted to the Alvey (42Ka172) site, an overhang location, where an extensive midden deposit has been worked out. Essentially all of an area 120 feet long with an average width of about 15 feet had been excavated at the completion of work at the site. The excavation has a maximum depth of 14 feet below the surface and had an average depth of about 8 feet.

Three or possibly four occupations appear to be represented at the Alvey site. The uppermost cultural level and the one which yielded the most artifacts appears to be late Pueblo II or early Pueblo III in age. This late material also extended up into the loose blow sand which covered the site. The next deepest occupation was thicker and had fully as much vegetal trash as the upper level, but artifacts were less numerous and no pottery of late types was noted. A tentative Pueblo II assignment is suggested for this level Artifacts are even rarer in the third most recent level but the only human bones, four in all, were recovered from it. Also, the fill of this level was for the most part alluvial sand with a few concentrations of vegetal trash. The lowest storage cist was associated with this level. Others had been found associated with the upper levels. The lowest levels are non-ceramic and contain very few artifacts, but can probably be assigned to the Desert Culture. The fill was alluvial sand with specks of charcoal and occasional lenses of charcoal. In the lowest levels, rocks fallen from the roof are more numerous, although perhaps somewhat smaller than those in the upper levels. The deepest cut (14 feet) had penetrated about two feet of nearly solid rock fall with no cultural material present although specks of charcoal appeared occasionally. The excavation was backfilled enough to eliminate danger to stock.
It is expected that excavation work will be possible until November 1. ■

An Undercut Storage Pit Near Moab, Utah

1958 Vol. 4 No. 1

Lloyd Pierson

Bulldozers are not usually considered as archeological excavation tools, particularly where detailed work is called for. However, bulldozers have made a great number of archeological discoveries over the years. This was the case recently with the uncovering of a small subterranean storage pit in the Moab area.

The Eastern Utah Development Company of Moab has a gravel pit about one and a half miles down the Colorado River from the Portal on the east bank. It is in a deposit of gravel overlying a sandstone cliff immediately in front of the famed "Mastodon'' petroglyph. The gravel itself is probably a late tertiary or early quaternary deposit as described by Baker (1933, pp. 56-58). Overlying this particular gravel deposit is a layer of windblown sand with occasional lenses of caliche sandwiched between the sand and the gravel. The storage pit was uncovered during the early summer of 1957 by a bulldozer removing the overburden of sand and caliche from the gravel. Mr. C. Robert Sundwall of Moab was notified by the company manager that the pit had been found and Mr. Sundwall generously invited me to go along with him to inspect it.

We found that the pit had been dug into one of the caliche lenses. After its last use the cover, a thin slab of sandstone, had been replaced over the entry hole. There was a seventeen inch layer of windblown sand over the entry to the pit. The bulldozer, in removing the sand, pushed the slab cover off the entry hole exposing the storage pit, but without cutting into the pit itself. When we arrived at the site we found that the small amount of fill had been removed by someone else.

The storage pit was of a type described as undercut or jug shaped. It had a twenty-two-inch diameter opening and was thirty nine inches deep. The diameter was forty four inches at the maximum girth which occurred fourteen inches above the fairly flat floor. At floor level the pit tapered to forty-two inches in diameter. The bottom section, at one side gave evidence of having been plastered, probably with the same caliche that the hole had been dug into.

The workmen who uncovered the pit reported a handful of broad-lined black on white sherds present on the surface of the small amount of fill in the pit. Unfortunately they had disappeared but I surmised from the description that they were Pueblo wares as do occur in the area; possibly Mancos Black on White.

The surrounding area was carefully searched on two different occasions but no other indications of prehistoric works could be found. However, there is still a large section of the hilltop that has not been bull-dozed so the presence of other structures cannot be discounted.

Assigning the storage pit to a time or culture would be difficult on the meager evidence. It is apparent from the literature that they have not been previously reported from open sites in the Moab region. Hence they should be looked for in the future. They do occur in cave sites as Hunt (1953, p. 203) reports them from Mill Creek near Moab as "unlined bell shaped pot holes." In her summary of the Fremont culture Wormington (1955 pp. 172-173) considers this type of "pot ho1e" pit a Fremont culture trait, as it occurs in four out of six of the Fremont subareas. It also has sporadic distribution throughout the southwest at various time levels. ■

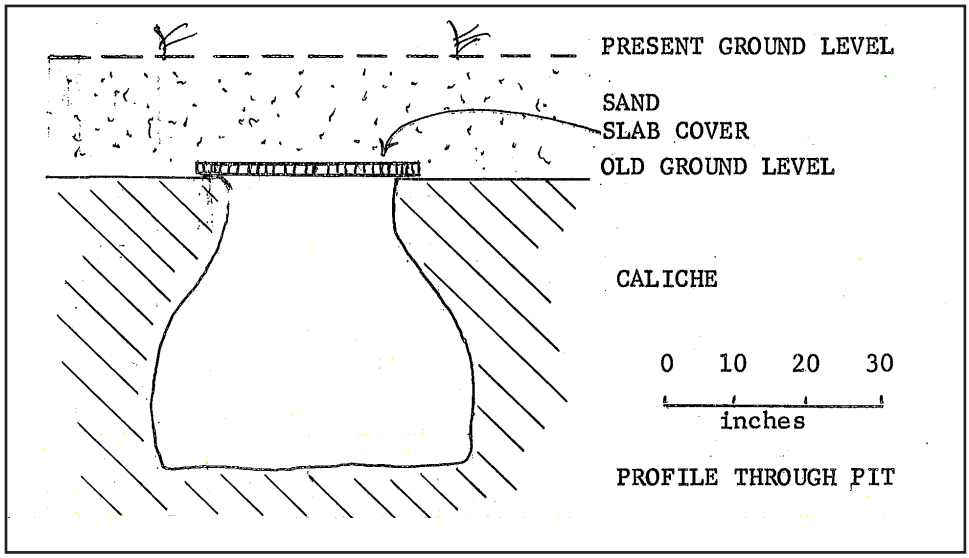

Figure 1. Profile through pit.

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A Puebloid Site in Utah Valley

1958 Vol. 4 No. 2

Carl Hugh Jones

Foreword

As part of the training program of the Department of Archeology of Brigham Young University, a class in field archeology is offered. This class was taught the fall quarter of 1956 by Dr. Ross T. Christensen to a group of 15 students. To fulfill the requirements for this class, each student participated in an excavation in Utah Valley, helped catalogue the materials excavated, and prepared a report on a particular phase of the recovered material. The present paper is based largely upon the reports prepared by the students. Helpful criticism has been offered by Dr. M. Wells Jakeman, department chairman. The property owner, G. Marion Hinckley, and his son Thomas Hinckley were more than kind to us in allowing us to excavate in their fields and in their cooperation in other ways.

The following is a preliminary field report and description of specimens.

Site Location and Excavation

On September 27, 1956, the class started the excavation at a mound site designated as UH 11. This mound is on the property of G. Marion Hinckley, near sites where Julian H. Steward (1936) and Albert B. Reagan (1935a, 1935b) excavated during the 1930's; and just a little to the southwest of site UH 11, excavated by this department in 1946-7 (Christensen 1947). The site is located two and one-half miles west of Provo, Utah, and one-half mile south of West Drive on the Airport Road.

The first thing the class did on the site was to lay out a test trench, 18 inches wide, which ran for 50 feet in a general east-west direction. This trench was dug to a depth of three feet, at which point sterile soil was reached. This point was used as the datum level.

Using the south edge of this trench as the, east-west base line, another base line was laid out at right angles to it. Using these two base lines, the site was laid out in five-foot squares.

Each square was excavated in six-inch levels, and the artifacts were put into paper sacks labeled as to square and level. After the test trench was finished, the next step was to dig several test pits: squares 13, 5R4, 13R4, and 20R4. During the third week, 17R6 and 17R9 were opened as test pits. In these two pits were found the greatest signs of occupation that had been encountered thus far. The next week we commenced to open other squares next to these (17R6 and 17R9). As plans now stand, there will be another excavation at this site in the autumn of 1959, when this class will again be held.

Objects of Stone

About 500 stone objects were recovered from UH 11. Approximately three-fifths of these were simply fractured fragments and might have been used as boiling stones. Fifty-nine were unbroken and water-worn, varying in size from small pebbles to rocks six inches in diameter. It should be noted that the site is located in an area that is practically free of' stone.

We recovered 85 pieces of flinty stone in the form of chips, flakes, and cores. Four projectile points were found. One, from a deep level, is a stemmed point three and three-fourths inches long and resembles points from Gypsum Cave. The others were triangular-side-notched points about five-eighths of an inch long. Six fragments of knives were found; three of these are about

one and three-fourths inches wide with square or rounded ends. One boot-shaped scraper (?), one large end-scraper, two thumb nail scrapers and one slightly winged drill were also recovered from the site.

From 17RB, level three, came a flat piece of brown-maroon slate which-showed signs of having been polished. It may have been used as a pendant or gaming piece. Five stones with red ocher on them, a piece of ground slate that may have been a knife, and two sandstone shaft-straighteners were found.

Four mano fragments and nine metate fragments were recovered. One fragment represents the Utah type of metate, four fragments had raised edges, three were flat, and one was too small to identify. All the manos have a rectangular cross-section. The largest mano fragment is three and one-fourth inches wide, two and one-half inches thick, and six,inches long. This appears to be about half the original length. The other heavy stone artifacts recovered were one anvil and three hammer stones.

The types of stone found at the site are: chert, flint, obsidian, jasperoids, quartzites, travertine, red ocher, slate, rhyolite, latite, and vitrophyre.

Faunal Remains

We are indebted to Mr. James W. Bee for the species identification of the faunal remains recovered from UH 11. The various species of animals identified and the number of specimens identified are: muskrat, 38; beaver. 5; jack rabbit, 3; botta, pocket gopher, 2; nuttall cottontail, 1; yellow-bellied marmot, 1; coyote, 1; badger, 1; striped skunk, 1; mountain sheep 16; mule deer, 5; bison, (Bison bison bison/Linnaeus), 5; mallard duck, 16; Canada goose, 9; American merganser, 5; pintail duck, 2; lesser scaup, 2; greater scaup, 2; and the avocet, 1.

Fragments of bone too small to be identified as to species are as follows: 159 large mammal and 50 bird and rodent.

Dr. Reeve M. Baily of the University of Michigan identified our fish samples as Utah Chub, *Gila atraria* (Giard), 7. This was based on several jaw bones. Several mollusk were found; 10 clam and 39 snail.

The presence of bison is especially interesting because their remains are not commonly found in this part of Utah. Other evidence of bison has, however been found in the area. Stephen Johnson Beely (1946) reports bison bones being found in a camp site located north of the Provo River. James Bee (1947) in his master's thesis shows a photograph of a bison skull removed from the sands north of the Provo River. Seton (1927 p. 647) gives the range of bison in this area as being between 1500 and 1850 A.D.; and Escalante said that bison were not too far away to the north-northwest (Alter, 1943).

Artifacts of bone include: 10 awls, 5 gaming pieces, 2 scrapers, 1 flaker, and 1 whistle. The awls are from the long bones of mammals. The gaming pieces are made of split rib halves, the type usually found in this area. The whistle was made from the leg bone of a bird.

Plant Remains

From the Tree-Ring Laboratory at the University of Arizona was received identification of Douglas-fir and a fast growing type, such as cottonwood from samples that have been sent in for tree-ring dating. Other floral remains are grasses or canes likely used in making mats, and vines or saplings used to bind the frame work of the house together.

There is an indication that corn was used on this site: a lump of baked clay was found on which there was an impression of what appears to have been an ear of corn used as a roller stamp.

House Remains

Other than a few scattered post molds, the main construction on the site was a parallelogram mass of burned and baked clay (see Figure 1). Most of this mass appeared to have no form; that is, it gave the appearance of having fallen from somewhere. On the individual pieces of clay, the imprints of the fingers of the people who put the

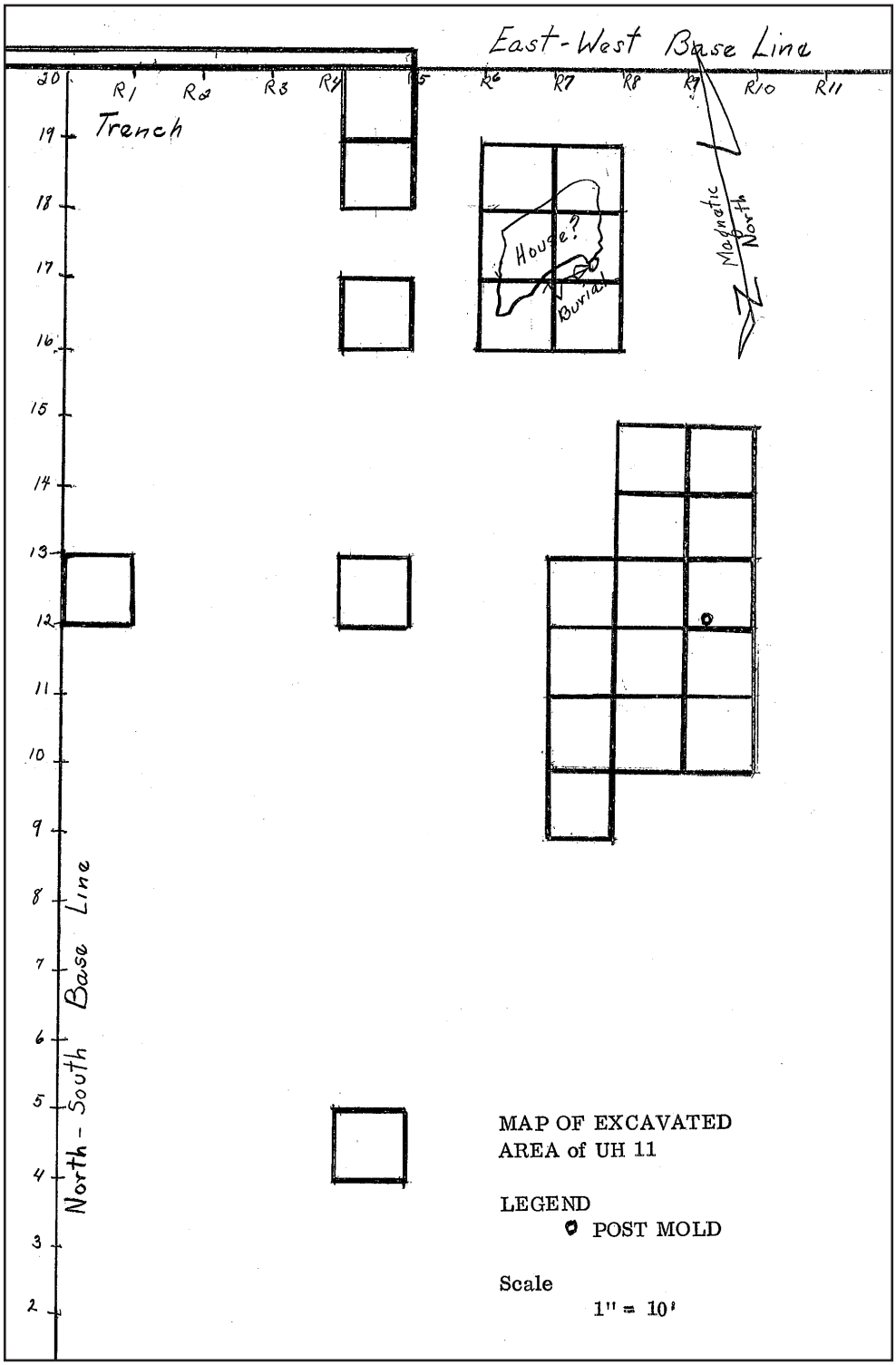

Figure 1. Map of Excavation Area of UH 11.

Table 1. Analysis of pottery from site UH 11.

Ware	Number	Percentage	Form	Decoration
Great Salt Lake Gray	1154	75.4	Large jars, wide mouths, flattish and concave bottoms, long narrow necks with handles.	"Doughnut" design in applique stick and finger-nail punch, exterior designs in red, pendant triangles
Sevier Gray	287	18.7	Small vessel (mug?), large vessels, flaring mouths	Finger-nail punch banded neck, linear designs in red on exterior
Snake Valley Gray	58	3.8	Large jars	None
Snake Valley Corrugated	4	.3	Narrow necks	Stick punch
Snake Valley Black-on-gray	10	.6	Deep bowls	Linear designs in black
Knolls Gray	6	.4	?	None
Turner Gray-Variety Two	9	.6	bowls	Interior: linear designs in black-on-white to gray slip, exterior: fugitive red.

damp clay on the logs or framework can be found, along with the impressions of the individual timbers of the framework. In some cases, we can find places where two poles have been tied together with small saplings or vines. From our excavation it is apparent that the building, was of wattle and daub construction, but we were unable to determine the shape or extent of the house.

Ceramics

Classification of pottery types for the purposes of description and comparison is of primary importance to the archeologist in his reconstruction of the material culture of the past. A considerable quantity of pottery was found at this site.

After dividing the pottery from UH 11 into their respective types and checking these types with James H. Gunnerson, of the University of Utah; we found that there are seven types of pottery present in the existing materials from this site. These types are: Great Salt Lake Gray, Sevier Gray, Snake Valley Gray, Snake Valley Corrugated, Snake Valley Black-on-Gray, Knolls Gray, and Turner Gray-Variety Two, Black-on-White (Rudy, 1953; Gunnerson 1956). (See Table 1).

All pottery types seem to come from all levels in approximately equal proportions. Therefore, I have not deemed it necessary to consider the types of levels. Most of the sherds came from levels two, three and four, with the greater proportion coming from level three. The heaviest concentration of sherds was immediately over the burial, where the sherds lay one on top of the other. From this cache we were able to restore

the outline of a wide flaring mouthed jar of Great Salt Lake Gray ware.

Other ceramics recovered from the site include three possible spindle whorls which were reworked sherds roughly perforated in the center. There was also recovered, an unusual female figurine. It terminated at the waist with the breasts full and well formed.

Burial

Near the end of the excavation period a burial was found in squares 18R7 and 17R7. We have not completed our study of this burial; however, it is possible to say that there were no grave offerings found with the burial and that it was not an intrusive burial. That is, the burial was placed in the ground before the house was built, as house remains were found over the top and immediately to the north of the burial. The skull is brachycephalic and undeformed.

Conclusions

Judging from the material remains, it appears that the ancient inhabitants of the area near the mouth of the Provo River were Puebloid in culture. Cultures found in central and northern Utah that show ties with the Basket Maker-Pueblo or Anasazi culture of the Four Corners Area are considered to represent the northern advance from that center and are spoken of as Puebloid. The area occupied by such cultures is often called the Northern Periphery.

By studying the pottery types that show similarity with those of the classical Pueblo area which have been dated by the tree-ring method, it is possible to ascribe a time range of approximately 800 to 1300 A. D. as the period when the Puebloid peoples lived in this area.

If the presence of Turner Gray-Variety Two, Black on White, indicates that this site was occupied at the same time as the Turner Look site, we can date the occupation here at about the eleventh century A.D. (cf. Wormington, 1955, p. 75).

In looking at the remains of this people, we can say a few things about their way of life. As there are no large community houses or other structures or arrangement of structures to suggest any rigid class system or other form of government like strong chieftainships, it can be assumed that the government rested basically in the family with perhaps a loose band organization. The economy seems to be farming, supplemented by hunting, fishing, and gathering. ■

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The Moab Museum

1959 Vol. 5 No. 1

Lloyd Pierson

One of the promising developments in museology in the past decade, more so than ever before, has been the growth of the local or regional museum. To the swelling ranks of these "small" museums there recently was added a museum in Moab, Utah. The small local museum fulfills a natural desire to have the treasures of the area remain at home where they are much more significant as close to in situ as possible rather than in storage at some far off large museum.

This ideal was, in part, the motivating force behind the Moab Museum. The initial push necessary to get the museum rolling was provided by the Woman's Literary Club of Moab. In looking about for a project which would qualify for the Sears Foundation Community Achievement Award the long felt need for a museum was brought to the attention of the club and was eventually selected as the club project for 1957–58.

The rules of the award contest stated that the project must be a community effort; one involving several civic clubs. A meeting was called for the formation of the museum group in November 1957 and all of the civic clubs in the community were asked to send a representative. All clubs responded and at the organizational meeting it was suggested that the group be set up on a broad foundation so that the museum could form the nucleus for other possible endeavors and not be too restricted in its future developments. The name picked for the society was the Southeastern Utah Society of Arts and Science, Incorporated.

Initial efforts were directed at finding a building to house the museum determining the scope of the museum and fund raising. The first problem was solved by the offer of the Grand County Commissioners of the free rent of a six room house centrally located across from the county courthouse. A soundly built house of early Moab architecture it ideally suited the museum's purposes in its nascent stages. The fund raising was successful beyond expectations and plans for the museum exhibits were formulated based on the space and funds.

It was decided that the Moab Museum's sphere of interest should lay in the fields of archeology, history, mining and milling, and geology, with the emphasis placed on the local aspects of these disciplines. Consequently, two furred-in wall cases have been built for archeological exhibits. These feature items from the late Dr. J.W. Williams collection which had been given to the National Park Service and is now on the loan to the museum. In history, panels have been prepared on the Spanish Trail, the Mormon Mission period, Early Moab, and one case of historical items is on display. In the field of mining and milling, one panel showing the recovery of uranium from ore as carried out at the Uranium Reduction Company in Moab is complete while a panel on early mining and prospecting is almost complete and another on uranium mining methods is under way.

A fluorescent mineral exhibit is complete and exhibits of uranium minerals, local gem stones, and the geologic time scale of the Moab District are in the planning stages for the Geology section. These exhibits will be the "permanent" displays for the museum; the basis for future expansion and temporary exhibits. Although not all exhibits were completed, the museum was dedicated and opened to the public on August 22, 1958.

The exhibits have been designed with two all-age-inclusive groups in mind; the tourist and

the residents. It is hoped that during the summer the "permanent" exhibits will provide much interest and information to the ever-increasing traveling public. During the rest of the year the Moab Museum hopes to carry on an educational program for the citizens of Moab and Grand County.

As part of the program aimed at community betterment a series of monthly temporary exhibits was initiated. The bulk of these exhibits will be local collections of various types and other things of interest, many sponsored by local organizations with aims parallel to museum interests. Others will be traveling exhibits from other institutions throughout the country bringing in items and displays designed to broaden local perspectives. As examples we have had on exhibit a local collection of archeological material, sponsored by the Moab Archeological Society; another of minerals; and another of historical guns sponsored by the Grand Rifle Club. From the outside world we have had an exhibit of Ute-Paiute baskets from the Museum of Anthropology at the University of Utah and programmed for the near future is an art exhibit from the Museum of New Mexico. Included in this program will be occasional lectures, movies, or other special events as the opportunity or need arises.

We have started our own traveling exhibit-program by constructing and sending out a small series of exhibits to the local schools. Using materials from the museum collections of less fragile nature we believe they will serve a good purpose. Another program directed at the school children is the monthly series of movies of the educational yet entertaining type within and supplementing the museums sphere of interest.

With the above we hope to fulfill the stated purposes of the society, viz: to collect, preserve, display and interpret archeological, mineralogical, historical and paleontological exhibits; particularly those so abundant in this favored area; to afford social, recreational, as well as cultural and special educational opportunities for adults and children; to provide attraction and stimulate interest for visitors to this area; to stimulate and foster a cooperative community interest and participation.

Contemplated for the future depending of course on available time, interest, and money, are programs of publishing popular and technical material of interest to the community possibly research in certain fields, cataloging of local collections to preserve the "Moab Story," greater cooperation with other groups of similar interests and such other services as we may be able to render to the people of Moab.

Having a fond hope for the future and a firm grip on reality we feel that we are headed in the right direction. We do not consider that we have accomplished anything that could not be duplicated elsewhere and we hope that we can and will provide inspiration to others considering the steps we have taken.

From October through April [1959–1960] the Moab Museum will be open Wednesday and Thursday evening 7 to 9 through the courtesy of the Moab Girl Scouts; Saturdays 3 to 5 p.m. and Sundays 3 to 5 and 7 to 9 p.m. During the summer months the hours will be 3 to 5 and 7 to 9 p.m. daily with evening slide lectures in the front yard for tourists, sponsored by the Moab Chamber of Commerce. We would be particularly pleased to welcome members of the Utah Statewide Archeological Society. ■

Archeological Survey in the Dead Horse Point Area

1959 Vol. 5 No. 2

James H. Gunnerson

At the request of the Utah State Park and Recreation Commission, the Department of Anthropology of the University of Utah carried out a preliminary archeological survey of the area between the Colorado and Green Rivers south of a line parallel to and about 12 miles north of the Grand-San Juan County boundary. A total of 16-man days was devoted to spot checking this area and to following up site location leads secured from several people well acquainted with the area. The assistance of Bates Wilson, Lloyd Pierson, Ray Anderson and Claude Tidwell is gratefully acknowledged.

The area consists of the south end of a nearly-level plateau with an elevation of about 6,000 feet. There is an almost vertical drop of about 1,000 feet from the edges of the plateau to irregular benches which are about 1,000 feet above the two rivers. The high plateau is deeply cut by steep canyons, two of which nearly meet at their heads to form a very narrow divide known as "The Neck." Travel between the river and plateau is restricted to a few trails and springs accessible from the plateau are very few.

Vegetation on the plateau and in the canyons which dissect it consists primarily of juniper, pinyon, cactus, yucca and grass, with a few oak trees where moisture is adequate. The low, irregular benches between the river and the plateau are for the most part devoid of plants, but the flood plains of the two rivers have a heavy stand of vegetation. The area now supports a limited amount of livestock and wildlife. Very little of the plateau would appear suitable for horticulture, since the surface is almost exclusively either bedrock or partially stabilized sand.

Description of Sites

Sixteen sites of six types were recorded: open sites with structures (1), rock shelters with structures (4), sites consisting of structures both in the open and in shelters (1), open sites without structures (5), rock shelters which have been occupied but contain no structures (3) and petroglyphs (2). Most of the sites appear to have been occupied by Pueblo people between 900 A.D. and 1200 A.D. It was not possible to date the remaining sites, which were probably occupied by unidentified hunting and gathering peoples, but none suggests any appreciable antiquity.

The largest and most spectacular structure visited (42Sa423) was on a small 400-foot-high butte located in a hairpin bend of the Green River at Fort Bottom, which takes its name from the structure. This butte, the surface of which is almost entirely bedrock, is connected to the east wall of the canyon by a narrow hogback about 200 feet above the river. There are two rooms in the main structure or "fort." The first room built is about 8 feet in diameter and 6 feet high, apparently its original height. A second circular room of approximately the same size was built against the first and shared part of its wall. The entrance of the first room was in the shared portion of the wall and thus provided a ground-level door between the two rooms. This opening is about 1 ½ by 2 ½ feet and has a lintel of wooden poles now about to collapse; A ground-level door of about the same size and construction in the second room had been walled up. A second story had been built on the second room, utilizing as its floor what was probably the original roof of closely placed parallel poles covered by reeds and dirt. Most of this floor is now missing, but

fragments are still present around the wall. Still another door, now also walled up, leads from the second story room to the roof of the first room.

The dry-laid walls made of unshaped stone slabs available on top of the butte, were about 1 ½ feet thick and had been plastered, on the inside of the second room at least, with adobe. Some of the remaining plaster is slightly reddened, probably from accidental burning of the structure. The wall plaster was apparently preserved by dirt which partially filled the structures when the second floor and roofs collapsed. This dirt appears to have been dug out recently by some unknown party. The walls of the structure are still standing nearly intact to a height of about 11 feet, but are on the verge of collapsing. With the lintels sagging and nearly broken, it is unsafe to enter the structure.

Surrounding this large structure are portions of two or possibly three small, less well preserved structures, probably storage rooms. One is represented by portions of two walls meeting at a corner and another consists of a small pile of scattered rocks.

Artifacts were not numerous at this site. Pottery sherds (plain gray, corrugated and black-on-white) were found, along with flint chips and corncobs.

On Aztec Butte, which rises steeply about 300 feet above the surrounding country, is a site (42Sa416) with structures built both in the open and under the rim. On the top, which has a sparse stand of pinyon and juniper growing out of nearly solid bedrock, there is a 6 by 12 foot rectangular masonry structure. The back wall is formed by a low ledge; the front and side walls of dry-laid unshaped stone slabs are about 4 feet high at the maximum. A door about 14 inches wide with a low threshold is in the front (east) wall of the structure.

Around most of the butte, the cap rock overhangs the softer layer immediately under it. Just under the east rim is a 5 foot section of a dry-laid masonry wall across the front of a rock shelter with a floor about 10 by 10 feet and a ceiling 1 to 3 feet high. It seems likely that another section of wall has fallen out. Entrance to this structure is from a narrow ledge which is accessible from the top of the butte.

On the north side of the butte and just under the rim is a curved wall of sandstone slabs laid in adobe mortar. It was built to close off a convenient niche in a larger rock shelter to form a room about 7 feet in diameter and 5 feet high. A natural opening into an adjacent rock shelter may have served as a door or window or may have been walled up also. The size of still another door cannot be determined because part of the wall has fallen.

Another portion of a dry-laid wall, about 8 feet long and 1 to 2 ½ feet high, partially walls off a portion of a north-facing rock shelter about 6 by 15 feet and 3 to 5 feet high. It seems likely that still other rockshelters around the top of Aztec Butte were also walled up at one time.

In spite of all the ruins on this small (ca. 100 by 200 yards) butte, the only artifact found was one chunk of flint. The architecture, however, strongly suggests that Pueblo Indians built the structures.

Just under the rim of a small butte near Aztec Butte was a low rock shelter containing two rooms (42Sa414), both of which extended from the floor to the roof of the shelter. One was essentially rectangular, about 8 by 10 feet, and had a maximum height of about 3 feet. The other room consisted of a curved wall about 2 ½ feet high at its maximum and enclosing an area about 6 by 6 feet.

The walls of both rooms were about 8 to 10 inches thick and were made of dry-laid, unshaped sandstone slabs plastered on both the inside and outside. Both had doors about 16 inches wide and 18 inches high with stone slab thresholds a little wider than the thickness of the wall and about one foot above the floor. The lintels were wooden sticks set into the walls. Two pottery sherds were found at the site—a plain gray sherd in the shelter and a corrugated sherd at the foot of the talus slope in front.

In a rock shelter (42Sa420) just above Cabin Spring, in the head of one of the side branches of

Taylor Canyon, are the remains of two cists. A curved wall had been laid up in front of a niche in the back wall of the shelter, forming a room about 4 feet across. A second room, approximately the same size, had been built near the first. Only the bases of the walls of the two rooms remain. The only artifacts found in the shelter were three thin slabs of soft sandstone, the longest about a foot in length, which have had shallow notches ground into their edges. The function of these specimens is not known. Shallow, narrow grooves, probably used for sharpening tools, were found in large fallen slabs of sandstone.

One cist (42Sa422) was located at the end of the hogback connecting the butte upon which site 42Sa422 was situated with the canyon wall. This cist, located in a shallow rock shelter, was a pit about 30 inches in diameter and 20 inches deep which had been lined with vertically set, thin stone slabs. The joints between the slabs had been sealed with adobe and the top appears to have been covered with small poles and additional stone slabs. The cist had been emptied.

About a mile above the mouth of the South Fork of Seven Mile Canyon is a rock shelter (42Sa303) containing four unlined cists dug into the alluvial fill. The cists were round holes 1 to 2 ¼ feet across with depths about the same as diameters. The sides were vertical in the largest cist and slightly undercut (jug-shaped) in the other three. A very few flint chips were found in the shelter.

Three rock shelters which contained flint chips but no structures were visited. Two of these (42Gr306 and 304) were along the South Fork of Seven Mile Canyon. Both were under high, slightly overhanging cliffs where areas about 10 by 200 feet would be protected from all but driving rains. Both shelters, however, show evidence of water's having run through them, probably repeatedly.

The third rock shelter (42Gr308) is situated along Seven Mile Canyon near the mouth of its South Fork. This shelter is at the top of a steep talus slope about 400 feet above the canyon floor. It is about 20 feet wide and 150 feet long with large fallen stone blocks forming a partial wall across the front. A great deal of digging has been done in this shelter. Flint chips and broken bones of a large animal were found by the survey party. The open sites varied in size and richness. The largest open site found (42Sa419) was on the rim of the canyon immediately above Cabin Spring. Pottery found there included corrugated, plain gray, plain red, and black-on-white wares, all having Anasazi Pueblo affiliations. The variety in chipped stone artifacts suggested a possible double occupation of the site. Fragments of manos and a metate were also present. Another open site (42Sa417) was between Aztec Butte and Cabin Spring and was about 1,000 yards across. It more or less surrounded an area said to hold water after rains. In addition to a few chips and a little worked flint, one sherd, as yet unidentified, was collected, and a very shallow milling slab was observed. The area was very sandy with rock outcrops and few trees.

Other open sites were situated near Neck Spring (42Sa421) and near a spring about a mile west of Aztec Butte (42Sa415). In both instances, the only material recovered consisted of limited numbers of chips and non-diagnostic pieces of worked flint. Another open camp site (42Sa416) located near the end of Grand View Point yielded a very few chips.

One pictograph panel (42Gr305) consisting of a square-shouldered featureless man, about life size and painted in red, was found along the South Fork of Seven Mile Creek. Two smaller red figures may also have been anthropomorphic but they were badly weathered and their original shape could not be determined.

Along the road which goes up Seven Mile Wash and less than three miles from highway 160 is a panel of petroglyphs (42Gr307). The group contains three square-bodied mountain sheep or goats about 2 feet long, a spiral about 7 inches in diameter, a long row of dots, a man about a foot high and a fox-like animal about a foot long. The entire panel is about 20 feet long. Careful search would probably reveal still other petroglyphs in this immediate vicinity. ■

The Utah Statewide Archeological Society

1959 Vol. 5 No. 3

M. Merrill Peterson

The Utah Statewide Archeological Society was sponsored and has been nourished for the past five years by the Anthropology Department of the University of Utah. It has now, through necessity, been turned over to the Society for administration.

Its primary objectives have been to stimulate and encourage the layman and the amateur archeologist to take a more studied and intelligent interest in the science and to encourage cooperation between the professional archeologist and the amateur so as to preserve priceless data and materials that would otherwise be lost to science.

The Society's quarterly newsletter has been devoted to accounts of activities going on in the archeological field and to reports on archeology salvage work being carried on in connection with the construction work in different parts of the state.

In the past ten years, archeology has become a much more exact science than formerly due largely to time determination methods that have been and are being developed. Thus, by removing much of the conjecture, it becomes a more intensely interesting subject. Study in the field of archeology and its related sciences will do much in broadening the scope of interest for the "artifact collector" and make it a more satisfying and interesting hobby.

The Archeological Survey Association of California is a like society for that state and has done much over the past years in compiling prehistory data and stimulating interest in the field of archeology. Their Society has been extremely successful and has grown to considerable proportions.

Moab and Logan at present have chapters of the Society and considerable local interest has been created in the areas. Other groups and towns are encouraged to form chapters and join the Society. Also individual members are solicited. If interested, please contact. Mrs. Lloyd Pierson of Moab, Utah, Secretary of the Society. ■

The Utah Statewide Archeological Survey: Its Background and First Ten Years

1959 Vol. 5 No. 4

James H. Gunnerson

The Utah Statewide Archeological Survey was established in 1949 as a part of the Department of Anthropology of the University of Utah. The survey, as envisaged, was to have several functions. First of all, it was to undertake a reconnaissance to determine the range and extent of Utah's archeological resources. Once the initial survey was completed, key sites were to be excavated in order to fill gaps in our knowledge of Utah prehistory. The Survey was also to serve as an agency for the salvage of archeological material threatened with destruction by such things as dam and highway construction.

The activities of the Statewide Survey have always been closely integrated with other archeological activities of the Department of Anthropology at the University of Utah. As first conceived, the Survey was to be conducted by graduate students in Anthropology as part of their training. After two years, however, field director Jack R Rudy was appointed as a full time member of the staff of the Department of Anthropology. Field expenses have been provided primarily by the University of Utah Research Fund.

At the inception of the Survey, Utah was by no means unknown archeologically. Reports on Utah archeology had appeared in the literature as early as 1876 (Barber 1876, Palmer 1876, Putnam 1876) but much of the early work is of no value because it was never reported, and adequate notes are not available.

The University of Utah, which began to sponsor archeological work in the early 1900's has been the only agency with long-continuing research activities focused on Utah problems. However, its early approach was not very systematic, since most investigations consisted primarily of following up leads offered by people who had accidentally discovered interesting sites.

Much of the early work was done in San Juan County, where sites are richest and most numerous, but since little of the digging was reported, part of what is known of the area exists essentially as oral tradition.

The monumental and classic monograph by Brew (1946), reporting the extensive work done on Alkali Ridge in 1931-1933 marks the turning point in the deplorable tradition of digging without adequate reporting. In tracing the history and extent of Mesa Verde archeology, Brew (l946, pp. 15-31) summarized the sparse published information on the archeology of San Juan County through about 1944. What is essentially an abridgement of Brew's summary was prepared by Tobin (1947).

Some of the more useful and informative of the earlier published reports of San Juan County archeology are Pepper (1902), Prudden (1903), Kidder (1910), Cummings (19l0), Fewkes (1917, 1919), Judd (1924), Steen (1937) and Leh (1938, 1939, 1940). These, for the most part, are accounts of reconnaissance and brief reports of excavations.

The Rainbow Bridge-Monument Valley archeological survey concentrated its activities of the 1930's in northern Arizona but did carry out limited reconnaissance in southern Utah both east and west of the Colorado River (Beals, Brainard and Smith 1945).

The pre-1949 archeological work in Utah north and west of San Juan County was less extensive but more completely reported. Between the years 1915 and 1920 Judd, for the Bureau of American Ethnology, devoted five summers to the first systematic archeological survey

in Utah, concentrating on a north-south strip through the center of Utah, and the southwestern corner of the state. Preliminary accounts of the survey work appeared yearly in the Smithsonian Miscellaneous Collections and the final report, in a single volume (Judd 1926), is a landmark in Utah archeology. Judd also conducted limited excavations at sites near Willard, Beaver and Kanab (Cottonwood Canyon) (Judd 1926) and rather extensive excavations at Paragonah (Judd 1919).

Prior to 1949, but following this basic work by Judd, several archeologists reported survey activities and site excavations widely distributed over the state. The work by Nusbaum (1922) at Cave Du Pont is noteworthy. Morss (1931) conducted a survey with limited excavation, primarily in the Fremont River drainage, but with some work at Boulder, Utah and in Nine Mile Canyon. Spencer (1934) made a survey of part of the Virgin River drainage near St. George, Utah and Leh (1937) reported a brief reconnaissance in Range Creek Canyon near Price, Utah. Reagan published many short articles, especially on Uintah Basin archeology (Gunnerson 1957b, pp. 150-163) but even the more detailed ones (e.g. Reagan 1931a, 1931b, 1931c, 1933, 1935) are of only limited usefulness.

The most intensive and systematic survey before 1949 was one conducted by Steward (1941) in south central Utah in the Johnson Canyon-Paria River region and in Glen Canyon of the Colorado River. Steward also excavated at open sites in central Utah near Willard, Plain City, Grantsville, Provo, and Kanosh and in the Uintah Basin, near La Point (Steward 1931, 1933a); in caves on Promontory Point and at Black Rock at the north and south ends of Great Salt Lake respectively (Steward 1937). Several of Steward's reports reflect his problem orientation and contain sections of interpretation or synthesis. In addition, he wrote three significant articles devoted primarily to interpretive discussions (Steward 1933b, 1936, 1940) and a genera1 work on petroglyphs which included data from Utah (Steward 1929). Following Steward, Gillen excavated sites in Nine Mile Canyon in Carbon County (Gillen 1938) and near Tooele, Marysvale and Ephraim in central Utah (Gillen 1941).

In southwest Utah, extensive excavation in Zion Park and limited survey in the surrounding area were carried out under the direction of Wetherill and Smith in 1933 and 1934 (Smith 1940, Schroeder 1955). Subsequently, excavations of caves at the south end of the Great Salt Lake were reported by Smith (1941, 1952), Enger (1942) and Jameson (1958). At about the same time limited reconnaissance was conducted in the Deep Creek area of extreme west-central Utah (Malouf, Dibble and Smith 1940). A site near Cisco in the extreme east-central part of Utah was excavated between 1939 and 1948 by Wormington (1955) and her report includes a summary of the archeology north of the Colorado River in Utah and the adjoining states.

Since 1949 both the University of Utah and several organizations from outside the state have sponsored archeological investigations in Utah. In the Beef Basin area of San Juan County, the National Park Service conducted a limited survey (Baldwin 1949). The Museum of Northern Arizona has done a great deal of work in southern Utah primarily survey and salvage associated with the construction of the Glen Canyon dam (Foster 1952, Danson 1958, Adams and Adams 1959). In southwestern Utah, the University of Southern California with the cooperation of the College of Southern Utah has had a continuing excavation program at Paragonah since 1954. Only the first year's excavation and limited nearby survey has been reported thus far (Meighan, Coles, et al. 1956).

At the start of the Statewide Survey in 1949, Utah was divided into areas, with the highest work priority going to the one about which the least was known (Rudy 1953, pp. ix-x). It has been necessary at times to deviate from the order of priority as originally established to permit salvage activities to be carried out. The first area to be surveyed in fact was Washington County in the southwest corner of the state, where the construction of two dams in the Virgin River

drainage was proposed (Rudy and Stirland 1950). One site, Pine Park Shelter, in Washington County was also excavated (Rudy 1954b). Originally this area had only an intermediate priority.

The Survey next moved into the area of highest priority, western Utah with an extensive archeological reconnaissance (Rudy 1953). As part of the attack on this poorly known portion of the state, the University excavated Danger Cave and Juke Box Cave near Wendover, Utah (Jennings 1953,1957) and an open site near Garrison, Utah (Taylor 1954). The Survey again abandoned its order of priority in 1952 to do work in Beef Basin in San Juan County. This archeologically rich area, nearly inaccessible until 1950 when the Bureau of Land Management constructed roads into it, was rapidly being ravaged and prompt action was needed to salvage scientific data. Survey and excavation of key sites was conducted by Rudy (1954a, 1955). The Statewide Survey activities there were supplemented by reconnaissances by Hunt and Wilson (1952), research associates of the Department of Anthropology at the University of Utah. Hunt (1953) also conducted an intensive survey of the nearby LaSal Mountain area.

In 1954 James H. Gunnerson replaced Jack R Rudy as field director of the survey and its long range survey activities were again resumed, this time in eastern Utah (Gunnerson 1956a, 1956b, 1956c, 1957a, 1957b, 1957c) with accompanying excavation of two open sites near Emery, Utah by the Department of Anthropology's archeological field school (Taylor 1957).

Two articles devoted to broad synthesis and based in part on Utah archeological data appeared at about this same time. One is by Jennings and Norbeck (1955) and the other was edited by Jennings (1956).

The Survey was diverted from its long-range plan again in 1957 with the advent of the University of Utah's Upper Colorado River Basin Archeological Salvage Program, a project carried out under contracts from the National Park Service to salvage data ahead of inundation by the Glen Canyon and Flaming Gorge dams. This project made possible work in the Glen Canyon area, so difficult of access that the Statewide Survey might never have been able to finance work there.

Reconnaissance and excavation have proceeded concurrently since 1957 when the first two field parties started working in the southwestern part of the reservoir area (Lister 1958a, Gunnerson 1959a). In 1958, six University of Utah field parties were in or near the Glen Canyon area (Fowler, Gunnerson, et al. 1958, Fowler 1958 , Gunnerson 1958, Lipe 1959). Additional reports of 1958 and 1959 work are in preparation and field work is continuing. Two seasons of excavation at the Coombs Site in Boulder, Utah have been completed by the Universities of Utah and Colorado to supplement the Glen Canyon work (Lister 1958b, 1959, Ambler 1959).

During 1959, the Statewide Survey initiated a highway salvage program in which highway right-of-ways are investigated ahead of construction and any necessary salvage excavation is carried out (Gunnerson 1960b). This work is being done with the cooperation of the Utah State Road Commission and the U.S. Government, which is providing the funds for much of the highway construction.

Also during 1959 the Survey carried out, under contract from the National Forest Service, an archeological survey in Hammond Canyon in San Juan County and evaluated it as a possible archeological interpretive area (Gunnerson 1960a).

The Survey has also served as archeological consultant for the Utah State Park Commission and in 1958 conducted an archeological reconnaissance for the Commission in the Dead Horse Point (Gunnerson 1959b).

During its first ten years, the Statewide Survey has been called upon to perform many other functions such as undertaking limited archeological surveys and salvage jobs in conjunction with construction work. It has been instrumental in organizing the Utah Statewide

Archeological Society and in publishing its newsletter, Utah Archeology. Moreover, it has provided information in response to numerous inquiries. Thus, it has served as a link between professional archeology and the large number of people interested in the archeology of Utah. Most important, however, the Utah Statewide Archeological Survey has collected data from many archeological sites in all parts of the state. With this information at hand, it becomes increasingly possible to outline an effective program of intensive survey of key areas and excavation of key sites to provide maximum information about the prehistory of Utah. ■

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The Artifacts of Camp Maple Dell, Payson Canyon, Utah County, Utah

1960 Vol. 6 No. 2

John L. Cross

Camp Maple Dell is located in Payson Canyon, just 6 miles south of the city of Payson in the southern part of Utah County. It is the permanent, year round campsite for the Boy Scouts of the Utah National Parks Council, Boy Scouts of America, providing opportunities for growth in Scouting skills, physical fitness and conservation, to some 2,500 boys annually. The camping areas within Maple Dell take their names from well known Indian tribes, and whether a boy lives in the Blackfoot, Ute, Navajo, Apache, Cherokee or Sioux camp, he is constantly reminded of his heritage in America from the Redman as well as from the pilgrim and the pioneer.

"Maple Dell is situated in the bottom and along the west slope of Payson Canyon. The canyon is broad and relatively straight in the vicinity of the camp but has steep walls throughout its length. South of the camp, upstream in Payson canyon, the area levels out and several small lakes and reservoirs have developed between the main mountain masses." (Rigby, J.K., Rocks and Scenery of Camp Maple Dell)

Payson Canyon has played an important part in the lives and travels of the Indian, particularly the Uintah Band of Utes, prior to and during the early advent of the white man into what is now Utah County. The canyon served as a route between the winter hunting and camping grounds around the present site of Indianola and farther east into the Uintah Mountains by a trail up Payson Canyon (Peteetneet trail) to the big switch back and over what is called Cook's cut off into the Indianola area.

There are several sites on the Payson end of the trail that would allow consideration here. One of these is located on the north branch of Peteetneet Creek after it divided and is located in the general area of what is now 3rd East and about 8th North in Payson. One lifelong resident of Payson, George Staheli, now in his 81st year, and whose father's house was located about $^{1}/_{2}$ mile south of the Indian camp, tells of the Indians' camping there frequently during the warmer months. He also recalls as a boy, the older folks talk about the chiefs Santaquin and Walker. According to his word the canyon trail was not used by the Indians after about 1890.

Another site of interest is located in what was known as the "North Fields". Actually about two miles north and about the same distance west of Payson. Surface finds have been and continue to be fairly common. Here on what later became the Jacob Schare farm were several mounds which, when the land was leveled, yielded numerous artifacts of all descriptions and included several burials. From one of these, the aforementioned Payson resident tells of obtaining a skull, when he was about twelve years of age, which he took home but after looking at it considered what it represented to his mind, he took it out and reburied it.

Further west and along the hilly promontory to what is now the resort area of Lincoln beach on the south shore area of Utah Lake are several caves from the vicinity of which has come numerous artifacts as surface finds by local collectors for many years. These sites were evidently used to during seasons of water fowl migration as hunting camps and possibly during the winter months as residence camps by the historic Indian. These last two sites might also have served prehistoric tribes as well.

While in miles, these several sites are removed from Maple Dell, their positions along the

Peteetneet Trail and the artifacts recovered from them, in addition to the stories told of their use, may shed some light on the exact use to which the Maple Dell site was put by the Indians. It is also probable that recovery of additional artifacts will help to complete the overall picture. Peteetneet, as the canyon stream was known by the Ute, was abundant with fish and along its banks grew many varieties of berries and edible plants. The mountains and mountain valley abounded with wild game. All of which were important to the sustenance of the wandering tribes.

Along the length of the canyon and nearby Peteetneet Creek are several sites that afforded a good camping ground for the Indian. One of these a large, flat, open area is located about 3.6 miles up canyon from Highway 91. This area is still referred to as "Walker Flat", having derived its name from the famed chief who, according to local historians Dr. L.D. Pfouts and George Staheli, and story tellers seemed to prefer this camping site while he was in this territory. It is also said that one of the final battles between the Indians and white settlers of this area was fought in Walter Flat with a group of renegades responsible for thievery and general annoyances to the whites.

Aside from one of two verbal reports from individuals who "know some one who found an arrowhead on the flat", there seems to be little now available in the way of artifacts recovered, at least in recent years, from this site. The flat has been farmed and under cultivation for approximately the past thirty-five years.

A second site up canyon and the one with which we are primarily concerned is located about 6 miles from Highway 91, and is the Boy Scout Camp, Maple Dell. This area seems to have been favored by the Indians because of several meadows through which meandered small streams fed by springs and seeps providing fresh water, cover off the main trail and a food supply. Also located within this site was one small pond that held water year round and has since been developed into a four acre boating lake, and several more ponds holding sufficient water through the spring season and into the summer to maintain a growth of willow, cattail, bulrush and similar types of vegetation. These waters provided, and still do during moist seasons, a breeding place for several species of duck and other waterfowl. It would appear that even more variation in wildlife must have existed when the site was more primitive than it is now.

In such surroundings, the Indian undoubtedly spent considerable time or made frequent stops as evidenced by the artifacts recovered during the past decade and described after in this report. Two geological features of the Maple Dell area offer possible answers to two questions of concern to us. One is the availability of material for the manufacture of implements and tools. Many of those recovered may have been chipped from the colored chert nodules to be found in the outcroppings of the Pine Canyon limestone in the immediate vicinity. The Pine Canyon limestone is a Mississippian formation and lies below the Humbug formation and above the Gardner dolomites (Rigby, J.K., Rocks and Scenery of Camp Maple Dell, p. 34).

The second geological feature is one extending into present times, and currently one of the most spectacular in Maple Dell, and is the feature of slumping or earth flows. These slumps are mainly due to the shifting of underground water courses and springs resulting primarily from excessive runoff from melting snows; and the capture of water in natural bowls and depressions which later seeps into the ground and breaks through at a lower point.

The slumps probably account for the burial of the artifacts which have been recovered. The majority of which have been found at a depth of from 2 to 12 inches below the surface of the ground and are believed by the author to be historic rather than prehistoric in dating. Three slumps have occurred in Maple Dell in recent years. Two in 1952 both stemming from the same original source and both triggered simultaneously, each of which buried one of the cap buildings. The third slump skipped into Peteetneet Creek near the camp dump in 1956.

Table 1. Projectile Points.

No.	Item	Length (inches)	Width at tang (inches)	Width at neck (inches)	Thickest Point (inches)	Remarks
1	Point	1 1/32	1/2	11/16	1/8	Buff chert
2	Point	1 5/16	3/4	9/32	5/16	Red agatized wood
3	Point	1 19/32	1	11/16	5/16	White chert Very crude
4	Point broken	4 5/8	1 3/4	13/16	11/32	Gray quartzite 15/16 at point of break

Maple Dell has a good cover of loam to an average depth of 6 to 8 inches and a rich, lush undergrowth of vegetation over most of the camp. In developing roads, cooking and sleeping sites and other improvements from time to time, it has been necessary to remove some of this cover to level the surface of the ground.

It has been during such operations, or after some foot traffic over these same areas that projectile points, lumps of paint, manos and other items have been found. There have not been, however, any reports to camp officials of sherds, beads, or woven materials to date.

Of the projectile points recovered, two were flaked from agatized wood; one large fragment, possibly a spear point, from ray quartzite, must have been about 8 inches long before it was broken, and the balance were flaked from chert, similar to the variety found in the Pine Canyon limestone. The points fall mainly into three types: 1) short bladed, side-notched; 2) short blade, side-notched and base-notched; 3) long blade, side-notched. In general the projectile points have been found fairly well distributed throughout Camp Maple Dell, while the other types of artifacts have been located in the proximity of the original small pond.

Two manos made of quartzite and weighing 1 lb. 10 oz. and 1 lb. 12 1/2 oz. have been recovered. The first is 2 1/2 inches wide, 1 3/4 inches thick and 6 1/2 inches long and is square in shape. The second is lozenge shaped is 3 1/8 inches wide, 2 3/8 inches thick, and 5 1/8 inches long. Both of the manos were found in a road cut south of the pond. A lump of red paint was found in the same general area 18 inches below the surface while excavation was being made for a water line. This piece shows use as it has been rubbed smooth on both ends. It weighs 3 lb. 1/2 oz.

A fine metate was found a hundred yards north of the small pond. It is 7 1/16 inches wide, 2 3/8 inches thick, and 11 inches long. This object is made from quartzite very similar to that from which the manos are made and has been pecked to afford a rough grinding surface. The weight, which is 12 lbs. 7 1/2 ozs., and the size and shape of this metate would suggest a possibility of it being a portable object rather than a temporary one or permeant camp utensil. Outstanding workmanship is exhibited in the preparation of this metate.

A fragment of an implement, presumably part of a scraper, and the only artifact made from obsidian found and reported within Maple Dell was found west of the small pond about 30 yards.

Due to a policy of permitting the finders of artifacts to keep them, most of the relics found are now scattered and though some information is on hand concerning all of the recovered artifacts reported, the records are not as complete as the might be. As future items are recovered, a more complete record will be kept and effort is being made to obtain full data on the scattered artifacts as the owners can be located and interviewed. ■

The Value and Function of the Local Archeological Society

1960 Vol. 6 No. 3

Jesse D. Jennings

The first function of the local archeological societies is to bring together people of differing occupational interests who share a common interest in archeological material. Their motivations or the depth and extent of their interest in archeology will no doubt vary just about as much as their other interests. Why then do they voluntarily band themselves together in an archeological society?

This question is answered in this case in the aims of the Utah Society. These aims are set forth in the constitution quite simply and clearly as being: 1. An interest in the preservation of archeological sites and materials and; 2. The increase and the dissemination of knowledge about Utah pre-history. These high-minded objectives focus on others. In short, they indicate that the framers of the constitution were concerned with contributing to the larger sphere of human knowledge and preservation of objects of interest to all.

What can the individual expect to gain from such a society, dedicated to such aims? I would say, in line with the society aims that the individual first can gain the personal satisfaction which comes from contributing to the pleasure of other people; all of us enjoy serving others. More specifically however, every individual in this newly born society can gain personally through the opportunity of growing into a field of science. Scientific method permits serious students to gain greater insight into the collecting, analysis, and finally the interpretation of archeological data. Such interpretation leads a serious student, whether he be professional or non-professional, into larger and more general and more meaningful interpretation as local archeological material is seen to have a relationship with, or a bearing upon the significance of, collections from increasingly more distant places. In short, with a simple beginning of an interest in the archeology of a drainage system or even one's own back pasture, one can move into an understanding and an awareness of the whole field of North American pre-history. Such an awareness is a passport to greater appreciation and to increased enjoyment. Another gain for the individual is in a sharpening of his ability to use evidence; that is to say, to evaluate and be critical of his own work as well as that of others. A lot of this will come through the opportunity of hearing professional students of archeology speak at meetings and demonstrate how the professional evaluates his own efforts and what interpretations he draws from this evidence. The novice non-professional, from an interest in objects, or possibly an aesthetic interest, or mere curiosity about the variety of archeological materials and how they may be studied, thus moves into scholarship. By submitting his own views to the criticism of others, he strengthens his own appreciation of what he has and how to describe it and talk about it on one hand. On the other hand, by listening critically to the presentations of others, both professional and non-professional, he moves into the arena of scientific consideration of evidence and learns that criticism is rarely personal and destructive. Through criticism, constructively offered and intelligently received, one sharpens intellectual tools and considerably broadens his outlook. Another great gain for the non-professional is the increasing awareness that the objects of archeology are merely documents; that they possess relatively little scientific value in themselves but yield up information about the culture where they occur. In short, one becomes

concerned with the total cultural picture revealed in fragmentary form through archeological specimens and their facts of finding. The non-professional will learn to move from a concern with objects to a concern with inferences, associations and total interpretation.

I have been asked to make specific reference to things which local chapters in the statewide society might undertake as worthwhile activity. Most successful local state societies have taken as their first basic job the complete survey of the state wherein they were organized. Such a survey is done, little by little, in each area, by local chapter members. A survey of course means simply the location of and the making of records about all sites which can be located. This I would recommend as the first and a continuing project for any local chapter. There are in this state scores of unknown areas; the region around St. George has never been systematically studied, although the existence of hundreds of sites is known. Or again, the San Rafael Swell is known to contain considerable material; it has never been surveyed either by professionals or non-professionals. The scattered dune sites of the western desert are not well known; a quick survey of the region was made a few years ago but this was a spot check, hit-or-miss kind of thing. So I would suggest as a primary job for all local chapters the initiation, on a systematic basis, of a survey of the region where the chapter is organized.

In some areas it is possible to select a problem in the local archeological picture and concentrate upon that; the best example which comes to mind is the work of Alice Hunt, near Moab, with the Folsom complex. A comparable study might be carried on in the St. George area with regards to the distribution, on surface sites, of such pottery types as Middleton Black-on-Red.

Another such problem study has just been made by the Logan Chapter. In this case it was a study of the Indian history and pre-history of Bear Lake. This was done at the request of the Department of Anthropology, acting as agent for the State Park and recreation Commission. The Park Commission wished some general information on which to base further thinking, planning about and action toward acquiring some state park land in the vicinity of Bear Lake.

Another continuing activity for all chapters, and the society as well, would lie in its support of conservation activities, both on the national and state level, now that we have a state park system. I can speak from experience and say that the state park people are conscientious and competent, eager to learn and will give serious consideration to suggestions from any source.

Or the society, as a whole, can undertake such projects as the sponsorship of cooperative digs where a centrally located site, selected on the basis of its apparent value and ability to contribute to knowledge, could be excavated. Society members over weekends could, under instruction, learn scientific excavation procedures and simultaneously contribute information in areas where scientific information is lacking.

I would also hope that the society members, or chapters as groups, could visit any digs being conducted by professionals over the state.

The holding of annual meetings where members report their own activities, such as the May 21, 1960 meetings, are of extreme importance as society projects.

The society ought also to develop somewhere a central repository for the information it acquires. The newsletter, of course, affords an excellent place to publish the work of individual members and chapters. However, the basic data, such as site survey forms, notes of excavations, and so on, ought eventually to come to rest in a central repository. Conceivable the files of the statewide archeological survey is the place for this material finally to come to safe keeping. This is not absolutely essential but I believe it is desirable.

Another very important way in which the society could encourage archeology would be the establishment and support of a modest tuition scholarship for any junior or senior student in anthropology at the University. This would immediately identify the society as interested in scholarship and scholarly development of

individuals. It would be a distinct honor in the record of any student if he, in open competition, won a scholarship on the basis of the judgment of the society or a committee of the society.

Regardless of the action taken by the society on any of the ideas herein, it seems to me a highly important step in Utah scholarship that the society has become an actuality, that has organized and that a significant, even though yet small, core of serious students of non-professional status have banded themselves together. Each of you will gain tremendously from the opportunities afforded by such an association and you will personally get satisfaction from it.

I would close on a note of caution, suggesting that membership not be "thrown open" to all who think they wish to affiliate. I would suppose that only members that have some recognition of the world of scholarship and the advance of knowledge should be encouraged to join. A small group of competent, scientifically minded students can do great good for the state of Utah, both in the area of public entertainment and education as well as the advance of professional scholarship. "Wild members" can kill off the society.

I would urge too that all of you reread Clarence Webb's excellent article republished in the society Newsletter in Volume 3, Number 1. This article was originally published in American Antiquity and has been reprinted in almost every state society publication since its original appearance. I would urge that you reread this upon occasion and that you continue the idea of annual meetings, field trips and visits to important Utah sites.

My congratulations to those who attended the first meeting, I personally enjoyed it greatly and I hope that all of you gained as much as I did. ■

Editorial: A Utah State Museum of Natural History

1960 Vol. 6 No. 4

Lloyd Pierson

At a recent meeting of the board of regents of the University of Utah, President Olpin, of the University, requested the regents to have the state legislature authorize the establishment of a state museum of natural history at the University of Utah. The officers, advisor, and editor of the Utah Statewide Archaeological Society believe this would be a worthwhile institution for the state of Utah and a project which members of the Utah Statewide Archaeological Society should be interested in seeing and helping come into reality.

Utah is one of the few states in the union without such a museum, in spite of its long and colorful past; its great geological resources; its biological repute; and its worldwide scientific interest. In fact, Utah is without a major modern museum of any type. Consequently, to see any of the museum-type natural wonders of Utah one must travel outside the state.

Primarily, a state natural history museum is a place to preserve and a place to exhibit "things" which are of interest to people because they help to explain "what happened" and the "why" of man and nature. "Things" are important because of the knowledge they represent and with them information, which would involve thousands of words otherwise, is quickly imparted. Moreover, the objects form a kind of reference library which never changes. The objects remain the same and can always be reconsulted and restudied as ideas change and knowledge advances. Tastefully and intelligently displayed in a state museum they would generate pride in the state, satisfy certain quests for knowledge, and provide a showplace for the state of Utah to the visitor from afar.

Under the broadest concepts, which we believe should be followed here, the natural history museum should cover all of the natural sciences, including man's participation in nature both as part of it and as a controller of it. In other words, we believe a natural history museum should cover the full range of human knowledge: biology, geology, art, physics, astronomy, anthropology, archaeology, history, etc. It should first be concerned with the portions of these studies that involve Utah and secondly involve itself with selected world wide collections and exhibits so that it could completely fulfill its position as an educational institution.

The museum is an educational institution and a unique type, dealing as it does with objects. The museum could and would provide help for schools, individuals organizations, small museums, etc., over the state by providing for and bringing to Utah traveling exhibits, professional assistance, adult education opportunities, movies, publications, research, and other benefits.

It could be of inestimable value to our youthful but vigorous state park system in much of its interpretive planning and development. Primarily, however, it would provide a safe place for the material things that make up our Utah heritage so that generations hence will know and better understand the past and its scientific accomplishments, and present generations will have a better appreciation of Utah's segment of this wonderful world.

You may ask, "Why Salt Lake City and the University of Utah?". Fair enough. The University already has a good start on statewide museum material in several fields but it all needs to be brought together in a museum with modern storage and display techniques. The University has a great many experts in a wide variety of fields. Salt Lake City is certainly the cultural

center of Utah and as the capital city usually gets at least one visit out of each of its citizens during their lifetime. Further, a museum of this type will lead to a better understanding of the hinterlands by the people of Salt Lake City for it is the hinterlands that have and will provide most of the museum specimens and exhibit material. I am certain that there are many members of the USAS who can and will make worthwhile contributions to the anthropology and archaeology sections of such a museum.

We sincerely believe that a natural history museum as outlined above is needed in Utah; that it would be a worthwhile expenditure of public money for the lasting benefit of all; and that it is worthy of the wholehearted support of the membership of the Utah Statewide Archaeological Society .

If you are sitting there nodding your head yes, and you feel that what we have said is true, then you are probably wondering just what you can do to help. The proposition of a state museum will undoubtedly come up in the next meeting of the state legislature, which will be in January 1961. We suggest it would be well if interested USAS members would contact their local state legislators, either personally or by mail. Express your views to him; give him a copy of this editorial (an extra is included for this purpose) or quote from it.

We believe that to begin a museum project with the scope needed to fulfil statewide needs it would be well if the legislature could provide funds in the neighborhood of $25,000 per year for the next two years so that a planning staff could be hired. The planning staff should consist of at least a director and one or two assistants plus such help as is needed. It would be concerned with the planning of the museum both physically (the actual plant, storage and exhibit space, offices, etc.) and conceptually (specific fields of interest, exhibit type and scope, regulations, stands, etc.). At the end of the two year period of planning staff could present a concrete program of development to the legislature for consideration and money could be appropriated for the proposed building and staffing.

In closing, your editor would like it understood that his only motives in urging a state museum are his interest in museums and his feeling for Utah. I know what museums can mean and do, and I think the time is ripe for the state of Utah to show off her treasures for the appreciation and enlightenment of her citizens, both young and old, and for her less fortunate friends who must live outside the state. ■

Hovenweep: The Deserted Valley

1961 Vol. 7 No. 1

Don Ripely

In 1854, a few years before the outbreak of the Civil war, a young Easterner, W.D. Huntington, leading an exploration party in the Four Corners area discovered a series of isolated towers and stone fortifications located in a desolate mesa-canyon country north of the San Juan River. Twenty years later the pioneer photographer William H. Jackson explored the same area and gave it the Ute name, Hovenweep meaning, "Deserted Valley". In 1917 Jesse W. Fewkes made a trip through Hovenweep and wrote a report for the Smithsonian Institution. This report was directly responsible for the eventual establishment of the monument in 1923 in order that the spectacular ruins might be preserved for future posterity to visit and enjoy.

Hovenweep National Monument lies between Cortez, Colorado and Bluff, Utah. Located along the Colorado-Utah line, the monument consists of six groups of pueblo ruins located in and around the heads of small, rocky box canyons where the drainage is good, thus insuring the pueblo people of an adequate water supply. Evidence of dams still remain showing that these enterprising and industrious people built reservoirs above the heads of the steep canyons to store the overflow. These ruins, which are excellent examples of defensive architecture, are noted for their numerous square, oval, circular, and D-shaped towers. One tower in particular combines the square corners (inside) with the round corners (outside) and is unique to the monument.

The most spectacular and best preserved is the Square Tower Group, located in Utah. This group, encompassing 120 acres and consisting of 19 different buildings, was named for a magnificent square tower built on a low rock at the head of a canyon. The Ranger Station is located at the group and a park ranger is on duty 12 months out of the year. Hovenweep Castle is the largest pueblo in the cluster and has walls that measure 60 feet long and still stand 20 feet high. Twin Towers, Eroded Boulder House, Stronghold House, and Hovenweep House are other interesting structures in this imposing group.

The Cajon ruins, consisting of 40 acres, also lies in Utah but on the Navajo Reservation; the two large pueblos there have been damaged considerably by vandalism. These ruins are on the edge of the newly discovered Aneth oil field and have had considerable visitation during the last few years. The new town of Montezuma Creek is only nine miles distant. A few years ago the only people visiting Cajon were those personally conducted there by the temporary ranger stationed at Square Tower for the summer months. Quite recently the Navajos have stated that they are going to construct a paved highway across the Aneth strip which will go just below the Cajon Group and will tie in with Highway 32 on the Colorado side. This paved road will be 6 miles south of the Square Tower Group. A new high school and grade school is to be erected in the immediate Cajon area.

The Holly Group (or Keeley Canyon Cluster as it is called on the road maps) consists of 63 acres; the Hackberry group, 126 acres; and the Cutthroat group, 14 acres, each contain numerous towers and large pueblos. The Holly ruins, though few in number, have excellent masonry. One of the largest buildings in the monument is located in this group together with an awe-inspiring two-roomed, two-story tower built on a pointed boulder near the head of the canyon. Horseshoe House, so named because of its horseshoe-like

structure, is reminiscent of the Chaco ruins in Northern New Mexico. Goodman Point, 146 acres, includes a very large unexcavated pueblo, a great kiva, and several smaller sites. As nearly as we are able to discover, this group was set aside as an archaeological reserve by government action in 1877. This would make it the oldest portion of any national monument concerned with archaeological remains. Or, to put it in more lucid terms, it was the first parcel of ground set aside by government action because of the archaeological values. These last four named groups are in Colorado and are isolated, difficult of access, and none can compare to Square Tower in extent or preservation.

Hovenweep National Monument, then contains more than 500 acres which are scattered over a 150 mile stretch of semi-arid territory. For many years only sheepherders, cowboys, and Navajos knew of Hovenweep. As late as 1944, during World War II, only eleven visitors registered at Square Tower; visitation has been on the increase since that time with 3,722 visitors registering during the travel year of 1959. In the early 1950's the increased demand for uranium brought hundreds of prospectors into the area. Claims were staked and mining operations began. One of these mines located in Black Steer Canyon eight miles west of Square Tower is still producing. On the heels of the uranium rush came the Aneth Oil Field boom bringing thousands of oil field workers, seismograph crews, oil scouts, and geologists into the area. With the advent of the oil industry better road conditions prevailed and more people visited Hovenweep; in 1956, 1,200 visitors registered at Square Tower during the winter alone when the oil boom was at its peak. Because vandalism was rampant during this later period, the National Park Service in 1957 assigned a permanent ranger to Hovenweep with headquarters at the Square Tower Group. In order to follow the concept of the National Park Service someone had to patrol the ruins constantly if they were to be preserved. Signs were constructed and the road marked to Square Tower; trails were built; brochures were printed; a trailside exhibit booth was constructed; a self-conducted tour put in operation; and a small campground and picnic area were established. Primitive road conditions, however, still exist in the immediate Hovenweep area and travel is not advised during periods of wet weather. Water is scarce and anyone travelling through this area should carry an adequate supply of drinking water with them.

By the end of 1961, a new paved highway from Tuba City to Kayenta, Arizona should be finished; this will complete a paved short-cut through Monument Valley to California and will open the last frontier left in the West. A vast panorama of magnificent scenery will be available to the public. Thousands of people are expected to visit the new Navajo Tribal Park Visitor Center in Monument Valley. The completion of the Glen Canyon Dam will back water up the Colorado River to Hite, Utah; and up the San Juan River to the Goosenecks near Mexican Hat. This will create a reservoir 186 miles long which will be available for boating, fishing, and other recreational purposes. All these factors will tend to influence more visitors to enter the area. Some of these people are bound to reach Hovenweep.

In the Mission 66 Program the National Park Service has these tentative plans for Hovenweep.

1. Addition of 280 acres to the Square Tower Group.

2. Drilling a water well and constructing a water storage system.

3. Moving the present entrance to a more suitable location.

4. Construction of a visitor center with rest rooms and a parking area.

5. Construction of adequate housing facilities for employees.

6. Providing a modern, spacious campground.

7. Excavating and stabilizing the ruins at Square Tower and providing more interpretative devices (this also calls for a museum).

In the future, with Utah's ever-expanding road program, the name "Hovenweep" may prove to be a misnomer; the "Deserted Valley" will again overflow with people and the canyons will resound with the happy laughter of children. ■

(42BO79) An Open Site Near Plain City, Utah

1961 Vol. 7 No. 2

F.K. Hassel and Carol Hassel

The site described in the body of this report is located on the southern edge of Willard Bay, an arm of Great Salt Lake, in southeastern Box Elder County. Plain City, the nearest town of any size, lies about four miles due south in Weber County. A multitude of archeological sites is found in this general area; so, if quantity can be used as a reliable indicator, the region must have supported a fair-sized Indian population.

The little professional research accomplished in the immediate vicinity has been more or less restricted to the Puebloid or Sevier-Fremont Complex (Judd, 1926; Steward, 1933; Enger and Blair, 1947). However, these people either left the area or reverted to the hunting-gathering type of economy, whichever theory you prefer, some time prior to 1300 A.D., according to published estimates (Jennings, l959; Rudy, 1953).

The Indians occupying this specific area in the late prehistoric and historic eras are referred to as the "Weber Utes" in most early written accounts. Steward, among others, states that this is a misnomer, and re-identifies them as Northern Shoshoni, a classification which would include the individual Shoshoni bands ranging what is now western Wyoming, eastern Idaho, and northeastern Utah (Steward, 1938).

The type of material recovered at 42Bo79 indicates that this is a Northern Shoshoni site, possibly occupied by so-called "Weber Ute".

The site stretches along the bank of an intermittent stream channel for a distance of about 1200 yards. Cultural material was confined to within 100 yards of the stream bank, and was heavily concentrated near the ends of the long axis of the site. It could very well be that what is spoken of here as one site is, in fact, two or more separate sites. Identical material is found at either end, so the question of whether this is a single or multiple site is not of earth-shaking importance.

The site lies between contour intervals 4210 and 4215 on the topographic map of the area; the actual elevation is estimated at 4213 feet. Just as an item of interest, Great Salt Lake reached a recorded level of 4216 feet in 1868, which means that this camp was covered by some *3* feet of salt water at that time.

Unfortunately, the site will again be submerged, this time permanently, when water storage is commenced in the Willard Reservoir of the Weber Basin Project, late in 1962 or early 1963, since it, along with about 20 other similar camps, is located inside the reservoir.

This same unhappy circumstance is also responsible for the present condition of the site. About 80% of the surface area has been stripped to depths from 4 to 30 inches. The earth removed during this process is now buried somewhere in the reservoir dike.

Underlying strata can still be traced in undisturbed strips of ground left standing in the site. A short stretch of the wall of one cut through the site was squared off and revealed the following cross section from top to bottom:

a. 4 inches of fine, buff colored, wind-blown sand.

b. 9 to 12 inches of greyish, slightly compacted sand.

c. 12 to 14 inches of dark tan, heavy sand.

Although this cut was not continued down to the ultimate base, it is believed to be the same as observed in other areas of the site; that is, a heavy, compacted sandy-clay with some calcareous

tufa deposit. Cultural material is found in the second or greyish stratum, which appears to be considerably thicker in certain parts of the site.

Before proceeding further, it should be stated that this entire report is based on surface observation and collection, exclusively. The Ogden Chapter of the U.S.A.S. hopes to excavate the site before destruction is complete (see p. 3-ed. [of original newsletter]); therefore this paper should be considered in the nature of a preliminary survey rather than the final report.

No surface indication of anything resembling a dwelling or structure is visible, and nothing was found of a historical nature other than debris attributed to the construction activity (beer cans, pop bottles, broken taillight lens, miscellaneous loose nuts and bolts, etc...).

Ceramic Material

Over 21 pounds of sherds were collected; however, about 75% of this collection was turned over to the University of Utah for analysis and reference purposes. Of the approximately six pounds which were counted and examined visually, 95.5% conforms fairly closely to Rudy's preliminary description of Shoshoni ware (Rudy, 1953). Although certain characteristics deviate from those published, they can probably be discounted as local variations.

The following data were obtained from the examined sherds:

1. Total Sherd Count: 289
   a. Normal Shoshoni Type (total) 276 (95.5%)
      i. Plain body: 225
      ii. Plain Rim: 44
      iii. Decorated rim: 7
   b. Aberrant Shoshoni type (plain body) 1 (0.35%)
   c. Promontory (?) (calcite temper) 9 (3.1%)
   d. Desert gray series (?) (sandy texture, minute temper and noticeable amounts of mica) 3 (1.04%).

NOTE: The above sample is biased. Not all body sherds observed in the site were collected, but any fragment with a rim or with visible rework was invariably kept.

What I have called "Normal Shoshoni" differs from Rudy's description in the following manner:

1. No evidence of "flower pot" or pointed bottom forms, and only one sherd which might be from a shallow bowl. The usual shape appears to be a deep, round-bottomed vessel with either straight sides or a very slight constriction between the body and rim.

2. No "fingernail" incised ornamentation. The only, type of decorations found are a single row of round punctations along the flattened edge of the lips, or multiple rows of small circular "whorl" marks on the lip. (Only one minute sherd of the latter type was found). Duplicates of the first method of decoration are illustrated by Steward (1937, Fig. 17e, f, h).

NOTE: These exclusive methods of decoration will probably not hold up under excavation, because fingernail-incised sherds have been found in several adjacent sites.

The single sherd listed as aberrant Shoshoni exhibits the characteristic coarse granite tempering material, but contains a great quantity of mica in a dark gray paste.

Eleven of the Shoshoni sherds have been reworked. The edges have been ground off smooth and are slightly rounded. Ten were possibly used as pot scrapers or ladles; the other is a fragment of a centrally perforated disc about 2 inches in diameter.

Only one other drilled sherd was found, bored through from the exterior with a hole tapering from .23" to .14".

One additional Shoshoni fragment may be part of a fired figurine; at least this seems to be the most reasonable explanation for its peculiar form, which is that of a cone with rounded end,

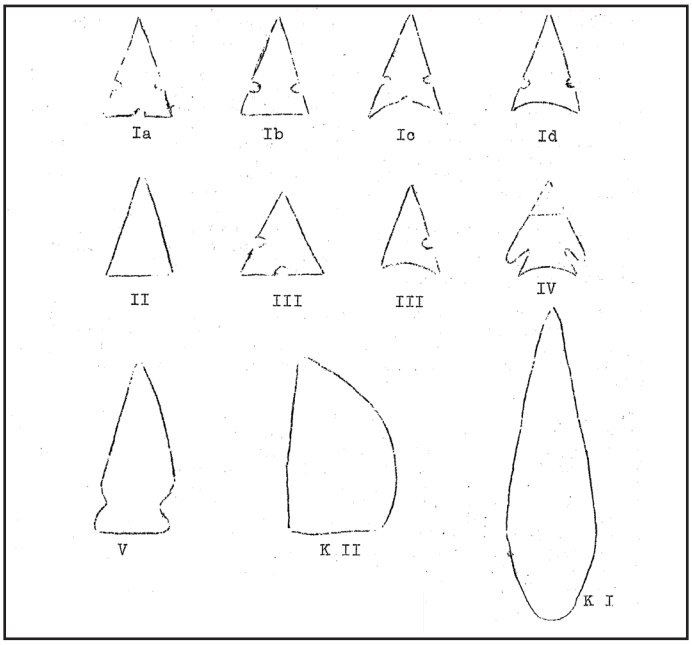

Figure 1. Artifact types from 42Bo79. Slightly idealized forms.

phasing into a flattened slightly convex "scoop" broken across the center. Length is 1 5/8 inches.

Chipped Stone

1. Projectile points:

A total of 125 points or recognizable sections was recovered. 73 were sufficiently complete to allow classification into *5* basic types. One type was re-divided into 4 sub-types to separate the different base styles. Material is: obsidian (67.2%), chert (includes flint, agate, etc.) (26. 4%), quartzite (6.4%). Pressure flaking is evident on all except the Type V point, which shows heavy, short, secondary flake scars.

Type I.

Total: *53* specimens (all sub-types). Small, triangular, side-notched point. Length range: 9/16 - 1 5/16 inches, average length less than 1 inch.

Sub-type Ia - 48 specimens - centrally notched straight base

Sub-type Ib - 3 specimens - un-notched straight base

Sub-type Ic - 1 specimen centrally notched concave base

Sub-type Id - 1 specimen - un-notched concave base

Type II.

Sixteen specimens - small, triangular point, devoid of notches. Believed to be the "blank" or unfinished form of the Type I point. Average length less than 1 inch.

Type III.

Two specimens - small, triangular points, notched on one side only. One has a centrally notched, straight base, the other a slightly asymmetrical concave base. Length - less than 1

inch. This is possibly the link between the Type II or "blank" and the Type I point.

Type IV.

One specimen - small, corner-notched triangular point with prominent barbs, concave base and expanding stem narrower than blade. Length, if complete, about 1 inch.

Type V.

One specimen - medium sized, fairly heavy triangular point with broad side notches and off-centered straight base. Length 1 $^{11}/_{16}$ inches.

NOTE: A disparity exists in the high rate of occurrence of sub-type Ia when compared to other nearby sites. Ratio for the general area, as a whole, in our collection, is approximately 7:7:2:4, for sub-types Ia, Ib, Ic, and Id, respectively.

2. Knives:

Bi-facial knives are represented by 3 complete examples and 12 fragments. The most common form is that of an elongated ellipsoid with one acute tip. One complete specimen (KI) is of the ellipsoidal type, 3 $^{1}/_{16}$ x $^{27}/_{32}$ x ½ inch thick. Material is gray and orange-brown chert. Another (KII) is of brown chert; 1 ¾ x 1 ⅛ x $^{3}/_{16}$ inches thick, and has one edge straight and at right angles to the straight base, which is narrower than the maximum blade width. The third edge thus flares outward from the base and then curves sharply inward to the point. The general outline is that of a capital "D", with one end pointed. The third complete example is triangular in form, with slightly convex lateral edges and a straight base. Dimensions are 1 ½ x ¾ x ⅛ inch; material is dark brown chert. This might also be classified as a Type II projectile point, but it is grouped with the knives by reason of the curved blade edges. Other materials: chert (10), obsidian (1), quartzite (1).

3. Stemmed knife or spear:

Basal half only; lateral edges of blade and stem are parallel, base is slightly convex to uneven. Overall length of fragment: 2 ½ inches. Blade width: 1 $^{3}/_{16}$ inches; stem length: ⅝ inch; stem width: 1 inch. Maximum thickness: $^{1}/_{4}$ inch. Material: translucent brown chert.

4. Side scrapers:

Fourteen total, no preferred form in the *5* complete examples. Two are narrow, "keeled" type, prismatic in cross-section, and are of chert. One is oval; material is Quartzite. Another is almost circular, with a graving or perforating stub incorporated in one edge; material is chert. The last is uneven, with a concave section along one side, and is also of chert. All remaining fragments are of chert.

5. End scrapers:

Nine total, again no preferred form. Complete specimens range from tear drop shape to irregular in outline. Some show flaking entirely around the circumference, while others were used only at end. All are of chert.

6. Crude obsidian forms:

Seven total, usage unknown. All are roughly pointed and mostly percussion flaked. All are fairly thin; length ranges from about ⅝ inch to 1 ⅛ inches. May be the first stage of the projectile point manufacturing process (quarry blanks?).

7. Irregular flakes:

Thirteen total, all showing obvious use but no deliberate chipping or shaping. Materials: obsidian (12), chert (1).

8. Small problematical forms:

Total 2; one is complete and one broken but similarly shaped. The complete example is flaked on one side only, and has the outline of a greatly

elongated teardrop. Dimensions are 1 1/16 x 3/16 x 1/8 inch thick; material is obsidian. The broken specimen is of chert. An exact duplicate of the complete form was found in an adjacent site, so it must have served some definite purpose, perhaps functioning as a "micro" end or side scraper.

9. Limestone knife or scraper:

One thin limestone rock, roughly ovoid in shape, with what are apparently artificially created cutting edges. The material is foreign to the area, but whether or not it is an artifact is subject to question. Dimensions: 4 3/8 x 1 7/16 x 7/16 inches.

Ground or Polished Stone

1. Shaft smoothers:

Five total. Included under this heading because all are of steatite, or similar soft material, and are polished to some degree. Four are bluish green in color, and one brownish-green. Two are rectangular, one is irregular, one is roughly ovoid (wider than long), and the other is long and narrow, with convex sides and squared-off ends. The last described is almost an exact duplicate of one recovered by Steward from Black Rock Cave (Steward, 1937, Fig. 48d). One of the rectangular type has a shallow V groove on the reverse side from the U-shaped channel. The largest groove size is ½ inch wide by 3/8 inch deep, the smallest (excluding the V groove mentioned above) is ¼ inch wide by 3/32 inch deep. The largest smoother measures 2 21/32 x 1 11/16 x 3/4 inches; the smallest, 1 7/16 x 7/8 x 9/16 inches.

2. Pendants:

Two fragments. One is obviously a suspended ornament perforated at the narrow end; while the other is unperforated but highly polished. The drilled example is of slatey material, finely banded in red and cream; the other is brownish slate, or perhaps a form of steatite. Neither is sufficiently complete to allow determination of exact outline or size.

3. Tubular Pipe:

Four fragments, none larger than 1 3/4 inches in length. Materials: bluish-green steatite (?) - 3; brownish slate (?) - 1. Three fragments appear to be from completed pipes, smoothly finished on the interior and exterior. The last may have broken before completion. The exterior is fairly rough, and the interior still shows a pronounced misalignment caused by drilling toward the center from both ends.

4. Ground knife fragment:

One segment of a slate knife or scraper was found. Both lengthwise and transverse striations are visible. One edge was worked to a much greater degree than the other, but is not chipped and uneven. Dimensions: 3 x 2 x 3/8 inch thick.

5. Polished miniature disc:

Small flat disc 3/8 inch x 1/16 inch thick. Material is mottled green in color and appears to be the same as the pipe fragments and shaft smoothers. Probably an undrilled bead.

Manos, Metates, Hammer, and Pecking Stones

1. Manos:

Five total (estimated 50 incomplete specimens observed but not collected). Three of the five complete examples are ovoid in outline; all are of quartzite and have two use surfaces. Dimensions range from 4 1/4 inches to 5 1/2 inches in length, 1 to 1 1/2 inches in thickness, and all are about 3 ½ inches wide. The remaining two are slightly more rectangular, and are made of a dark granitic material resembling diorite. The larger shows use on one face only; the smaller has one end squared off as well as one side, which is more rounded than usual. Average dimensions for this type are about 6 1/2 by 3 1/4 by 2 inches thick.

2 Metates:

Only one restorable metate was found, although fragments of approximately 10 more

were noted but not retrieved. The restored stone measures 15 by 7 ½ by 1 ¾ inches. It is of light colored granite, and was used on both faces. One side is much more deeply worn, forming a shallow basin about ½ inch in depth, off-centered toward the thinner end of the slab. The incomplete fragments are mostly of the slab variety, but at least two of those noted were 4 to 5 inches thick.

3. Hammer stones:

Three total. All are unmodified quartz cobbles. One is of flat ovoid form and displays batter marks on one broad face. Two are roughly cylindrical and show use on the ends

4. Pecking stones:

Six total. Separated from hammer stones on the basis of wear pattern. All are small quartzite stones, averaging about 3 inches in diameter. Each exhibits the same sharp ridge around the circumference, beveled back to both faces of the stone. This could only have been produced by holding the hand stone at an angle of about 45° to the work, and rotating it constantly while striking a tremendous series of blows. Similar objects can be found in almost every campsite in this area

Miscellaneous Stone

This category consists of:

l. Three small metallic ore fragments. Two are micaceous hematite, and one is ilmenite. There are no known sources of these minerals within miles of the site. Since they are surface finds, definite association cannot be proved. However, for what it is worth, a similar specimen of micaceous hematite was found by the authors at another site containing Shoshoni pottery, some miles to the northwest of this area. (When ground up, micaceous hematite is an excellent source of red pigment).

2. Four small bits of red paint (earthy hematite?).

3. Sandstone abrader with faint groove along one edge.

Organic Material

Only two artifacts of organic origin were found, although large and small mammal and bird bones in a fair state of preservation are moderately plentiful. The first is a polished bone tube, probably from a large bird, cut off square at one end but broken at the other. Dimensions are 4 ½ inches in length and approximately $^{3}/_{8}$ inch outside diameter. The second artifact is an extremely large animal canine tooth with a shallow suspension groove ⅜ inch from the root end. This was evidently exposed on the surface for some time, since it is badly weathered. A section somewhere between $^{3}/_{16}$ and ⅝ inch long is missing at the crown end, but the remainder still measures 3 inches in length. A zoologist friend who examined the tooth stated that it could only have come from a large bear but he had never seen one approaching this in size.

Burial

Evidence of one burial, in the form of scattered skull fragments, was found along the extreme southern edge of the site. An attempt to determine the exact area of origin of the material was unsuccessful, as this section had been deeply stripped by the earth-moving machinery.

Conclusions

Significant inferences to be drawn from his surface collection are probably beyond the ability of the author. The amateur, however, enjoys an advantage over the professional archeologist in this respect; since he has no professional reputation to maintain, he is free to jump to erroneous conclusions without much loss of face. With this in mind, I wonder if a reevaluation of the material from the Promontory Caves would not show that several of the elements now classified as Promontory are actually products of the Shoshoni. If not, it would certainly indicate a very close relationship between the Shoshoni occupation and the Promontory complex. ■

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USAS-UCRBASP Joint Excavation in the Plainfield Reservoir

1961 Vol. 7 No. 3

David Pendergast

In September, 1960, Lloyd M. Pierson and I, aided by Mrs. Marian Pierson, Mrs. Harold Provonsha, Mr. and Mrs. William Williges, Mr. and Mrs. C. R. Ellis, Mr. Robert Norman, and Mr. Les Erbes, of the Moab Chapter of the Statewide Society, conducted test excavations in 3 sites in the proposed Plainfield Reservoir area, southeast of Moab. Plainfield Reservoir, which is a portion of the Upper Colorado Water Storage Project, will flood Mill Creek proper and the North Fork of Mill Creek, as well as a portion of the main stream below the confluence, and will, in the process, inundate at least six archaeological sites.

The sites tested were selected on the basis of the report of a partial survey of the reservoir area carried on by Thomas Mathews in 1958. The survey, which did not include the entire pool area, resulted in the location of only 2 sites which appeared to warrant excavation. These sites were designated 42Gr311 and 42Gr313 (Mathews, 1958, 3).

Mathews was apparently unaware of a prior survey of the Mill Creek area undertaken by Alice Hunt as a segment of her investigations in the La Sal Mountain area (Hunt, 1953). Unfortunately, Hunt's site descriptions and designations for the Mill Creek drainage are not specific; however, through correlation of site descriptions with data gathered during excavation, it was possible to assign Hunt's numbers to those sites which we tested. Mathews' site 42Gr313 corresponds to Hunt's site 42Gr239; correlation of Matthews' sites 42Gr311 and 312 with Hunt's designations was not possible. Two sites not reported by Mathews, but included in the test excavation, are Hunt's sites 42Gr238 and 237. To avoid duplication in numbering, Mathews' site designations have been abandoned, and Hunt's earlier numbers will be used hereafter.

In addition to testing the site recommended by Mathews as most deserving of excavation (42Gr239), we undertook testing of a large shelter (42Gr238) and a cave (42Gr237), both of which lie roughly south of site 42Gr239. All of these sites lie in a cliff which forms the eastern limit of a large embayment on the right hand bank of Mill Creek proper. A large, semi-active sand dune extends over most of the embayment. Plant cover in the immediate area of the sites consists of Pinyon (*Pinus edulis*), four-wing saltbush (*Atriplex canescens*), yucca (*Yucca angustifolia*), sagebrush (*Artemisia* sp.), cacti (*Opuntia* sp.), and numerous grasses. The creek is bordered by several species of vegetation commonly found along stream banks, including cottonwood (*Populus fremontii*), sandbar willow (*Salix exigua*), and tamarix (*Tamarix pentandra Pall*.). The presence of abundant water, a variety of vegetal foods, and the apparently large amount of game available in the area must have combined to make the Mill Creek drainage attractive to aboriginal inhabitants. It is, in fact, surprising that occupation remains are not more numerous in the area.

42Gr239 (Moonshine Cave)

Site 42Gr239, given the name Moonshine Cave because of its reputed use as the site of a distillery, is a high-ceilinged, narrow cave located at the northwest end of the cliff mentioned earlier. The cave extends 72 feet into the cliff, and ranges from 15 to 25 feet in width. Ceiling height varies, but ranges around 10 to 12 feet. At the mouth of the cave, a rubble-strewn slope drops roughly

20 feet to the course of a small, intermittent stream at the eastern edge of the sand dune. The entrance to the cave, which is visible from the crest of the dune, is roughly semi-circular in outline, rising to a height of approximately 18 feet. Human occupation of the site is indicated by smoke blackening of the cave ceiling, and by the presence of several pictographs on the cliff face immediately adjacent to the cave mouth, as well as by the midden deposit on the cave floor. A small fissure, not separately designated as a site, lies approximately 25 feet southeast of the main cave; the fissure also contained some midden deposit, and may have served as a storage area.

Both from surface indications and from excavation, the deposit in Moonshine Cave appears to have been heavily disturbed. An extensive trench, accompanied by piles of back dirt, sections the deposit in the rear portion of the cave. For this reason, excavation was concentrated in the midden near the cave entrance, where less disturbance appeared to have taken place. Even in this area, however, the churned appearance of the midden and the paucity of remains indicate that the deposit had been excavated at some time in the past. A total of 5 pits was excavated in Moonshine Cave, the deepest of which (pits 1 and 3) encountered sterile soil at a depth of 2 feet. Pit 4 ran only to 12", and pit 2 to 6". Excavation of pit 5 was abandoned at a depth of 6", due to low yield and to apparent disturbance of the deposit.

Artifacts

As noted above, much of the midden in Moonshine Cave appears to have been disturbed, and, not surprisingly, few artifacts were recovered during excavation. Included within the collection are many objects of apparently recent origin, so that the entire yield of the site is quite small. Much of the paucity of artifacts can probably be attributed to disturbance of the site, but it is a little surprising, in the light of local traditions of high yield from Mill Creek sites, that more was not recovered during the test excavation. Interesting also is the complete absence of pottery in the Moonshine Cave deposit, suggesting that Hunt (1953, passim) may have been correct in defining a comparatively late non-pottery occupation in the region.

The absence of pottery at Moonshine Cave, plus the almost complete lack of distinctive artifacts of any sort, make associations of the materials impossible to define. There is, furthermore, nothing to suggest a date for the occupation. The few typologically classifiable artifacts are described below.

Chipped stone

Chipped stone artifacts recovered consist of a single core hammerstone of chalcedony, from the top 6" of the deposit, and 5 flake scrapers, 1 from the top 6" of the midden, 3 from the 6-12" level, and 1 from the 18-24" level. No projectile points were recovered during excavation, although a single specimen resembling Hunt's type with pointed tapering stem (Hunt, 1953; 28-9), was found on the surface of the site. The specimen measures 33 x 21 mm. and is 5 mm. thick.

Ground stone

As is the case with chipped stone material, ground stone artifacts are not numerous in the collection from Moonshine Cave.

Manos

Two fragmentary manos were recovered one from the top 6" of the deposit, and one from the 12-18" level. It is not possible to determine whether the specimens were unifacial or bifacial. The more complete of the 2 measures 103 x 80 mm. and was probably originally about 49 mm. thick. The remaining use surface of this specimen indicates that it may be of the asymmetrically convex bifacial type described by Hunt (1953, l58) as occurring at canyon sites.

Metates

A single fragment of stone with one smooth surface was recovered from the top 12" of the deposit. The slight concavity of the smoothed surface suggests that the specimen may be a metate fragment. The fragment is 18 mm. thick.

Bone

A single bone awl or punch was recovered from the top 6" of the midden. It is fashioned from a splinter of a deer long bone, with a portion of a proximal articulation remaining. Length of the specimen is 77 mm. Surface collection at the site yielded a fragment of a polished bone tube, 30 mm. long and 12 mm. in greatest diameter. The artifact is apparently made of bird bone, although identification is uncertain, due to complete eradiation of surface features of the bone. No artifacts of this sort are reported by Hunt for the La Sal Mountain area.

Leather

A single fragment of deer hide was recovered from the top 6" of the deposit. The specimen is roughly rectangular, and measures approximately 55 x 108 mm. Some hair remains on one surface. Three small holes have been cut in the hide near one corner. The stiffness of the hide suggests that it is untanned.

Vegetal Materials

Cordage

Two specimens of coarse Z-twist cordage were recovered from the 0-6" and 12-18" levels of the midden. A single specimen of finer cordage, also Z-twist, comes from the top 6" of the deposit. Material in all specimens appears to be yucca.

Knotted fiber

Two specimens of knotted fiber, both with square knots, come from the 12-18" and 18-24" levels of the midden. Both specimens are of yucca fiber.

Split-twig figurines

A single fragment of a split-twig figurine, similar to those described by Schwartz, Lange, and deSaussure (1958), Farmer and deSaussure (1955), Wheeler (1937, 1939, 1949), and others for various portions of the Southwest and the Great Basin, was recovered from the top 6" of the deposit. In addition, two small split twigs with fragments of wrappings, from the 0-6" and 6-12" levels of the deposit may be portions of figurines.

Worked sticks

Two smoothed cottonwood sticks, cut at both ends, and with the pith removed, were recovered from the top 12" of the midden. A single cut hardwood stick and a small fragment of cut cane also come from the top foot of the deposit.

The materials described above constitute the entire yield from Moonshine Cave, with the exception of a number of corncobs and a few unmodified animal bones. The small size of the collection is probably due to excavation of the site at some earlier time. The character of the trench in the rear portion of the site indicates that excavation may have been by professional archaeologists, perhaps on one of the early Cummings expeditions to southeastern Utah.

42Gr238 (Sheep Creek)

Sheep Camp, a large, sloping shelter located approximately 40 yards southeast of Moonshine Cave, gave the appearance of having been occupied intensively, on first examination, because of the existence of a dry-laid masonry wall in the shelter. At the crest of the sloping floor, where the ceiling is no more than four feet high, a small level or gently sloping area, approximately

25' x 5, is enclosed by a rough stone wall, in no spot more than three courses (18") high. Both this area and portions of the slope in front of it have been extensively utilized as a sheep corral, a use attested by the presence of large quantities of sheep droppings. Excavations were undertaken within the enclosed area and along the northern edge of the slope. The latter area proved to be entirely devoid of cultural remains, while excavations in the former area yielded only a single fragment of a sub-rectangular bifacial mano, 75 x 67 mm., and 37 mm. thick. This form is described by Hunt (1953, 154) as commonly associated with pottery in canyon sites.

It is possible that the dry masonry wall in the Sheep Camp site is of recent manufacture, erected by sheepherders as a corral fence. Its location argues against such an origin, however. The virtual absence of cultural remains in the site can probably be laid to a short or limited aboriginal occupation, and to heavy disturbance of the area by sheepherders and others. It is also possible that this site, like Moonshine Cave, may have been excavated at some earlier time, although there is no clear-cut indication of such excavation.

42Gr237 (Cist Cave)

Cist Cave derives its name from the numerous storage cists which have been excavated into the caliche floor of the site. Three of these cists are visible in cross-section at the mouth of the cave and have probably attracted many people to the site. It is Hunt's description of this site which enabled correlation of the Matthews and Hunt site designations (Hunt, 1953, 203).

Cist Cave lies at the southern end of the cliff which also contains Moonshine Cave and Sheep Camp. Cist Cave is separated from the other two sites by a projection in the cliff face, and by a quantity of rockfall, so that it cannot be seen except from the sand dune area. The site is, strictly speaking, a combination of shelter and cave, the front portion being a shallow shelter, with a more completely enclosed small cave extending back approximately 22 feet from the western side of the shelter. The mouth of the cave is roughly triangular.

The front, or shelter, section of the cave contains 16 bell-shaped storage cists, as well as one larger pit, probably used for storage. Several of the cists were cleared of blow sand and leaves and were found to be completely devoid of cultural remains. Diameters and depths of the cists are indicated in fig. 3 [no figures were included in the newsletter]. The large pit was also cleared and was likewise found to contain only blow sand and vegetal debris. The fact that all of the cists investigated had been very carefully cleaned at some time in the past, without destruction of marks of aboriginal excavation, suggests that, as at the other sites, investigation may have been conducted by professional archaeologists.

The small cave at the rear of the shelter appeared to be less disturbed than the remainder of the site, so a single test pit, 5'x5', was sunk in this area. This excavation reached sterile soil at a depth of 24" and produced only a single cut and notched stick and 2 flake scrapers. The paucity of artifacts in this area is probably due to previous excavation, since the presence of the storage cists at the front of the site suggests the probability of occupation in this more enclosed area. Smoke blackening on the ceiling and walls of the cave also points to use of the cave for habitation, as well as storage.

Other Sites

In addition to those sites described above, Mathews site 42Gr3ll was examined, and was judged too heavily disturbed to warrant excavation. Because of uncertainty regarding the number of sites recorded by Hunt downstream from 42Gr239, no assignment of a site number to 42Gr311 was possible from Hunt's report.

In the North Fork of Mill Creek, upstream from the area surveyed by Mathews but apparently within the reservoir area, there is a large shelter, containing remains of at least five dry laid masonry structures, as well as numerous

axe-sharpening grooves and pictographs, on fallen slabs of rock within the shelter area. The shelter is located at the head of a large expanse of slickrock, approximately ½ mi. upstream from the confluence of the two forks, on the right-hand bank of the stream. Several small springs or water seeps exist at the western edge of the shelter area. Structural remains consist of two or three courses of stone bordering roughly circular areas, with piles of fallen masonry around them. Construction was apparently extremely crude. Little evidence of disturbance is visible in or around the structures.

Although this site is apparently above full pool limit of the reservoir, excavation of the structures and recording of the pictographs is deemed advisable, since construction of the dam will result in greater interest in, and probably destruction of, the site.

Investigations in Plainfield Reservoir have indicated that, despite local reports of large archaeological collections made in sites on Mill Creek, the present archaeological potential of the area is almost nil. The area was undoubtedly attractive to aboriginal occupants, and the caves investigated seem likely sites for habitation. It is possible, therefore, that sites in the Plainfield Reservoir area may at one time have contained much more than is indicated by our test excavations. Digging by local amateurs, and perhaps unreported work by professionals years ago, has, however, removed most traces of aboriginal occupation, so that, with the possible exception of testing of the large shelter on the North Fork of Mill Creek, no further work in Plainfield Reservoir seems necessary.

Despite the largely negative evidence gained through the Plainfield excavations, the contribution of members of the Moab Chapter of the USAS to knowledge of Utah archaeology through cooperation in the dig is a very real one. Without the volunteer labor which chapter members provided, work in the reservoir area would have been much more difficult and might well have been delayed for some time. Perhaps most important, though, were the experiences which chapter members gained in archaeological techniques, and the cheerful spirit of their cooperation, even after it became evident that the yield from the excavations would be low. Traveling over bad roads, in cold weather, and working in less than ideal conditions, chapter members gave willingly and generously of their time and energies to make the dig a success in every aspect but the archaeological, something which none of us could control.

This was the first organized effort at cooperation between the USAS and the Department of Anthropology at the University of Utah in an archaeological excavation program. Subsequently, a similar cooperative undertaking, involving the Ogden and Logan chapters, resulted in the excavation of a very important site near Brigham City. A brief preliminary report of the results of this work appears in Vol. 7, no, 2 of Utah Archaeology. It is hoped that, with the continuing growth of the Society, and the increased interest of its members in cooperative excavation projects, many more USAS - U of U digs will be held in the future. ■

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A Burial From an Open Site in Willard Reservoir, Box Elder County

1962 Vol. 8 No. 1

David M. Pendergast and Francis K. Hassel

In the course of surface checking of sites in Willard Reservoir for the purpose of selecting those apparently warranting excavation, the open site of 42Bo76 was examined briefly. The site, which is one of more than 25 located within the reservoir during the survey carried out by Mr. and Mrs. F.K. Hassel, consists of an open level mud flat and a sandy ridge lying near the center of the reservoir area. Attention was directed to the site not only because of the existence of surface artifacts on the flat but also due to extensive aeolian erosion of the sandy ridge area occasioned by draining of the reservoir in 1960. Blowouts extending for approximately l/4 mile along the ridge were found to contain scattered pottery, projectile points, and flakes, plus occasional larger fragments of stone.

While assembling a surface collection from the eroded surface of the site, some small fragments of bone were noted protruding from the sand near the southwestern end of the occupation area. Partial clearing of the fragments revealed the existence of a burial lying immediately below the present site surface. Although excavation of the site had not been planned, the burial was removed in order to prevent its destruction as the site eroded further.

The burial lay on the left side in a comparatively tight flex, with the knees drawn up near the sternum, the right arm tightly bent with the elbow touching the knees and the hand near the face and the left arm 1oosely flexed, with radius and ulna lying below and roughly at a right angle with the bones of the left leg. The cranium also rested on the left side facing roughly northeast, orientation of the burial was approximately northwest southeast. Since the skeleton lay in extremely loose sand, no definition of a burial pit was possible. The burial occupied an area approximately 39" by 22", although the few artifacts probably in association lay from 10" to 18" south of the skeleton. Resting surface of the burial was approximately 14 in below the present site surface.

As noted above, the burial was discovered as a result of the protrusion of portions of the skeleton above the present site surface. The protruding elements, including the distal end of the right femur the proximal ends of the right tibia and fibula and the right temporal and parietal areas of the cranium, had been severely damaged due to exposure to the elements. In addition, alternate inundation and desiccation of the burial with fluctuations of the level of Great Salt Lake contributed to decomposition of most of the bones to a degree sufficient to prevent removal of the skeletal material intact. As a result, metrical and morphological analysis of the material is limited to few observations. Of the salvaged skeletal material, only the left radius & and ulna are complete, although fragments of the left innominate bone, the left half of the mandible, and the left temporal and parietal bones plus portions of the occipital bone, remain. Sufficient portions of the left humerus and femur are preserved to allow measurement of midshaft diameters. The few obtainable metrical data are presented below; no estimate of stature can be made from them.

Left Radius
Maximum length: 251 mm.
Midshaft diameters: ant.-post. 11 mm.; lateral 14 mm.

Left Ulna
Maximum length: 279 mm.
Midshaft diameters: ant.-post. 14 mm.; lateral 11.5 mm.

Left humerus
Midshaft diameters: ant. -post, 20 mm.; lateral 14 mm.

Left femur
Midshaft diameters: ant. -post. 26 mm; lateral 25 mm.

Sex of the individual is judged to be female, based upon the comparative width and shallowness of the greater sciatic notch on the remaining fragment of the left innominate, and the general gracility of the pelvis and other bones as well as limited protrusion of the mastoid process, lack of ruggedness of the zygomatic arch, and several characteristics of the remaining fragmentary left portion of the mandible including narrowness and lightness of the ascending ramus, small size of the coronoid process, lack of eversion and roughness at the gonial angle and the obtuse angle formed by the ascending ramus and the body of the mandible.

While several of the types of data necessary for age estimation are lacking, complete epiphyseal union, slight obliteration of the sagittal suture, and little obliteration of the lambdoidal suture suggest that the individual was a young adult, between the ages of 21 and 35, probably falling closer to the upper end of this age range.

Occlusal surface wear is extensive in all of the 13 teeth present, which include canines, premolars, and molars, but none of the incisors. Attrition ranges from obliteration of cusps to exposure of the pulp cavity. In no case can molar cusp patterns be determined. Caries are noted in the lower left canine and third molar, in each case on the mesial surface immediately below the enamel border, and in the case of the third molar extending upward into the enamel.

Although tooth wear and carification cannot be used as indicators of age, the condition of the available dentition of the 42Bo76 burial does not fall outside the expectable pattern within the suggested age range. Due to poor preservation of the skeletal material, and to the amount of dental attrition, no comparisons are possible between the 42Bo76 burial and other skeletal remains from northern Utah.

Cultural materials apparently associated with the burial, which include a single projectile point, a grooved "shaft smoother", and two large pottery sherds, probably from the same vessel, exhibit similarities with materials found elsewhere in northern Utah. The projectile point, of chalcedony and 17 mm. long x 14 mm. in maximum width, is a form found in a variety of sites in areas near Willard Reservoir including both the shallow "Shoshoni" campsites, of which 42Bo76 is an example, and the deeper sites of possible Promontory affiliation, such as that at Bear River (see Pendergast, 1961), all of which are of comparatively late date. The point appears to fall within the range of Rudy's Type IB1 (Rudy 1953:115), which he suggests may be of Shoshonean affiliation.

The "shaft smoother", an ovoid scoria cobble 77 mm. long, 51 mm. wide, and 36 mm. thick, with a groove 1 mm. deep extending the length of one surface, is likewise a form widespread in the northern part of the state, occurring in both of the contexts discussed above. The sherds, while they are not typical of the pottery associated either with campsites or with sites of the Bear River type, resemble in temper, core color and texture, surface finish and color, and wall thickness, Rudy's (l953:94) preliminary description of Shoshoni Ware. Since the sherds differ from most of the ceramic material collected from the surfaces of Shonshoni campsites but show no close resemblance to other northern Utah wares, they may be taken as exemplifying one end of the range of variation within Shoshoni Ware. Thus the limited range of cultural materials associated with the 42Bo76 burial, in addition to the type of site from which the burial came, indicate a Shoshonean cultural affiliation.

While regrettably few statements can be made regarding the physical characteristics of the occupants of 42Bo76 on the basis of the evidence provided by the single burial, the circumstances and the character of the find indicate that further examination of the shallow campsites scattered over the area east of Great Salt Lake might be expected to yield additional data of greater value concerning burial practices and physical characteristics of the late prehistoric and protohistoric Shoshonean occupants of northern Utah. ■

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The Carbon College Prehistoric Museum

1962 Vol. 8 No. 2

J. Eldon Dorman, M.D.

I wish at this time to give you a brief resume concerning the history and development of Utah's most recent museum—The Carbon College Prehistoric Museum located at Price, Utah, which was officially opened to the public June 3, 1961.

In chronological order the events in its development are as fo1lows: In 1959 Carbon College became a branch or subdivision or the University of Utah.

Along about January of 1960, at the instigation of a group of "rook hounds", an evening adult education class was given at Carbon College in Physical Geology. Some fifteen or so students consisting of said "rock hounds" plus various local professional and business men took this course, many out of pure curiosity. The course in general geology was so well received and enjoyed that it was immediately followed by Historical Geology which in turn was followed by the subject of "The Geology of Utah". Many extra-curricular "bull" sessions were frequently indulged in in local coffee houses, offices, etc. The evening classes lasted into the summer of 1960 and at one of the "bull" sessions Don Burge, the instructor in geology, made a statement something like this: "You know, you people are crazy! You live in a geological paradise here in Eastern Utah. These geologic formations are all exposed, as an open book, by erosion for you to see." He went on the say that within the short space of about fifty miles, from Soldier Summit to the center of the San Raphael Swell, represents well in excess of 200 million years of geologic time; that the area abounded in a multitude of fossils and proceeded to describe the Cleveland-Lloyd Dinosaur Quarry, thirty miles southeast of Price, being operated by Dr. William Lee Stokes of the University of Utah. He closed his remarks by saying: "Why don't we do something, why don't we start a Geologic Museum?" Thus the first seed was sown regarding the museum.

During the summer of 1960 numerous impromptu meetings were held, including one with Dr. Lee Stokes, who gave encouragement to the idea and suggested the acquisition of a dinosaur skull as a starting point. In the fall and early winter of 1960 a search for a suitable building or space was pursued without success, until Price City volunteered a large room in the Price City Hall. In the meantime there was much tromping of the hills and acquiring of blisters in the quest for suitable specimens. Along about this time it was realized that in order to have a museum one must have show cases for means of display. Then ensued a search for show cases at minimum cost which were finally obtained from the Independent Coal & Coke Company at Castle Gate and Kenilworth who had decided to do away with their company stores. Most of these show cases were of ancient vintage with scarred and battered appearance holding some six or eight layers of various colored paint and linseed oil, furniture polish and wax. Much of the glass was more or less semi-opaque. Of necessity there followed an almost endless session of "worknights" which were a combination of muscle, sweat, tears, paint remover, splinters, turpentine, profanity and ruined clothing.

The year 1961 dawned and things were beginning to shape up. George Patterick dreamed up the idea of having the local Carbon Art League paint a dinosaur mural 4 x 24 feet in size for one wall of the room. Here study, research and

consultation with the art group was necessary in order to obtain a scientifically correct picture. The picture was actually painted three times, the last time to the personal specification of Dr. lee Stokes, the work being done by twenty women and two men with a minimum of eye gouging and hair pulling.

About February of 1961 someone came up with a new idea. It was known that there were numerous private collections of Indian artifacts in the area stored mostly in attics, basements and garages, so it was suggested that we make an attempt to acquire these and combine the archeological aspects of eastern Utah with the original idea of geology. Contacts made with people possessing Indian artifacts, in an effort to obtain the collections, were at first met with a cold shoulder and fishy eye. However the ice was finally broken by District Judge Fred W. Keller who loaned his San Juan County, Utah, Anasazi pottery collection. Dave Nordell of Nine Mile Canyon and Keith Hansen of Sunnyside followed suit. Soon we had projectile points by the hundreds, metates, manos, beads, bones, "genuine Indian seed corn" and what have you virtually running out of our ears. It then became apparent that whereas Don Burge, as geology instructor, was well qua1ified to handle the geological part of the museum, no one knew much, if anything, about the archeological end of the situation. At one of our meetings, Dr. Quinn A. Whiting, as chairman of the group, cast a desperate eye about the room, finally pointed his finger at me and said "You are now in charge of archaeology, you are responsible for finding out all there is to know about this stuff, now get busy and do it." That was my introduction to the "Fremont Culture" which, (being a Doctor and not familiar with the word culture in its archeological sense,) I thought was possibly something used to make buttermilk or grow bacteria.

Our museum idea, from the beginning has had but one aim—one objective—to preserve and display prehistoric articles pertaining to the geology and archeology of Utah, more specifically of Eastern Utah, in an effort to add to the educational and cultural values of the our community. We have affiliated with Carbon College and have chosen the name "Carbon College Prehistoric Museum" in an attempt to keep our work on an academic and scientifically correct basis. We hope that the museum can be used as an entering wedge for eventually obtaining a badly needed science building at Carbon College, in which the museum can be incorporated.

Our troubles have been chiefly financial. Although the Board of Regents of the University of Utah officially approved the museum in May of 1961, no funds were forthcoming. A local fund raising campaign was conducted with sizable amounts being contributed by the Price Chamber of Commerce ($1,000) and the Price Lions Club ($100). So far we have raised and spent approximately $4,500.00 nearly $3,00.00 of which has gone for the acquisition and partial assembly of an Allosaurus skeleton from the Cleveland-Lloyd Dinosaur Quarry. An incidental source of income has been the operation of a "souvenir counter" adjacent to the museum which sold fragments of dinosaur bone, tumbled stones, pictures, educational material and so forth. This project had a net profit of $500.00 in four months.

In any event, the Carbon College Prehistoric Museum, conceived with enthusiasm, but born in ignorance, was opened June 3, 1961. In the month of June there were 4,539 visitors, July 3,273, August 3,643 and September 1,266 making a total for the first four months of 12,771. During the winter there was of course a drop in attendance, but our total signed visitor list is 13,502. Of this total 6,073 were from Carbon and Emery Counties, 4,784 from the remainder of the state of Utah, while 2,709 were from out of state and 48 visitors registered from foreign countries.

I have attempted to picture for you the formation and operation of a small local museum, which in less than one year has attracted some 14,000 visitors. I offer it as an example of what a small dedicated group of workers can do in any community. ■

Acknowledgements: I also wish to express appreciation to Dr. Lee Stokes for his continued help and to Dr. J. D. Jennings for his recent visit which gave us a much needed shot in the arm.

The local people who have been most active with our museum project are:

Quinn A. Whiting, M.D. Price, Utah

Don Burge, Geology Instructor, Carbon College

W. F. Reves, C.P.A., Price, Utah

George Patterick, Equitable Insurance Agency, Price, Utah

Art Rasmussen, Price Commission Company, Price, Utah

Dean Winters, D.D.S., Price, Utah

C. W. Stubby Peterson, Carbon County School Board, Price, Utah

Ray Downward, Building Contractor, Price, Utah.

Bill Branson, Employee, Utah Power and Light Company, Helper, Utah

Holly Bryner, Price Sheet Metal Company, Price, Utah

C. Ashby, Emery County Progress, Castle Dale, Utah

James Diamanti, Coal Mine Operator, Price, Utah

Keith Hansen, Deputy Sheriff, Sunnyside, Utah

Excavations in the Hill Creek Area Grand County, Utah

1962 Vol. 8 No. 3

Gordon L. Grosscup

In 1961, at the request of the Ute Tribal Business Committee at Fort Duchesne, Utah, we began excavations in the upper Hill Creek area in the Vicinity of the Ute Youth Camp and with the boys of the camp as a free labor force. Two sites were tested in 1961: Jennie Cave (42Gr283), at the mouth of Jennie Canyon, and Bolton Spring (42Gr279), in Post Canyon. Both sites had been recorded by James Gunnerson about eight years ago (Gunnerson 1957, pp. 57-60). A number of additional sites were recorded, primarily through information supplied by local sheepherders and Bureau of Land Management personnel. The Ute Youth Camp, itself, turned out to be located on an older Indian site.

During the summer of 1962, a second trip was made to the area under the same conditions as those of the first summer. Jennie Cave was completely excavated and test pits were dug in an open site near the cave (42Gr282), in a spring site (42Gr284), about one mile north of Bolton Spring in Post Canyon and in a newly discovered site (42Gr381), a rock-shelter at the mouth of Burnt Draw, about three miles northeast of Jennie Cave.

The area, which is in northern Grand County, is about 8000 ft in elevation and supports a plant cover of aspen, pine, spruce, and some scrub oak, with open areas of grass and sage. Deer are very common, and elk, bear, mountain lion, badger and porcupine are occasionally seen. Rabbits are rare. Chipmunks are particularly abundant around the youth camp and especially in the garbage dump. Beaver have been introduced to help control erosion. Birdlife is not common, particularly in the early summer. An artificial lake, Weaver Reservoir, is a favorite local fishing spot; however, the trout are planted.

The topography is highly dissected, but the steep slopes are well covered with vegetation and water is plentiful. At present, cattle and sheep are summered here and this practice is a fairly old one. About fifty years ago some attempt was made to settle the area and abandoned log cabins may be found near many of the springs. Presumably the growing season is too short and the area too isolated from markets or shipping points to make farming feasible. It is considered doubtful that the prehistoric Indians farmed this highland area, although there is evidence that farming was practiced in the deeper canyons to the west and north, e.g., Florence Canyon and lower Hill Creek.

All of the sites investigated are immediately adjacent to springs or creeks which contain water in the late summer. In addition, both Jennie Cave and the rockshelter at Burnt Draw contain seeps within the sheltered area. With the exception of the natural stratigraphy formed by a grass root and humus zone found in the open sites and the manure layer which capped the Jennie Cave deposits, no natural or physical stratigraphy was noted with the possible exception of one exposure at Bolton Spring where a slight color change was noted in the soil somewhat below what would be expected for a root zone. The Jennie Cave deposits, which were the richest in artifact material, might have been expected to show some cultural stratigraphy unfortunately the deposits appear to be quite mixed and preliminary analysis can only suggest a slight change in point types between deep and shallow levels. The mixture appears to be due to a number

of factors. One is the fact that most of the deposit is sand and walking around is sufficient to churn up the surface. More important is the fact that there is enough moisture in the cave from the natural seeps that roots of the aspen trees, which grow at the mouth of the cave, have grown clear to the back of the cave. The extreme unevenness of the sandstone floor of the cave would also tend to prevent the deposits from accumulating in an orderly manner.

The analysis of the recovered materials is not yet complete, but some preliminary observations may be made. Pottery is very rare in the upper Hill Creek area. Gunnerson found three very small, black, highly micaceous sherds at Bolton Spring and one small, poorly corrugated sherd at 42Gr282. Gunnerson suggested that the black sherds might be Apache. They might also be Ute. The corrugated sherd is tentative1y identified as North Creek Corrugated (C.M. Aiken, personal communication). Excavations produced a single sherd, a rim fragment of a Turner Grays Emery Variety, (i.e., Variety II) bulbous necked pitcher from a depth of 18-24 inches at Bolton Spring.

Fragments of grinding stones were relatively common. The most frequent type is a thin, flat slab of sandstone with a very shallow basin which was pecked to facilitate grinding. Less commonly, the sandstone slabs are thick and have a pronounced basin. Complete and fragmentary manos were quite common, particularly in the crevices at the rear of Jennie Cave. They are usually made of a coarse sandstone and are small and rounded. Commonly, both surfaces have been used for grinding.

A fragment of a marble tablet was recovered from the topmost level of Jennie Cave. It is less than ¼ inch thick, carefully smoothed on both surfaces and on the unbroken edges. Presumably it was trapezoidal or triangular in shape with a concave base. Its function is unknown.

Stone balls are usually considered to be characteristic of the Fremont Culture, but they have a wide archaeological distribution in western North America. One example was recovered from 42Gr284.

Projectile points were quite common, particularly in Jennie cave, where a wide variety of forms were recovered. Unfortunately the points do not sort well by depth and form and it is difficult to suggest which forms might be earlier or later than other forms. Small points are slightly more common in the upper deposits, but do occur in the deeper deposits. A large, straight tanged form is relatively common and tends to be deeper in the deposits then the smaller forms. A few points were recovered from several other sites and include Desert Side-notched points. A private collection from the surface of Bolton Spring shows a surprising variety of forms and sizes. Two small stone drills were recovered; one was made from a projectile point. Flake scrapers were not particularly common.

Four awls, two scapula saws, two tubular beads and a small rectangular bone pendant with an incised design on one side were recovered from Jennie Cave. The other sites were lacking in worked bone, and yielded relatively little unworked bone. Jennie Cave contained great quantities of unworked bone. All of the bone was saved. Preliminary identifications suggest sheep and deer as the most common food animals. Porcupine bones were relatively common. Beaver bones are absent. Many of the unworked bones show butchering marks, especially the deer and sheep lower jaws. The presence of bones of very young deer, perhaps even unborn individuals, suggests utilization of the area during the spring and summer. There is no definite evidence confirming or denying occupation during other parts of the year; however, the presence of several fragments of fresh, thick antler might suggest late summer or autumn hunting as well.

Fortunately there are two publications which deal with sites not far removed from the upper Hill Creek area. One of these is the Turner-Look Site, a Fremont village, located about twenty miles to the south-east, (Wormington, 1955). The other is the report on the Uncompahgre Complex, (Wormington and Lister, 1956). The smaller projectile points from Jennie Cave resemble some of those from the Turner-Look

Site and some of the larger points appear to be typologically the same as those reported from the Uncompahgre Complex. All of the artifacts from Jennie Cave have their counterparts in either the Turner-Look site or the Uncompahgre Complex, with the exception of the incised bone pendant, which is a very unique item. Even the marble tablet fragment is comparable to several stone objects reported from the Moore site, a component of the Uncompahgre Complex. The Turner-Look site may be dated roughly on the basis of trade sherds at A.D. 1050 to A.D. 1200. Dating of the Uncompahgre Complex is even more insecure. Wormington and Lister (1956) imply an antiquity to two to three or more thousand years.

Final conclusions must await the complete analysis of the recovered materials and a detailed comparison of these artifacts with those from other areas. Both Jennie Cave and Bolton Spring revealed evidence of historic, presumable Ute, occupation. Probably prehistoric Utes utilized the area too. The presence of Fremont people is attested to by the discovery of the Fremont sherd at Bolton Spring. Some of the projectile points may also be Fremont products, as there are resemblances to the points found at the Turner-Look site.

It is entirely possible that the large points found in the deeper levels of Jennie cave were made by a different, and probably an earlier, i.e., pre-Fremont, people. The points appear to be most closely related to these of the Uncompahgre Complex of Colorado. Because of the mixed nature of the Jennie Cave deposits it would be impractical to attempt a radiocarbon date on the charcoal from that Site, and the artifact yield from the other sites is so small and nondiagnostic that such tests from these sites would be relatively meaningless. It is suspected that the presumed pre-Fremont material may be several thousand years old; but we will need to find this material in more secure and meaningful association before we may test this presumption. ■

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Unusual Petroglyph Find in Utah

1963 Vol. 9 No. 1

John L. Cross

Though many reports have been made on the archaeological finds of the West Canyon area of Utah County, Utah, and though many collectors and amateurs as well as professional archaeologists have roamed the area over the years, it was not until March of 1962 that any type of glyph was found, or at least, reported.

Hunter Joe of the Utah County Chapter of the Society discovered, in March, a large water worn boulder bearing a petroglyph in the canyon and requested that John L. Cross, society president accompany him to the site and look at the find. The two accompanied by John L. Cross Jr. did visit the site on Nov. 26, 1962 and during a survey of the area, John L. Cross Jr. discovered another boulder bearing the unusual petroglyph (Figures 1 and 2). ■

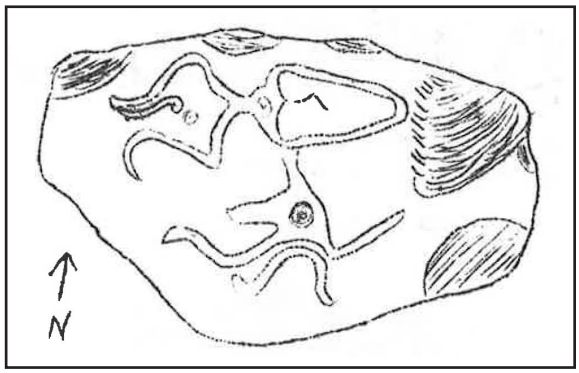

Figure 1. The boulder with sketch of glyph. The boulder is water worn and the shaded areas represent chipped or broken surfaces. The boulder is 40 in. long at its longest point and is 24 in. wide at the widest point.

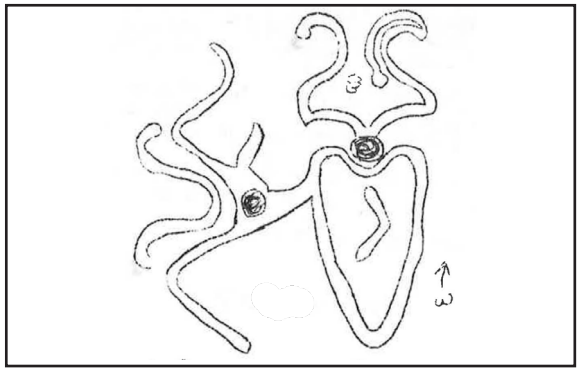

Figure 2. A scale drawing of the glyph (¼ in. representing 2 in.). The boulder lies with its long axis running East and West, the Eastern end being on the uphill grade of a slope. It was difficult for the group to ascertain which view of the glyph represented the bottom and which the top.

Ethnohistoric Study in the Glen Canyon

1963 Vol. 9 No. 3

Catherine L. Sweeney

Tracing the prehistory of the Indian tribes now inhabiting the Great Basin has been the subject of a 15-month study by the author and Robert C. Euler. As a part of the Glen Canyon Salvage Project, field work was conducted in the Glen Canyon and closely related areas. There were two related aims: 1) to gain insight into the prehistoric movements of people and 2) to complement the University of Utah archeological salvage program. This is a preliminary, abbreviated report of the work and findings.

Groups such as the Shoshoni, Paiute and the eastern Ute are known to have ranged over the western region of the Great Basin following a hunting-gathering or totally exploitive lifeway. Their camps were usually temporary (although frequently relocated in the same general vicinity year after year), and were inhabited only until a nearby seed product was exhausted or the game supply diminished. When the people moved on, scant evidence remained to indicate their presence or activities. Consequently, to reconstruct history from such an archeological record is extremely difficult.

Because the Upper Colorado River Basin Archeological Salvage Project has been aimed, from the beginning, at salvaging a maximum of anthropological material from the Glen Canyon area, the location and nature of the historic Indian sites has been of concern. Early Glen Canyon Project surveys of the area encircling the mainstem of the Colorado River and the drainages lateral to it, had revealed several sites of Navajo affiliation, but few attributable to either Southern Paiute or Southern Ute. In an attempt to bridge the gap in time between the abandonment of the region by the Anasazi and the advent of the first white explorers and settlers, and to understand Southern Paiute occupation and archeology more fully, three brief surveys were conducted during the 1962 field season.

Because of the difficulties of locating and defining Paiute sites, a method combining history, ethnography and archeology was applied. Termed the direct historical approach (Heizer, 1941) the method involved l) research into historic documents and chronicles, in an attempt to learn specifically where and when Paiutes were seen in the territory; 2) research into the descriptive literature of ethnographers, to determine the lifeway of the peoples and note descriptions of any material artifacts that might be expected to occur in the archeological sites; and 3) combining historical and ethnographic information with information gained in interviews with living informants (both Indian and white) in an attempt to locate the site. During all three of the 1962 surveys, Indians who had once lived in the country were taken to the field as guides; they attempted to recall the exact place at which they had camped or had seen others camped.

Prior to the 1962 field season, eight Paiute sites had been reported in the immediate Glen Canyon vicinity. A first step of the study was to relocate them. The major criterion for the Paiute designation was brown ware pottery with heavy quartz sand temper, frequently decorated by fingernail indention. However, this ware is much more common in Paiute sites from southwestern Utah and adjacent areas than from southeast Utah. Ethnographic literature (Stewart, 1942) indicates that very little pottery was made by Paiutes east of the Paria River, south-central Utah. Thus, the few sherd bearing sites located on the surveys did not necessarily mean that the Paiute had not occupied the Glen Canyon

drainage area—merely that we would have to use something besides pottery to define the sites.

Of the sites previously recorded, seven were north of the Colorado River, from the Paria River east to the Henry Mountains; the eighth site was south of the Colorado, just east of the confluence of the Colorado and San Juan rivers. This was the pattern we had expected, since the ethnographic literature indicates the eastern territorial boundaries roughly as the Circle Cliffs north of the Colorado River and the region of Navajo Mountain south of the San Juan (Kelly 1934).

Of the eight sites, two were rockshelters. The six open sites were located near the crests of small ridges or on sand dunes. One of the rockshelter sites, in the Warm Creek drainage, about 5 mi. from the Colorado River, was excavated in 1957 (Gunnerson, 1959), but contained Paiute sherds only on the surface. There was no evidence of structures at any site. Paiute artifacts were limited to the surface. Besides sherds, artifacts include basin metates, sandstone slab milling stones, circular bifaced manos and assorted points, scrapers and flakes. At three sites there were evidences of occupations previous to Paiute encampment. Hence, non-diagnostic materials could not be isolated.

Another confusing factor was the Paiutes' propensity for collecting for their own use such artifacts as metates, pottery and possibly arrow points from Anasazi sites (Stewart, 1942).

Employing the direct historical approach, 38 additional Paiute sites were located during the 1962 field season. Indian field informants included Tom Mix and Jimmy Timmican of Richfield, and Dan Lehi and Jim Mike of White Mesa, south of Blanding. White guides and informants included Joe Pollock and Edson Alvey of Escalante, and Vilate Hardy of La Verkin. Efforts were concentrated in the vicinity of Escalante and the Henry Mountains north of the Colorado River, and west of Blanding on the south side. Brief surveys were also conducted in Washington and Wayne counties. Complete coverage of any one of these areas was not intended; the plan was to sample for sites as directed by the informants.

Of the 38 sites, 11 produced characteristic Paiute ware sherds. All other sites were designated Paiute on the basis of chipped and ground stone and informant identification. Sherds of other affiliation were collected from 10 of the sites.

Twenty-one sites were open camps without surface indications of structures. Locations favored for camping seem to have been of two general types. Most preferred locations were on crests of small ridges or sand dunes; the second rank of preference was in clearings of the pinyon-juniper cover, usually in a draw or near the base of a cliff. Those near a cliff were not beneath sheltering overhangs, although the cliffs and draws probably provided some protection from the elements. Informants remarked that such sites made ideal winter camps.

The most characteristic features of the more permanent camps were basin milling stones (basalt), several unlined fire hearths and bone and stone debris. Many of the juniper trees near camps were bare of branches; those near recently occupied sites were ax-scarred.

Informants indicated that several of the purely lithic sites were temporary hunting camps. Associated with many such sites were flat sandstone slab milling stones, with very shallow pecked surfaces. These were also round in the relatively permanent camps. Other materials noted were scrapers, point fragments and unworked bone.

There were seven sites at which evidences of brush shelters remained. At three of these, there were broken juniper limbs and circular depressions in the ground surface; at the remaining four the poles of the conical structures remained in place. Again, points, scrapers, manos and milling stones of both types mentioned above were noted. All of these sites lacked pottery, however. Metal and glass were found at one of the locations, and also at several of the open nonarchitecture camps. Sites occupied within the life-time of the informants would, of course, be expected to contain such materials.

Three burials, located through a local white informant, were recorded in the vicinity of Escalante. One was a badly disturbed shallow burial at the base of a juniper tree. The second burial, dating from the post-white contact period, contained two individuals. The double burial, in a rock crevice, contained a rifle, riding gear, a coiled basket, a brass bucket, glass beads, and the skeleton of a horse with a bullet hole in the brain case. After the human and horse corpses had been placed in the crevice, the crevice was tilled with rocks and brush.

The third burial was also recent, as evidenced by metal objects including a frying pan, tin cup and wire hairbrush. This individual had been placed in a small wetlaid masonry storage cist (probably an Anasazi cist) at the base of a sandstone outcropping along with riding gear, personal belongings and a lump of red pigment.
Other sites recorded include a slickrock slide (a play area), a pinyon nut roasting pit, two dance and gaming areas, a location for gathering mineral paint and a winged antelope trap.

The antelope trap, on the Awapa Plateau, 30 mi. north of Escalante, consists of several alignments of basalt rock stretching 3 to 5 mi. across the grassy plain. Three of the alignments converge to form a constricted opening near the eastern edge of the plateau. Near this opening are four U-shaped rock structures, three of which are contiguous and lie in a straight line. These apparently were the blinds from which the hunters fired at the antelope. They were constructed of basalt rocks, piled to a height of approximately 2 ft. at the curve of the U and tapering to ground level at the rear of the structure. Associated materials included chips and small points, unworked bone and an arrow shaft straightener.

Through the application of the direct historical approach, the picture of Southern Paiute occupation of the Glen Canyon Region has become clearer. It is hoped that anticipated research and analysis of materials and data will both increase our knowledge and allow for more definitive statements regarding Southern Paiute culture history and general Paiute culture patterns. ■

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History and Pre-history of Bear Lake Indians

1963 Vol. 9 No. 4

Merrill "Bud" Peterson

According to history, Bear Lake and Bear River received their names from a trapper by the name of Donald MacKenzie who headed a group of fifty-five men and one hundred ninety -five horses for the Canadian Northwest Fur Company, and arrived at Bear Lake Valley during the year of 1818. Mackenzie and his men found so many black bears around the lake and along the river that it was named Black Bear Lake and Black Bear River.

Previously, the valley had been visited in 1812 by four trappers representing the Astorian Fur Company. While there is little doubt that white adventurers and trappers prior to this time had visited the area, history records these four men as being the first white men to set foot in the area. The above traders and trappers found the Bear River and Bear Lake county abundant with fish, game, and fur and Bear Lake a center or trading area that was being used and had been used in the past for this purpose. Here was a crossroad and rendezvous area where small family groups and large social groups of Indians met yearly to trade for horses, buffalo robes, food, and other commodities brought in from different areas for trading. The first recorded rendezvous on Bear Lake between the trappers and mountain men with the Indians was in 1819 when the above mentioned Mackenzie had a rendezvous with eight or ten thousand Indians. The area was extremely popular as a trading area until the peak year of 1827 when another large rendezvous was held during the summer drawing another ten thousand or more Indians, trappers, and traders with their Indian wives. At this meeting Jim Bridger, Jedediah Smith, David Jackson, William Sublette and other historic figures were present. The summer was spent in trading, drinking, horse racing, gambling, and other games and contest between the whites and Indians. Again in 1828, another rendezvous was held at the south end of the lake where the one on the previous year was held and one hundred thirty more bales of furs were traded for.

The north end of Bear Lake is the hub or area where many trails converge and by 1836 it saw the first wagon on the Oregon trail bound for Oregon. The area naturally attracted the Indians for the purpose of trading for goods from the whites traveling through. In 1863, the valley saw the first white immigrants who settled at Paris. They were under Mr. Charles C. Rich and were sent in by the Mormon Church. Treaties were made with the Indians for the land and, in general, good relations existed between the two groups until 1866 or 67 when settlers settled at the south end of the lake and in the area that was retained by the Indians in the treaty with the Mormon Church. After much war threat and worry among the settlers, it was settled peaceably. The church figured it was cheaper to feed the Indians than fight them and when I interviewed some of the old timers, I met the statement repeatedly that many times the last food in the house was handed to the begging redmen. There were many minor scares and incidences but in general the feeling was good between the two races. This was especially true of the Snake or Shoshoni Indians. The Indians from several of the outlying reservations continued to come into Bear Lake Valley to hunt and fish and beg until along in the fore part of the present century.

Food Gathering, Hunting, and Fishing

The area was at one time rich in fish and game and was a very attractive hunting and fishing area. Bear Lake has several varieties of native fish. The fish, both suckers and trout, spawn up the small creeks leading to the lake and during the sucker run in May and June, many family groups and temporary villages were located on the mouths of the streams. The fish were taken in large numbers with traps and nets of willows. They were split up the back, cleaned, and racked on willow frames near fires to dry. In the memories of many of the oldest white inhabitants, there are still pictures of the seasonal migration to the lake for the spawning run and fish harvest by the Indians. Fish were an important staple in the diet and valuable for trading. There is also very little doubt that many groups that fished and trapped the spawning salmon along the Snake River were among these that come to the Bear Lake to fish.

Hunting was very good in the area for both large and small game. Before the sheep men moved their herds into the antelope flat area of Bear Lake, the area was inhabited with hundreds of antelope. Deer were plentiful and at one time buffalo or bison were comparatively numerous. The buffalo, however, because of limited terrain suitable for their inhabitation, were doomed when the Indians acquired the horse. The bison was, in all probability, exterminated in the lake area by 1850. When the first settlers came, there were none in the immediate area. An interesting Indian legend on the buffalo came to light and was verified by a number of different sources. the Indians claimed that at one time, many moons ago, there were many buffalo in the area. One winter came that piled the snow so deep that the buffalo were unable to migrate to winter range and were starved to death. There was evidence of the truth of this in the many heads and whole bones left in several areas especially at the north end of Bear Lake in the Mud Lake area. During the 1930's, the year the water was at an extreme low level, many whole buffalo bones were found along a former low level shore line at the south end of the lake. Also another fact that lends considerable evidence to the abundance of the animals at one time is the number of fragments of heavy bones—head parts, horns, and horn cores—plowed up over the former campsites at the north end of the lake.

The warm spring at the northeast end of the lake by the mouth of Indian Creek was popular camping area as evidenced by bone fragments, obsidian and flint chippings, and manos or milling stones found in the area. The present owners of the spring area mentioned the fact, when questioned, that occasionally found artifacts are still picked up and that several burials have been found when excavating there. They also confirmed the story of whole buffalo bones being found in large numbers in that area.

The warm springs were used by the Indians for bathing and were credited with healing powers. This same condition apparently existed at Soda Springs where the Indians came to bathe and drink the waters or the mineral springs. The Soda Springs area was neutral ground open to all Indians and, as mentioned before, was a popular area for trading and social activities. The area was called "Toeoiba" by Shoshoni Indians which means sparkling waters.

The advent of the horse had considerable affect upon the movements and history of the Indians over the Bear Lake area as it did elsewhere. The Indian of the Rocky Mountain area acquired the horse around the middle of the eighteen century from the Plains Indians and very quickly adjusted themselves to the new method of conveyance. Greater mobility and ease of transportation stimulated trading and mixing with other outlying groups there by making great cultural changes and increasing greatly the area over which they lived. The Shoshoni Indians of the Snake River were, according to history, some of first mountain Indians to acquire the horse. As mentioned before, with the acquisition of the white man's rifle, the horse was largely responsible for the early disappearance of the buffalo in the marginal area of its population.

The Indians that visited the rendezvous of the Bear Lake were largely Shoshoni from Wyoming and Idaho, however, Blackfoot, Bannocks, Utes, and some Crow, Paiute, and possibly some Comanches from the central plains area were present. The Black Fork area of Wyoming was a trading area for the Shoshoni and Camanches and the trail west led through the Bear Lake area.

Prior to the advent of the horse and for possibly the prior ten millennium or more, Bear Lake had been used as a summer food gathering area by the people of the Great Basin area. The people of the so named Basic Deseret Culture were, according to the present findings, the forebears to many of the later tribes or groups dispersed over a large area of the west. The topography of the area is such that it lends itself to the seasonal migration of the Indians using the lower reaches of the Great Basin to winter in. The caves and campsites along the Bear River all the way up to Bear Lake lend testimony to the above facts (see map).

While there has been no evidence turn up yet of Paleo-Indian activity over the area, it is reasonably certain that the Bear Lake area has been frequented and inhabited seasonally for the past nine or ten thousand years, the "carbon dating" of the materials found in Danger Cave and elsewhere in the Great Salt Lake area lend credence to this conjecture. The obsidian and flint artifacts, pottery sherds, and milling tools found along the migrational routes are of the same type found in the Promontory area and Salt Lake caves and sites. The seasonal migration of game, good food gathering, the many caves, the close proximity of fresh water, and plentiful wood made the low elevation warmer area around Great Salt Lake and the Promontory range an optimum winter habitat for the Indians.

Bear Lake was not a wintering ground for any of the Indians. In the memories of the early settlers, there were only one or two attempts of the Indians to stay and winter on the lake end, due to extreme cold and hard winter, great hardship was experienced. In the many contacts I made, only two accounts were given me of groups wintering in the area—one by Nounan and one at St. Charles—and both ended in great hardships with some of them dying.

Prior to historic times, there is little known about summer migrations from other areas. Campsites and caves along the routes have been mentioned and some of these are of good chronological value. The Lowe cave (see map) of near Franklin, Idaho, located on the migrational route shows a floor depth of stratified ash beds of eight to ten feet and if dated would, unquestionably, be contemporary with the early caves of the Promontory and Salt Lake area. There is also but little question that while Cache Valley around this cave was an attractive hunting and gathering area, it was also used during seasonal migration to Bear Lake. This was true of other caves. (See Figure 1).

The possibility of Paleo-Indian (Pleistocene) activity in the Bear Lake area can certainly not be ruled out. The bones of extinct bison, mammoth, and other Pleistocene mammals have come to light in the Bear Lake Basin and along Bear River and may eventually be found with artifacts and hearths as they have in many other campsites in the high plains and mountain regions of the west.

The gathering and hunting economy of the early Indians before the advent of the horse kept the Indian continually on the go. Foods known to be used and food evidence found in the caves include pine nuts, prickly pears (many found with the spines scorched off), berries, chokecherries (ground with the pits in), bulbs and roots, camas bulbs, "tobacco root" (valerian obovate), "lambs quarters" (Chenopodium), and "miner lettuce" (claytonia). Seeds of many kinds were harvested and milled into meal and made into cakes or ground into other foods for future use. The above gathering was done largely by the squaws while the men were hunting. Both sexes participated in the fishing activities.

During historic times and after the whites had settled in the area, the influence of the Plains Indian on the Mountain Indian through the medium of the horse had changed their mode

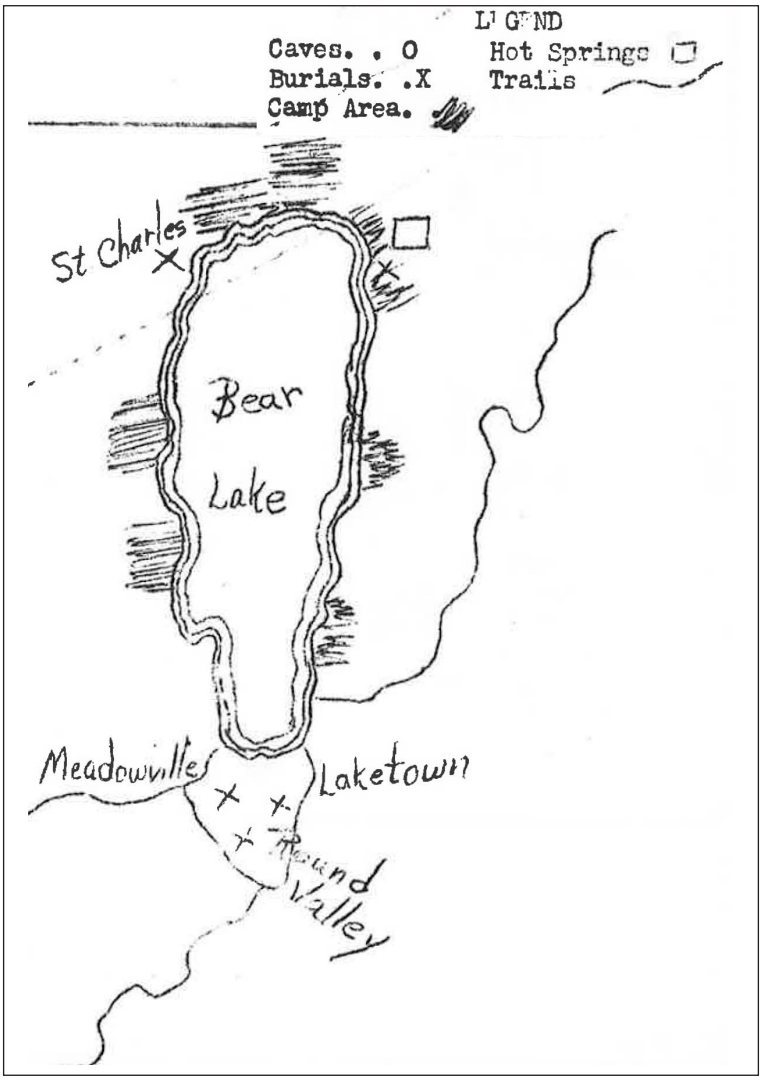

Figure 1. Map of Bear Lake.

of dress to buckskins and clothing traded from the whites. At an earlier date, however, many of the groups that depended largely on gathering were adept at weaving fabrics out of cedar or juniper bark, rabbit skins, and other materials that could be woven. The rabbit skins were cut out in long strips with the fur on and then twisted and woven into warm winter robes. This garment appeared to be a universal garment used by practically all of the American Indians and has been mentioned numerous times in the early history of the fur traders. Confirming evidence of this has been turned up frequently in caves that have been excavated. Many of the groups were adept at basket making and some of their work was beautifully woven. Prior to the use of pottery, the baskets were used and lined with clay for holding water and cooking by the use of the "cooking stone" that was heated and dropped into the food to be cooked. Later pottery was made, that is to a close degree, diagnostic to the Basic Desert and early Shoshoni culture. By the time the early settlers moved into the area, the white

man's frying pan was the most used and essential cooking utensil.

Before the times of the horse and travois when the skin wickiup was adopted, the local Indians used brush and skin huts and dwellings most of which were very crude. The Basic Desert was not noted as were the Manden, Pueblo, Plains Indian, and others for their permanent or semi-permanent houses.

Campsites on Bear Lake seem to have been quite general. The streams were all popular during the spawn runs and on the south end of the lake, Meadowville and Round Valley were popular. (see Map) At the north end of the lake and up to Soda Springs, the area included in the survey, there are many camp areas. The meadow area east and south of Bloomington proved quite rich in evidence plowed up by the farmer.

Several of the old inhabitants gave interesting enough stories to be written up separately inasmuch as they contain items of local interest. These are the articles that follow.

Map and Legend

The campsites marked on the accompanying map were verified by historic information, cross checking stories of old, still living inhabitants of the area, or by visually checking the area. Campsites were identified by hearths, fire fragmented rocks, chips and spalls or pieces of obsidian, other artifact material not indigenous to the area, milling stones or parts, and fragments of bone, etc.

There are, unquestionably, many areas and sites not shown or listed on the map that were not found. Also, many will undoubtedly turn up later on more thorough search. The trails through Cache Valley to the mountains and up the Bear River Valley are, of course, hard to trace accurately but unquestionably followed along not too far from the river or along the lines of least resistance.

I have information on some other sites and also one area where some burials were made, but to date, have not been able to verify so have not listed them. The above information can be added at a later date if desired.

"Fish of Bear Lake in Relation to Early Indian Economy of the Area"

The following are fish that are native to Bear Lake

Common Name	Scientific Name
Cutthroat trout (native)	*Salmo clarki* (Richardson)
Bonneville cisco (peaknose)	*Coregonus genifer* (Snyder)
Rocky Mountain whitefish	*Coregonus williamsoni* (Girard)
Bonneville whitefish	*Coregonus spilonotus* (Snyder)
Bear Lake whitefish	*Coregonus abyssicola* (Snyder)
Utah Sucker	*Catostomus arden* (Jordan & Gilbert)
Smallfin redside shiner	*Richardsonius baltestus hydropphlex*
Utah chub	*Gila atraria* (Girard)
Carrington's dace	*Rhinichtnys osculus carringtoni (*Cope)
Soulpin	*Cottus* species (undescribed)

The species that were of value as food and were largely taken during the spawning season were the cutthroat trout, the Utah sucker and the whitefish. Of these three varieties, the Utah sucker was by far the most important and furnished the bulk of the fish taken by the Indians. According to biological studies made on the fish of Bear Lake, the Utah sucker ranks probably third in number, but by bulk is far ahead of any other species. The Utah sucker spawns in May and early June when

they leave in large numbers and run up all of the streams entering the lake.

At the time of spawning, the fish were easily taken and were seined and trapped in large numbers by the Indians. They were split and arranged on willow racks to dry for future food and trading. This was undoubtedly the motivating factor for the Indians' seasonal migration to Bear Lake during the spawning season.

Mute testimony is born to the above by the historic and prehistoric campsites near the creeks entering the lake. Many of the old settlers mentioned the May and June influx of Indians into the area within the memory of the white man.

There is little doubt but that Bear Lake was of great importance to the redman and that seasonal migrations to the area have been made for thousands of years. ■

Manti Mystery

1963 Vol. 9 No. 4

George Tripp

The good that alert amateur archaeologists can do for both their community and their fellowman is emphasized by a recent experience of Mrs. J. Wallace Wintch of Manti, Utah.

In early November 1963, two men excitedly reported to Mrs. Wintch that while prospecting in the mountains west of Manti, they had "discovered" what appeared to be a sizeable cache of engraved stone tablets. These stone tablets, according to their discoverers, had been buried in a large overhang not far from Manti.

Mrs. Wintch, on hearing the prospectors account of their discovery, explained to the two men some of the salient facts of the Utah and National antiquity laws and suggested to them that they would be wise to desist from further digging at the site until a professionally competent person could examine both the engraved stone plates and the site from which they were reportedly taken.

In answer to Mrs. Wintch's correspondence, Dr. Jesse D. Jennings, representing the Department of Anthropology of the University of Utah, with two members of the Utah Statewide Archaeology Society traveled to Manti to examine the specimens.

Mrs. Wintch had arranged with the prospectors to borrow a few "typical" specimens so that they could be examined in her home by Dr. Jennings when he arrived. The engraved stones were of three different types. One is finely engraved with many small figures which closely resemble ancient Greek, Roman, Ruins and Desert alphabet letters. Also included are what appear to be Gregg shorthand symbols. Other artifacts look like ancient stone seals. The engraving on these specimens resembles an angular form of writing. The remaining artifact is a pictograph in the form of angular human figures armed with what appear to be clubs or swords and poised as though in combat.

The "masterpiece" of the Manti collection is a roughly quadrangular stone tablet measuring approximately 10 inches wide by 15 inches long and ½ inch thick, shaped from a piece of fine grained yellow sedimentary stone. One face of this, after having been carefully smoothed, had been engraved with several hundred figures, each of which appears to be a single letter of some "unknown" alphabet as mentioned above, arranged in 29 rows. At a first glance the tablet seems to resemble a modern business letter—in the upper right margin are three short lines similar to date of a modern business letter. The main body of the "letter" is divided into apparently three paragraphs each of which is indented. The "message" concludes with what appears to be a signature arranged in the same way as the signature is placed in modern English correspondence. When first seen, the face of the stone tablet was lightly coated with mud and sand which emphasized the engraved characters and heightened the archaic illusion. After Dr. Jennings had washed the tablet with water, the engravings emerged sharp and clean.

All competent observers who have examined the Manti stone tables are unanimous in their opinion that they are fraudulent.

It is interesting to speculate about these carved stones and wonder who made them, and what motivated their author. They may have been an attempt for the publicity the perpetrator hoped

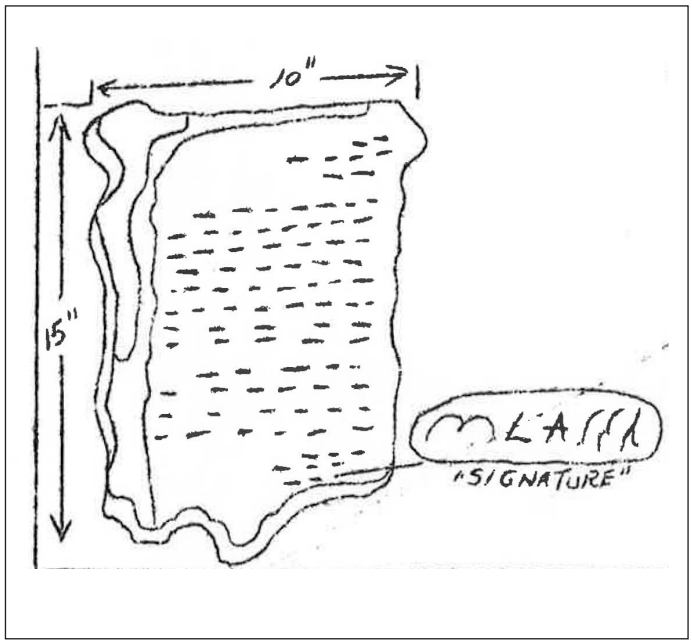

Figure 1. Drawing of stone tablet in the Manti collection.

they would get when his discovery was reported in the news media. Or were they intended to defraud some unsuspecting persons who might think they were buying unique archaeological souvenirs. ■

Surface Material from a Site in Weber County

1964 Vol. 10 No. 3

F. K. Hassel

During the course of a personal survey for local archeological sites, one ancient habitation area was discovered which was of particular interest due to surface finds of extremely well preserved bone implements.

The site was situated along the southern face of one sandhill of a series near the rural community of Kanesville in southern Weber County, approximately 10 miles west south west of Ogden. The site elevation is approximately 60 ft. above the nominal level of Great Salt Lake (4200 ft.) and it is approximately 7-8 miles east of the present water line. Cuts in the hillside indicate that the sandhills are the result of aeolian action on an alluvial sand deposit. The sandhills are now stabilized by a cover of vegetation; however, the habitation area was partially uncovered by the removal of sand for construction purposes which then allowed the wind to actively erode the hillside.

In deflated areas were found several fire areas, fire cracked rocks, bone fragments, flint and obsidian chips, broken grinding implements, etc. The visible area of occupation extended about 70 ft. along the east-west axis and about 20 ft. north to south. A test pit was sunk in undisturbed ground approximately 15 ft. north of the zone of heaviest occupation under the guidance of Mel Aikens of the University of Utah staff, in an attempt to section the midden strata. This was unsuccessful, however, leading to the conclusion that only lenses of midden are present in the unconsolidated sand.

Local residents volunteer the information that numerous projectile points, manos and metates have been found but are unable to describe them in detail. The metate fragments observed at the site were all of the thin "slab" variety, while the manos appear to be unshaped cobbles.

Only three pieces of worked stone were recovered by the author:

A. Bi-facial blade fragments 4 $^{12}/_{16}$ in. in length, of grey-green chert, apparently shaped by percussion (Figure l).

B. Basal half of a small projectile point, ¾ in. in length, tan and pink mottled chalcedony, pressure flaking (Figure 2)

C. Small section of polished slate, notched along one edge (pendant fragment?)

Bone implements consist of 4 complete awls, approximately 50% of a bone tube and one fragment too small to identify as to purpose.

Three of the four awls are fashioned from medium sized mammal bone with part of the articulation, or joint, still visible. The other is a splinter of unidentifiable large mammal bone. A more detailed description of the individual awls is as follows:

A. 7 $^{13}/_{16}$ in. long, slender, highly polished, medium sharp point, articulation partially ground away. (Figure 3)

B. 4 in. long, highly polished, elongated slender point, articulation partially ground away (Figure 4)

C. 2 $^{3}/_{16}$ in. long, polished, bone cut half way through at approximately 45°, then point shaped from remainder, articulation partially split off and polished (figure 5).

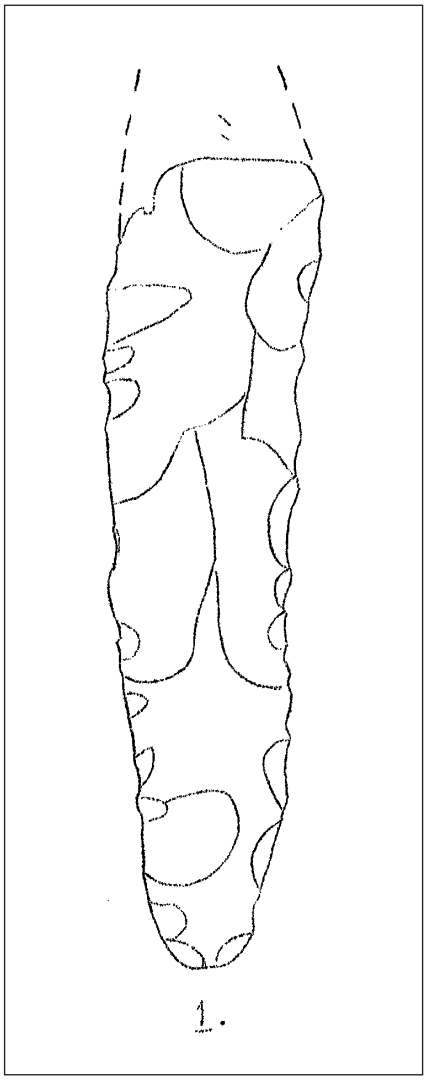

Figure 1. Bi-facial blade fragment.

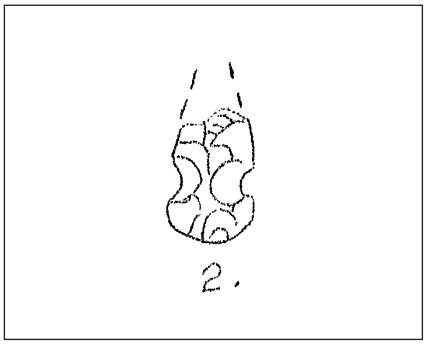

Figure 2. Basal half of a small projectile point.

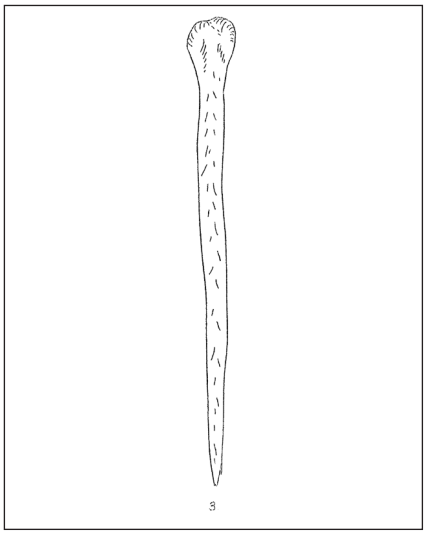

Figure 3. Long, slender, highly polished bone awl.

D. 6 $^{11}/_{16}$ in. long, (restored) polished but fire blackened throughout, section of split, heavy mammal bone, medium sharp point (Figure 6).

The bone tube was partially exposed at one time causing about 50% of the bone to weather a way. The cuts made to separate the tube are still readily visible; the ends were apparently polished after cutting. Only minor evidence of cancellous material is visible on the interior indicating that it was deliberately removed. No evidence of charring is present on the interior. Dimensions if complete would be 3 ¾ in. long with an approximate diameter of 1 ⅜ in. at the large end and 1 ⅛ at the smaller end.

The well preserved condition of the bone is attributed to the excellent drainage as well as protection afforded by the loose sand of the site. Conclusions to be drawn from the few observed or recovered artifacts are meager at best. The shallow basin slab metate and non-descript mano are typical of three of the known occupational periods of Northern Utah and are not unknown in the fourth. Bone awls and tubes of the types

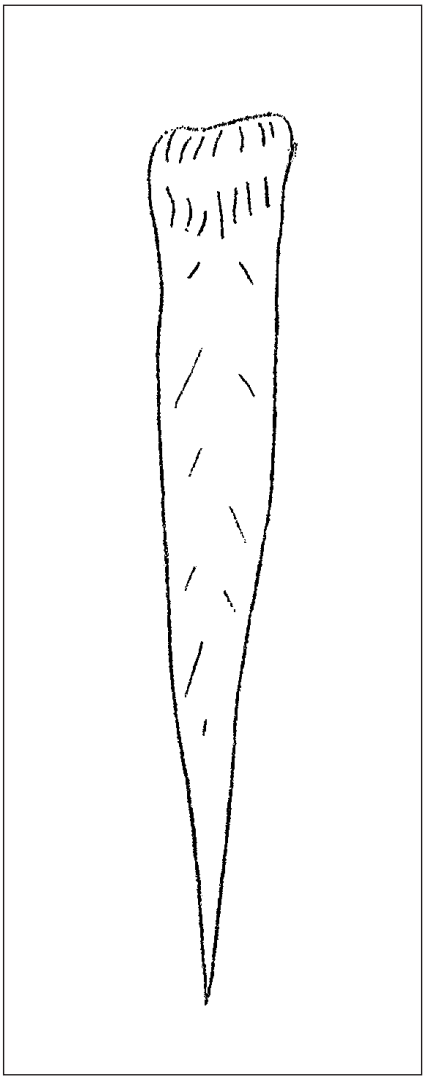

Figure 4. Long, highly polished, elongated slender bone awl.

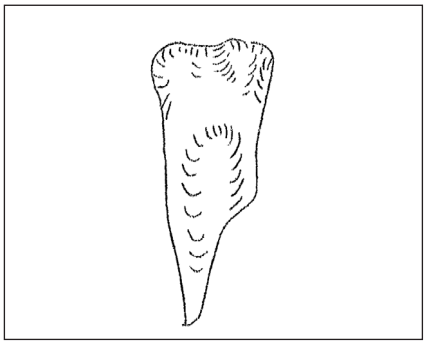

Figure 5. Bone awl cut half-way through and then shaped into a point.

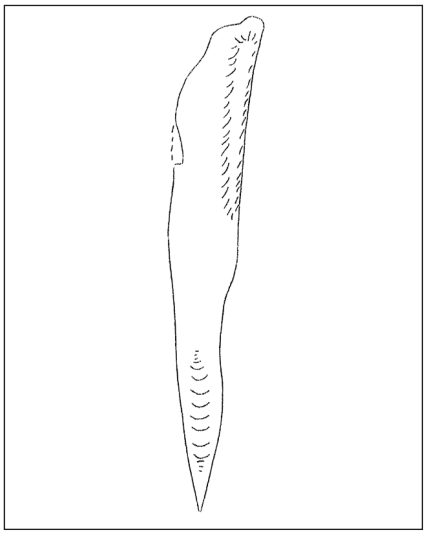

Figure 6. Polished and fire blackened bone awl.

described as well as the bi-facial blade have a broad distribution and are therefore, also, non-diagnostic.

The single projectile point is similar in appearance to points reported from Dead Man's cave, (Smith 1952, Fig. 4cl and 406) and from Black Rook Cave (Steward, 1937, Fig. 47). Based on occurrence, the cited examples can probably be attributed to the Desert period. The complete absence of pottery would seem to effectively eliminate the Puebloid, Promontory and Shoshoni, again leaving only the Desert period. This is negative evidence; however, and considering the minute amount of material available, it is highly susceptible to error.

About the only positive statement that can be made is that the types of implements indicate that the site was occupied over a brief time span, by a complete family group or groups who were dependent on both hunting and gathering for subsistence. ■

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Indian Cache Uncovered

1964 Vol. 10 No. 4

Merrill Peterson

This fall, while leveling and plowing his land, J. Cash Smith of Benson had the unusual and interesting experience of uncovering a cache of Indian knives or blades, made of a dark close-grained, rather opaque obsidian (volcanic glass). They range in diameter from two to four inches, are oval, bi-faced and rather well made.

In leveling the ground, Mr. Smith said that approximately eight inches had been removed in the area before plowing, and that the plow was penetrating another five inches or thereabouts when the plow points struck the cache. The artifacts were scattered over several feet by the plow so that an area six feet across was carefully excavated down to the hard undisturbed ground, so as to be sure none were missed.

In all, 62 blades were picked up. They were, in all probability, made for the purpose of bartering with the Indians encountered on their seasonal migrations to Bear Lake and beyond to the desert, where obsidian artifacts are picked up with artifacts of local materials, this indicating that trade was carried on with this material (obsidian), which lends itself ideally to percussion and pressure flaking techniques.

The material is dark, and less translucent than that from most areas, suggesting to the writer that it is possibly from the Arbon Valley or American Falls area, rather than Western Utah or the Yellowstone Park area.

The immediate site where the artifacts were picked up was carefully searched for evidence of fire hearths or chips and flakes that might indicate the chipping was done in the area where the cache was found. There was no evidence of either.

The area however, is located on an alluvial terrace, close to the Bear River and is laced with fresh water springs. The area around Mr. Smith's farm and north across the Smithfield Amalga highway and including the property of Lynn Erickson, where his trout farm is now located was once used extensively as a campsite for Indians hunting locally and making their seasonal migrations from the Great Salt Lake Valley, where they wintered, to Cache Valley, Bear Lake, the Wind River Mountains, and the Little Colorado Desert, where they hunted and fished during the summer months.

In the past, much evidence has been found confirming the use of the area as a camp site. Milling stones, chipped artifacts and pottery sherds, fire hearths and bone fragments having been scattered over a considerable area. Mr. Smith states that as a boy, the Indians were still coming to the area in small numbers and family groups to camp and make use of the area for hunting squirrels and other small game. In talking to Mr. Erickson, he also states that about two acres or more of his property, especially around the spring, had been used extensively as a camp area. In the work of building his fishponds and farming, considerable evidence has been uncovered.

Many years ago, when the bridge was built over the river just west of the above-mentioned camp site, an Indian burial was unearthed.

Statement by Cash Smith

December 14, 1964

In the spring of 1964, I leveled a piece of pastureland that, as far as I know, has never been plowed before. In leveling the high part, I went down about 10 or 12 inches.

On November 15, 1964 when I was plowing the field near the ditch that runs along the edge, I was plowing about 6 inches deep. It was at night, and I saw the artifacts in the lights of the tractor. I just dumped them in a little pile and went on plowing.

Two or three weeks later I talked with Merrill Peterson about it, and we took a shovel and went out to dig in a circle of about 6 feet in diameter. We carefully worked the soil until we got down to where the plow had gone. We picked up these 60-odd artifacts, plus 8 or 10 chips. There were 72 pieces in all.

Over the past 30 years since I have owned this farm, I have picked up, I would say, 25 or 30 milling stones and 5 or 6 platters that they used to grind on. Also there were three gray flint knives, but I have never found an arrowhead.

At the East end of my farm when I was a boy of 6 or 7 years of age, (this was in approximately 1915 or 1912), I can remember the Indians camping at these springs during the winter time. They would put up their teepees with fur robes on the ground, and sometimes would stay two or three weeks at this spring. As long as I can remember they were just begging and living off of the fish they could find around the country.

Sometimes they would come in the summer and shoot many ground squirrels for food.

Just West of my place, they built a new road across the river in about 1918. In excavating the dugway up the side-hill they uncovered an Indian burial. His gun was with him and where his head lay on the gun, the hair was still intact. This skull was in Dr. G. L. Reese's office at Smithfield. ■

Authentic Clovis Point Find Reported

1964 Vol. 10 No. 4

Unknown
***The author was not listed with the article*

On Friday the 16th of October while looking for arrowheads in a tributary of Salina Canyon in north eastern Sevier County, Utah, George Tripp and Mrs. J. Wallace Wintch of Manti, both members of the Utah Statewide Archaeological Society, found a classic Clovis Point on the shore of an ancient Pleistocene Lake. The artifact was a surface find in apparent disassociation with any other artifacts.

Although fluted points have been reported previously from Utah from the Moab and Emery areas, it would appear that this is the first authentic Clovis Point reported so far from our area.

Since the original identification of these points near the town of Clovis, New Mexico in the early 1930s, other widely scattered finds have been reported, most of which are confined to four states, Texas, New Mexico, Colorado and Arizona. Outside of these states only a meager handful of these points has been reported; although, it is suspected that unreported points might be found in the possession of uninformed collectors.

Because Clovis Points are invariably associated with long extinct Pleistocene animals like the mammoth and never with the bones of living or recently extinct animal species, archaeologists feel they are conservative in estimating the age of these unusual artifacts as being in excess of 10,000 years.

With the above facts in mind, there would seem to be little doubt that the lone point is one of the oldest manmade objects found thus far in Utah. ■

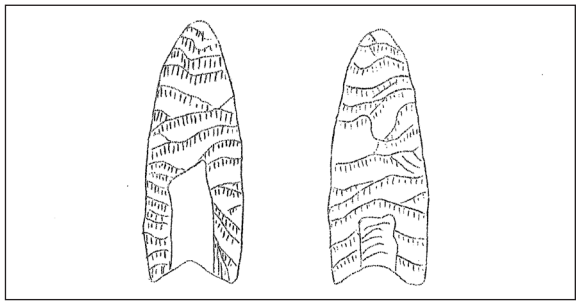


Figure 1. Full size sketches of the Salina Canyon Clovis Point.

Unknown [Authentic Clovis Point Find Reported]

Pictographs from Parrish Canyon, Davis County

1965 Vol. 11 No. 3

Grant Reeder, M.D.

To investigate a reported Indian inscription near Centerville, Utah, it was suggested that I contact Mr. Blaine Moss of Centerville. Mr. Moss was very agreeable and helpful and guided me to the site, located in what he called Parrish Canyon, less than a quarter mile from its mouth. The inscription is situated on a quartzite ledge on a vertical face protected by an overhang. This is on the north side of the canyon about 15 feet above the creek. The mural is about 15 feet long and the characters have been painted onto the stone face, some of them on the underneath side of the overhang. None of the characters are well preserved. All of them have deteriorated, some showing only as splotches of pigment with little to indicate what the original configuration was. All of the characters are done in a red pigment. Most of them represent humans, a few portray animals, and a few are symbols with meaning or purpose not apparent to me. I counted 31 pigmented forms. About six were deteriorated badly enough that they had no discernible form. The majority of the characters represented humans. The human forms all have broad shoulders, and quite large upper extremities. The trunks are triangular, tapering either to an apex or to a very narrow waist, with lower extremities that are small and much shorter than the arms. The figures all have headdresses, some of them quite elaborate. Four of the figures (those which also have the most decorative headdresses) appear to be holding hands. The human figures are the largest ones on the mural and are nearly uniform in size, measuring about 10 inches in height including the headdresses, and three inches in width at the shoulders.

The present poor condition of the inscription is probably a result of stream flow. There is evidence of silt deposit on the face of the ledge about 3 feet below the inscriptions. It is doubtful that the stream, in the seasonal runoff, rises high enough to be a problem; rather, the damage seems to be the result of sudden heavy precipitation such as cloudbursts which drain down the deep narrow slot that is the mouth of the canyon. This probably occurs infrequently. Vandalism and willful destruction are possibilities but I could see no sign that they had occurred. ■

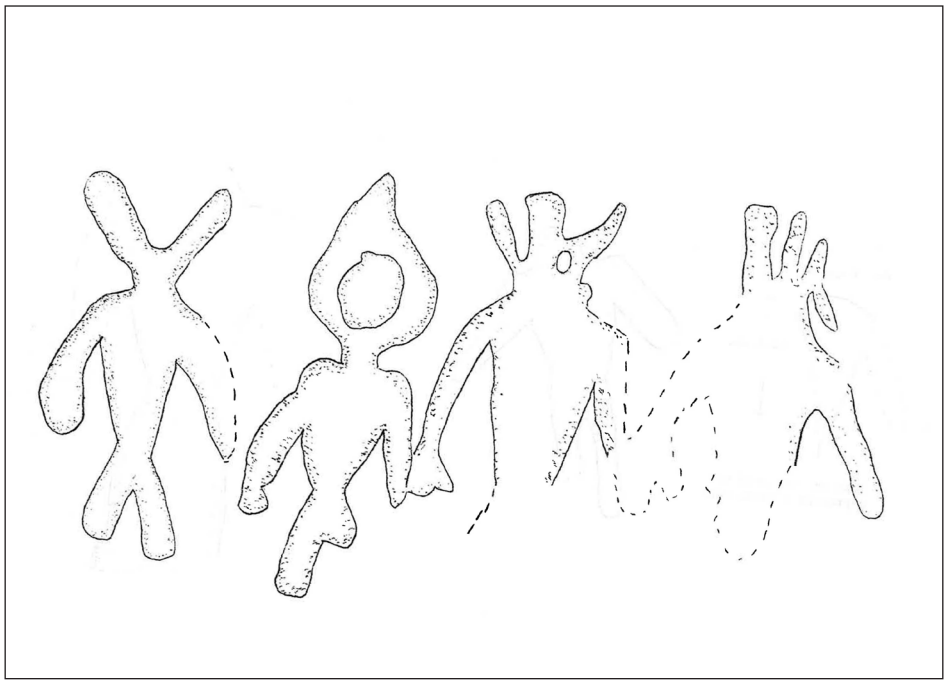


Figure 1.

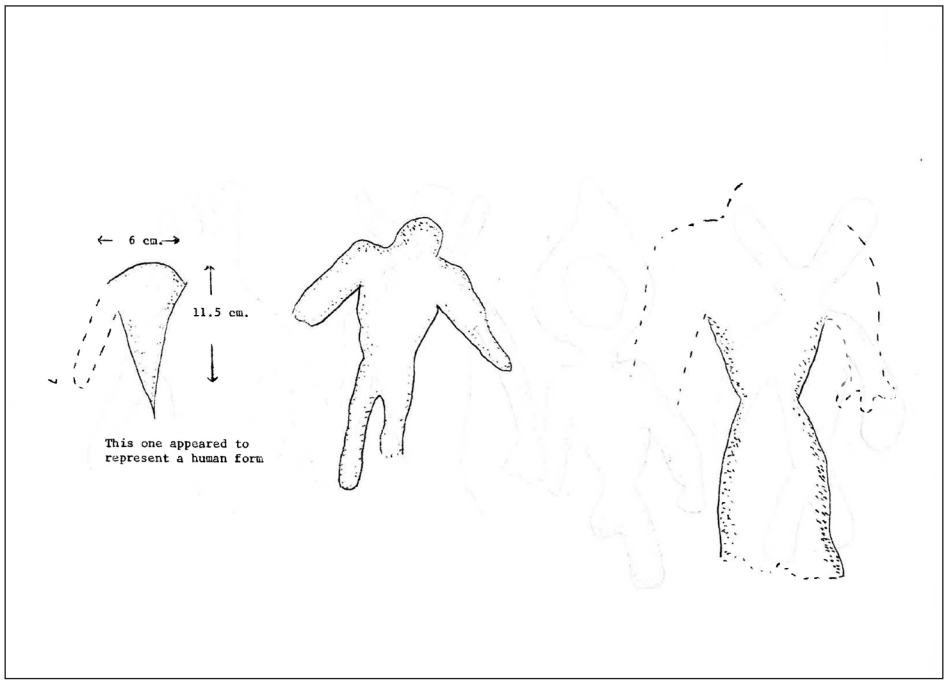


Figure 2.

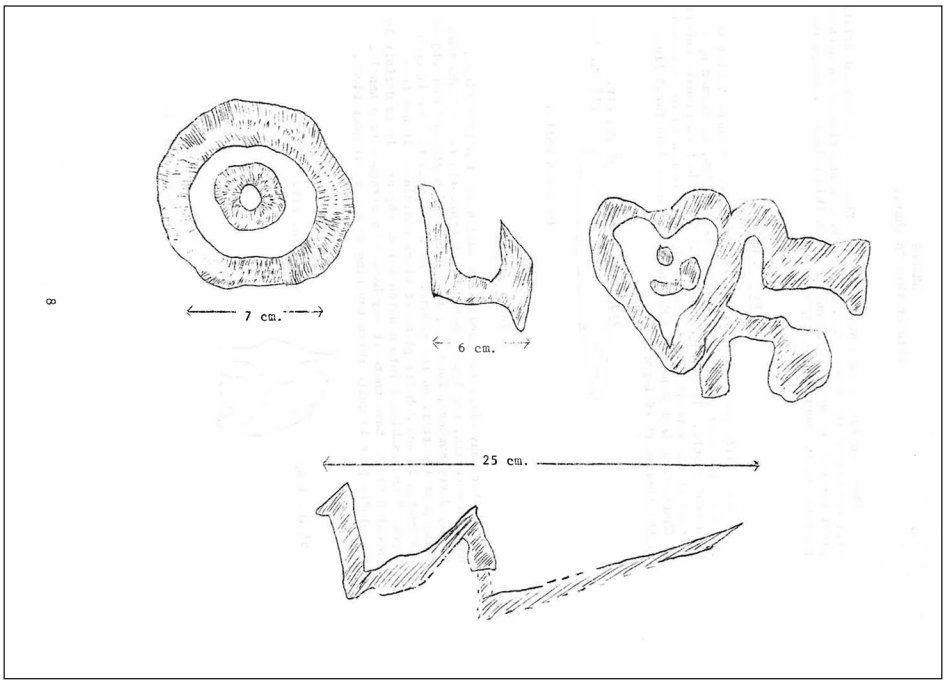


Figure 3.

Alkali Ridge National Historic Landmark

1965 Vol. 11 No. 3

George W. Tripp

On August 12, 1965, Alkali Ridge, Utah site of Dr. J. O. Brew's 1931-33 excavations of Pueblo Indian village sites, became Utah's first National Historic Landmark. In public services held at Dr. Brew's famous site 13, Daniel Beard, Regional Director of the Southwest Region of the National Park Service, presented the official landmark certificate to Mr. R. D. Nielson, Utah State Director of the Bureau of Land Management.

Among those attending the ceremony were archaeologists from Colorado, New Mexico, Arizona, and Utah. Dr. Jesse D. Jennings represented the University of Utah; Ray T. Matheny represented Brigham Young University; and Gordon Keller was present from Utah State University. Many prominent men from throughout Utah associated with the Bureau of Land Management were also present, as were San Juan County officials and several members of the Utah Statewide Archeological Society.

Alkali Ridge, where the ceremony was held, is located approximately 25 miles southeast of Monticello, Utah. It can be reached by traveling south on Utah State Highway 47 from Monticello towards Blanding. About 18 miles south of Monticello, turn east at the "Alkali Ridge" highway marker and travel east along good but unsurfaced county road for 10 miles to Alkali Ridge.

Highlight of the dedication ceremony was the talk given by Dr. J. O. Brew, who is currently the Director of Harvard University's Peabody Museum of Archaeology and Ethnology. Dr. Brew achieved national recognition in the field of archaeology for his excellent report of the excavations conducted on Alkali Ridge in the early 1930's.

Dr. Brew credited Dr. Byron Cummings of the University of Utah as being the first to recognize the archeological importance of Alkali Ridge, and noted that he, along with Dr. A.V. Kidder, well-known archeologist from Harvard University, was chiefly responsible for Dr. Brew's choosing this as an area of study.

Dr. Brew estimated that San Juan County, from the point of the Abajo Mountains southward to the Arizona line, averages between 20 and 30 archeological sites per square mile. The fact that the Alkali Ridge area had been so densely populated by Pueblo Indians, and had not at the time of his work been seriously molested by "pot hunters," were the principal factors that led Dr. Brew to choose this area to study.

The stone monument erected by the Bureau of Land Management to mark the location of Alkali Ridge National Historic Landmark is located on Dr. Brew's site 13, where he excavated a Developmental Pueblo ruin containing more than 200 adjoining rooms. In central open areas near the main structure, Dr. Brew's crew uncovered generalized circular structures differing in some details from the classic Pueblo kivas but at the same time bearing enough similarities to these ceremonial structures to lead some archeologists to speculate that it may have been on Alkali Ridge that the idea of the kiva was conceived by the Anasazi. Here Dr. Brew also identified black on red pueblo pottery. Finally, one of the most important things to come out of the work done at Alkali Ridge was the realization of archeologists, on the basis of evidence uncovered here by Dr.

Brew's field party, that the Basketmakers and Pueblos, who up to this time had been felt by many authorities to be separate peoples, were actually the same people at different stages of cultural development. ■

Utah State Fair Project Undertaken by Utah Statewide Archeological Society

1965 Vol. 11 No. 3

George W. Tripp and Carol Hassel

In an attempt to solicit public support and interest in our campaign to preserve Utah's archeological treasures, the USAS asked for and received from the Utah State Fair Board, permission to set up a display at the 1965 Utah State Fair which was held in Salt Lake City from September 10-19. It was felt that we would be able to contact more Utah people during the Fair than by any other means at our disposal. We were assigned space in the Science and Mining building, just west of the south entrance into the fairground, and for more than a month members of the group hammered, sawed, and painted to bring our display into existence. Our booth was designed to introduce us to the people of Utah, many of whom have never known we existed, and at the same time to educate these people in some aspects of archeology.

Early in August, Fran Hassel alerted his "troops" and put them to work. At times it looked as though we would fail to meet our assigned deadline, but the enthusiasm of the loyal troops triumphed, and when Miss Utah State Fair cut the ribbon to open this year's Fair, she found the USAS display ready and waiting.

Our display featured four 4x8 ft. panels. The first panel listed the objectives of the USAS. The second panel contrasted the types of information that may be gained from a controlled "dig" done under professional direction with the results of uncontrolled "dig" done by untrained pot hunters. It pointed out that in an uncontrolled dig, knowledge (the most valuable asset of any archeological site) is sacrificed for artifacts of little or no intrinsic value, whereas in a controlled dig, a great deal of information is derived from the careful noting and recording of relationships within a site, above and beyond that furnished by the artifacts themselves. The third panel showed, through maps, the prehistoric cultures of Utah and their approximate dates, along with lists of each culture's characteristic traits; and the fourth attempted to explain archeology in terms the layman could easily understand. In addition to the panels, a few artifacts loaned by the University of Utah Department of Anthropology were displayed in the booth.

The display panels are reproduced on the next page:

We acknowledge the generosity of Dr. Jesse D. Jennings and C. Melvin Aikens from the Department of Anthropology of the University of Utah in helping us with the display. And while we are handing out roses, special thanks are also due to all those members of our society who worked in the display during the long ten days of the Fair. As a result of their efforts, we have been able to contact many Utahns we would otherwise never have been able to reach. ■

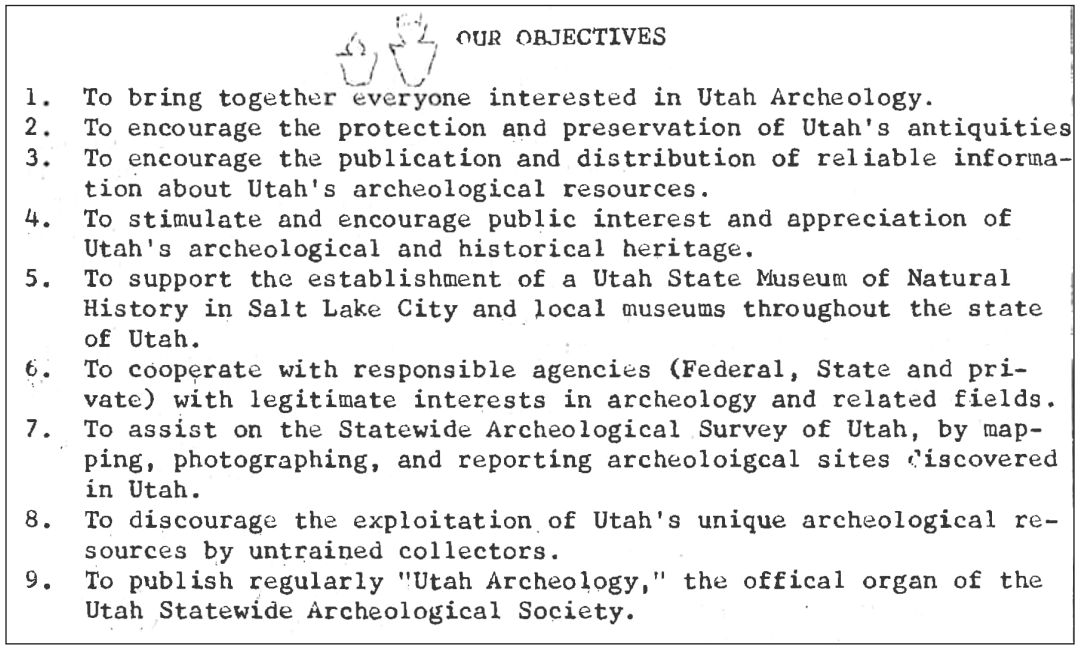
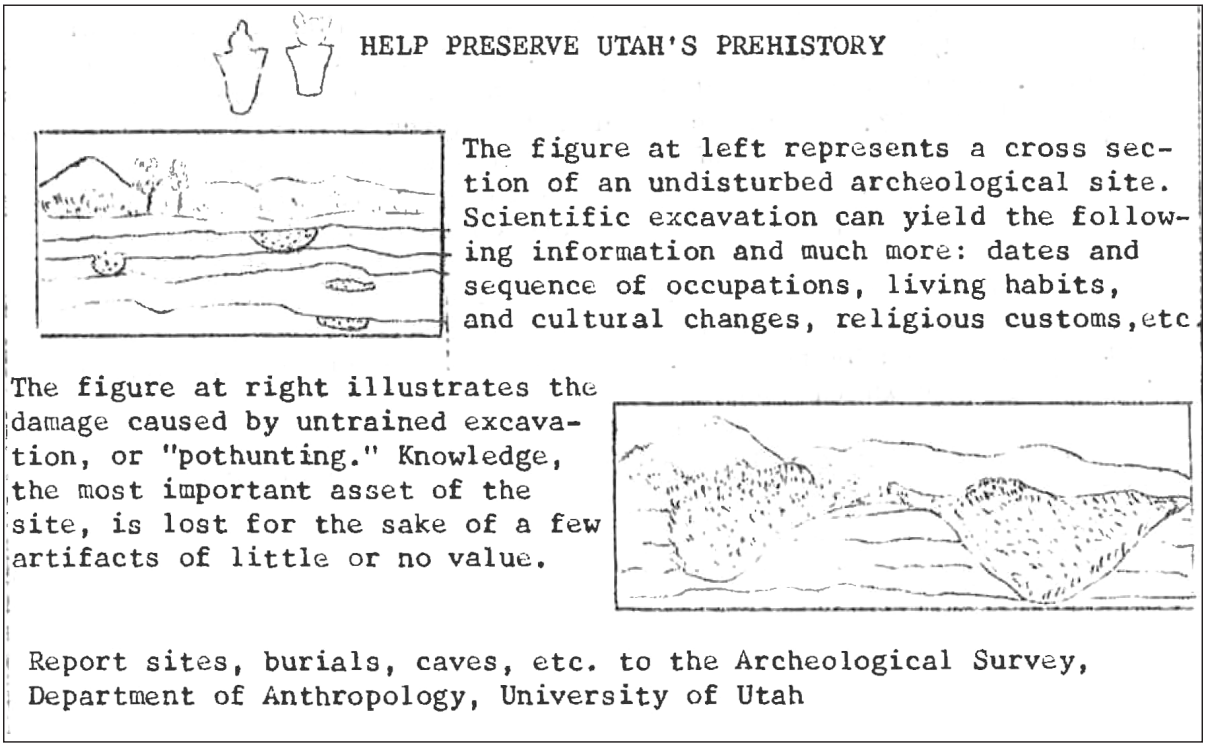


Figure 1.



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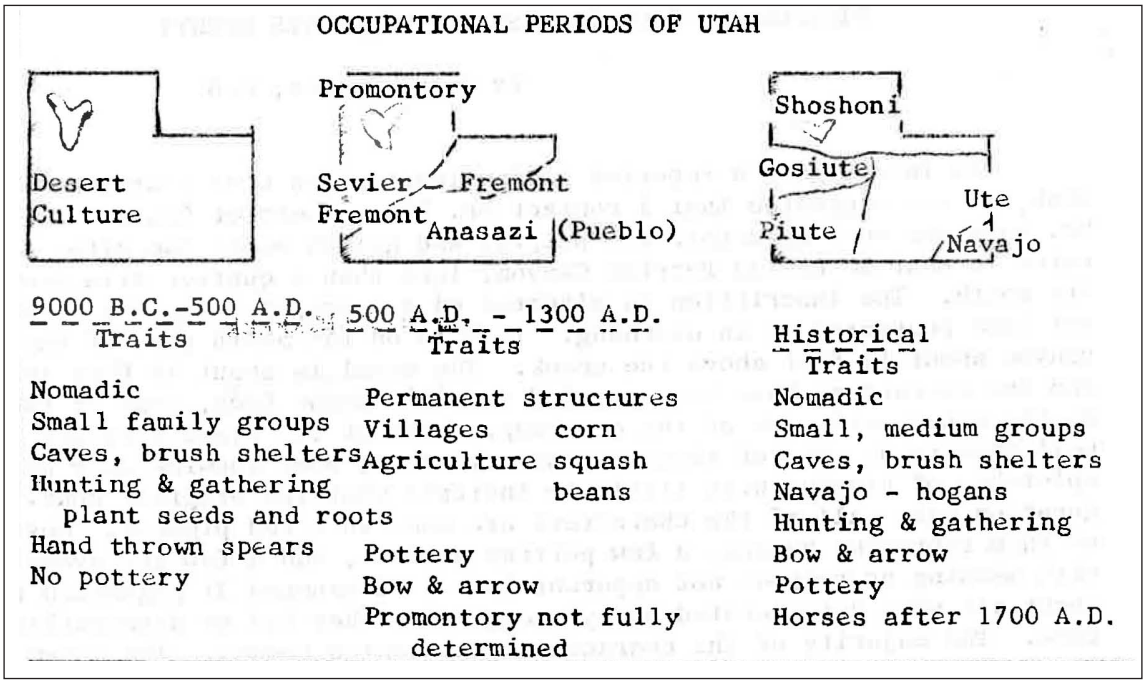

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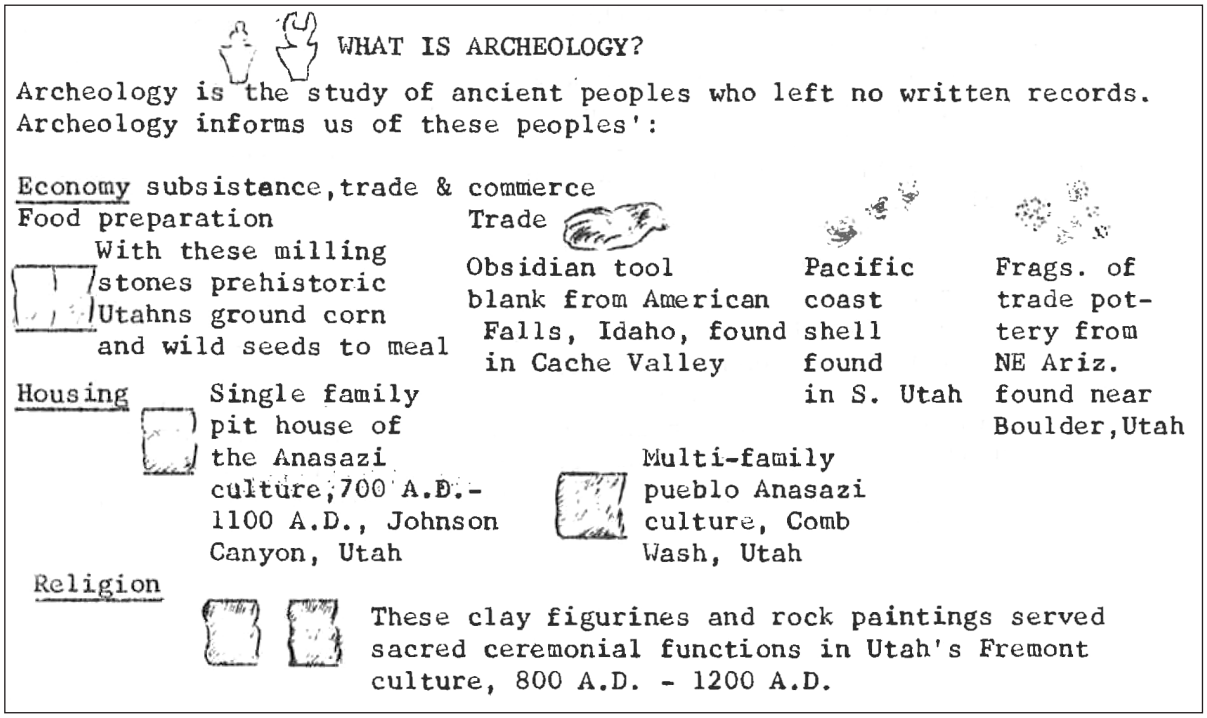

Figure 4.

Evidence of Acculturation among the Indians of Northern Utah and Southeast Idaho: A Historical Approach (Part 1)

1966 Vol. 12 No. 2

John R. Dewey

Ecology

The primary area here under consideration is the valley between the Wasatch Mountains. Of secondary importance is a larger area encompassing a rough triangle extending from Utah Lake to the northwest tip of the Great Salt Lake to Bear Lake. (This will be hereafter referred to as the Triangle Area (Figure 1)).

The geographical setting is that of high mountains and a salt desert. The range of elevation is from approximately 4000 to 9000 feet. Rainfall varies from four inches (on the west side of the Great Salt Lake) to over fifty inches in the mountains. The following life zones are represented: spruce and fir, the lower aspen-fir belts, the yellow pine, pinyon-juniper, sagebrush, and the desert shrub zone of the salt flats (Steward 1938:14–17). Sporadic rains make for sparse representation of many floral species in large areas. Another geographical factor which is important is understanding the lack of vegetation, in some areas, is the alkaline nature of the lake periphery—the closer one gets to the lake shore, the fewer the plant species represented.

A great many species of plants and animals are represented in this region, but the abundance varies with the specific locale. At higher elevations there were bear, deer, hare, rabbits, numerous species of fish, porcupine, elk, squirrel, and many other animals. In the lower flat areas there were bison, water fowl, numerous species of rodents, and various edible insects.

In addition to many fresh water streams draining the Wasatch Front, there were many springs and artesian wells which were probably used for drinking purposes and possibly for irrigation.

In sum, this habitat appears to have been fairly well-suited for the maintenance of a sizable aboriginal population, larger apparently than was actually the case.

Prehistory

The first Indians known to have lived in this area were those archeologically defined as Peripheral Big Game Hunters, or the Desert Culture. These people were hunters and gatherers, who garnered an existence from the harsh environment with a technology not unlike the historic Shoshoni of this same area. They existed in a continual state of transhumance, and had to be careful to move into the harvest areas at exact times in order to glean their wild plant foods. A few week's, or even day's delay often meant the loss of an important staple. These Indians not only moved across the territory in search for sustenance but also took advantage of life zones which varied with altitude as well as season (Jennings, Smith, and Dibble 1959:28).

Archeological evidence concerning the Desert Culture is now fairly abundant. Artifacts found in excavations include rabbit skin cloth, grinding stones, fiber sandals, spear throwers, twined basketry, and a multitude of small generalized projectile points (Smith 1941; Jennings 1957). The Desert Culture lifeway existed from about 10,000 years ago until nearly A.D. 400 (and possibly until historic times) with only minor changes in technology.

After A.D. 400 there occurred in the area a culture known as the Fremont (including the

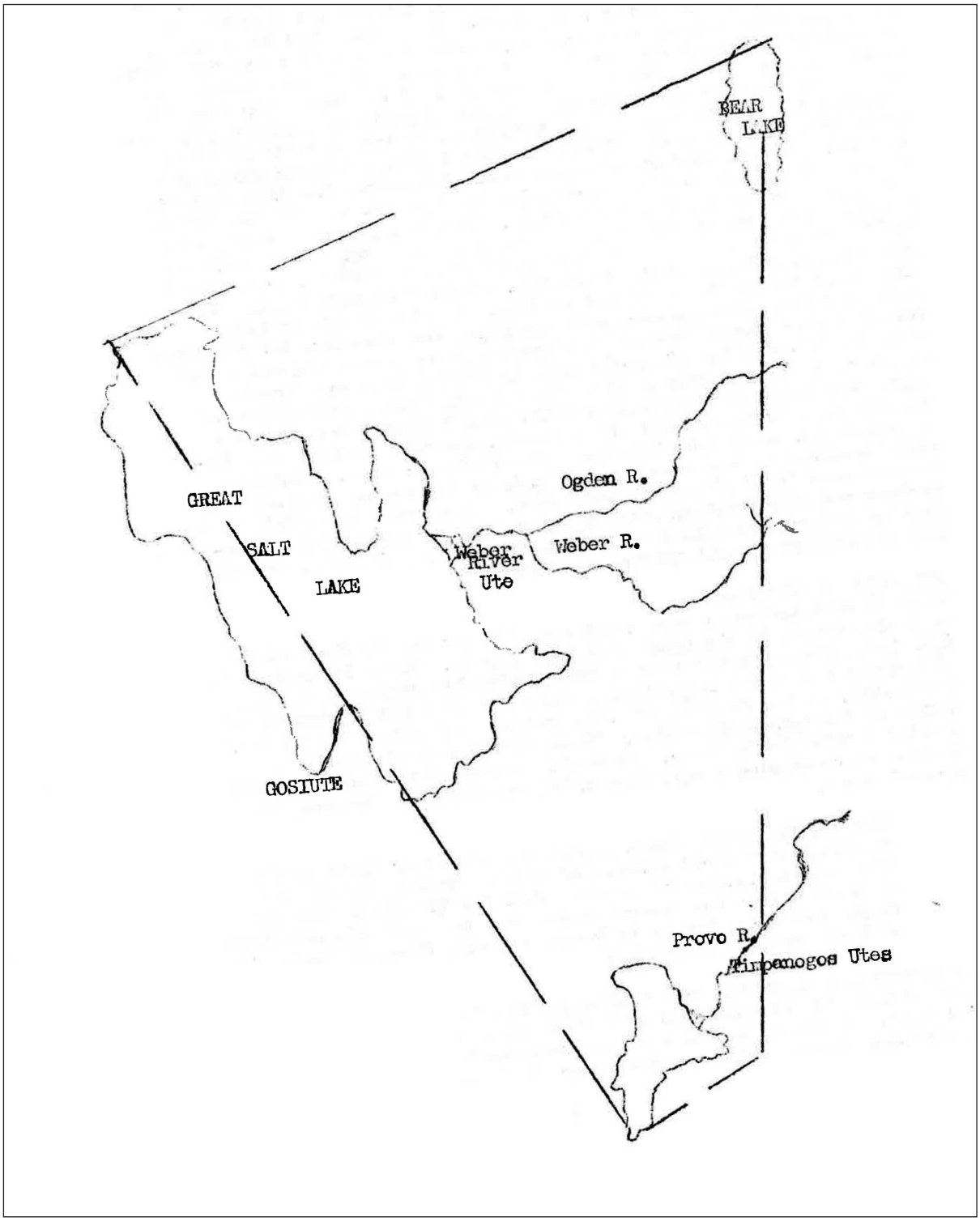

Figure 1. Map of Triangle Area.

Fremont variant known as Promontory). These people were semi-sedentary, supplementing their horticultural crops with food gleaned by hunting and gathering. "Found all over Utah, even as far north as the shores of the great Salt Lake and in west central Utah, the lifeway seems to be mixed as if a Desert population learned and partly accepted a set of already developed new ideas" (Jennings, Smith, and Dibble 1959:14). These new ideas-horticulture, pottery making, wattle and daub houses, granaries, certain masonry techniques, pictographs, and distinctive figurines—all seem to be traits developed by the Desert Culture peoples from the more southern Pueblo phases. Whether the traits were passed by contact diffusion, stimulus diffusion, or both, is difficult to determine. Acculturation processes probably continued for many years until the culture became the distinctly Fremont. An alternate hypothesis is that the Fremont Indians were originally Northwestern Plains Indians who migrated to Utah area, adopting and adapting many of the Pueblo traits while retaining a great deal of their own culture (C. Melvin Aikens, personal communication, December 1965).

Archeological material from the Triangle Area, for the period between the start of the 14th century to historic times, is meager. However, this paucity of evidence can be explained in various ways. It may indicate that the Indians during a period of catastrophe may have cast off their Pueblo cultural overlay and reverted to a Desert Culture lifeway and remained in the region. Or, the lack of evidence may imply that the Fremont people emigrated during this period, and moved to the Great Plains (C. Melvin Aikens, personal communication, December 1965). Finally, the archaeological evidence may not have been interpreted or dated correctly.

Historic Indians

By the historic period there was a variety of Uto-Aztecan speaking groups living in or near the Great Salt Lake. Of the Uto-Aztecans, the Shoshoni speakers were the most numerous. Only the Timpanogos Utes at Utah Lake were true Utes. The Gosiutes, Weber River Utes, Western Shoshoni, and Bannock were all representatives of the linguistic division—Shoshoni.

Periodically, Athabaskan, Siouxian, and Uto-Aztecan speaking Indians from outside the region, moved through the valley between the Wasatch Mountains and the eastern shore of the Great Salt Lake. For example, the Blackfoot, Gros Ventre, Flathead, Crow, and Comanche, periodically utilized this corridor as a road to the Snake River in Idaho, or, conversely, as a passage to the Henry Fork area of Wyoming, and from there to the Great Plains. The animosities generated between different Indian groups further stimulated the use of this passage as an escape route. The Blackfoot and the Wind River Shoshoni were both known to have come into this area to escape from Plains Indian war parties. The Blackfoot periodically made raiding sorties against the Shoshoni of the Salt Lake region (Alter 1932; Bonner 1856; Hafen and Ghent 1931). These periodic wanderings by marauding outsiders possibly had the effect of restricting population growth of the less warlike local Indians and might explain why the fairly lush area east of the Great Salt Lake and west of the Wasatch Mountains was not more densely populated during prehistoric times. Further, this intermittent contact probably resulted in acculturation between the various transient groups and the indigenous Indians. If this pattern of movement existed before the 14th century, it could then be a partial explanation for the numerous Plains traits which occurred in the Fremont culture. Naturally, travel during pre-Hispanic times would have been without benefit of the horse, and contact between "cultiunits" (Narroll 1964) from different regions would have been much less. What effect this sporadic contact had on the process of acculturation is not certain. In many cases, continual relationships, often primary relationships, are necessary for the transfer of culture traits between different culture groups (as was noted with the introduction of hybrid corn to Spanish-American farmers (Apodaca, in Spicer 1952:35–41). On the other

hand, many cases of total acceptance of a particular trait from a donor group to a recipient group have occurred after casual, sporadic contact (the dispersal of the horse and rifle from the Plains tribes). Probably, more important is the receptive attitude of the recipient group and the cultural "fit" of the transfer item. If a trait is useful to a culture and will function with existing ideology and social organization without too much disruptive influence, a pattern or object may be received without continued contact.

The Earliest Explorers

There is a historical record which possibly relates to the problem of Plains traits in the Great Salt Lake region. Baron La Hontan, in A.D. 1689, states (Alter 1932:7) that during his stay with a group of Indians called the *Gnacsitares*, who lived near the headwaters of a tributary of the Mississippi River called Long River, he met four slaves of the *Mozeemelek* nation. These slaves were clothed and sported a thick bushy beard. La Hontan learned that they came from an area where existed a salt lake which was about 300 leagues in circumference.

> That the *Mozeemlek* people supply the Cities or Towns of the *Tahuglauk* with great numbers of little Calves, which they take upon the… Mountains: and, That the *Tahuglauk* make use of these Calves for several ends: for, they not only eat their Flesh, but bring 'em up to Labor, and make Cloths, Boots, etc., of their skins…(Alter 1932:7)

The slaves also describe the *Tahuglauk* Indians as living in "six noble cities" at the lower end of a river which emptied into the salt lake. Scattered around the lake were about 200 other cities "great" and "small." "The Tahuglauk wore their beards about two inches long; wore garments make of skin which reached their knees; wore boots which reached up to the knee; and wore sharp pointed caps (Alter 1932:4–7; Banncroft 1889:18–19; Whitney 1892:288–289)." Most historians feel that Baron La Hontan was, at least, fanciful and, at most, an outright liar. The true answer lies probably somewhere in the middle. However, in this tale we see a few elements which may reveal some significant implications. First, the Baron talks of people who wore skin clothing and boots. These are not objects found in the Desert Culture but are Fremont characteristics. La Hontan also talks about cities near an inlet stream of the Great Salt Lake. "Cities" is certainly a term which is too grand to encompass anything found archeologically in this area, but Julian Steward describes Fremont villages at the present day locations of Willard, Plain City, and Grantsville. At Grantsville, "Scattered for several miles along the former channels of North and South Willow Creeks, about five miles from the present lake shore and within a few hundred feet on each side of the streams, were probably, at one time, two hundred pit house sites (Steward 1933:9)." There are also approximately thirty mounds in less than a one square mile area at Plain City on the meanders of Third Salt Creek. These are probably the Warren mounds described by Steward (Steward 1933:9).

The fact that La Hontan speaks of the existence of a large salty lake lends some credence to the tale. In addition, the Baron tells of Indians who wore beards, a fact that is substantiated by Father Escalante in 1776 (Bolton 1950; Alter 1932; Whitney 1892).

All in all, we have in Baron La Hontan's tale at least a possibility that he was describing events and traits which are factual. Whether these Indians were Fremont, Utah, or Shoshoni is not known. The culture patterns best fit what we know about the Fremont people, but in suggesting this connection we run into one great problem. As far as can be determined archeologically, the Fremont Culture ceased to exist in Utah by the 14th century. However, a warning must be stated at this point. The dating of this culture is at present not all conclusive. In fact, there are sites such as Deadman's Cave where Fremont and Shoshone pottery are mixed (Smith 1941). This might indicate that the Fremont Culture lasted in the area much longer than supposed.

Alternatives concerning the dating of the Fremont Culture in Utah, especially Northern Utah, must not be discarded for existing theories which are not completely supported by empirical evidence. Future studies will possibly show that there is no connection between the Fremont culture and Baron La Hontan's tale; but, this problem certainly requires further probing. At minimum, assuming that the Baron was not an absolute fabricator, the La Hontan tale shows that by 1689 the Indians living in the Salt Lake region exhibited some Plains traits, and that there were slave-raids and marauding from the Plains area into the Triangle Area.

There were various historic Shoshoni groups inhabiting or traveling through the Salt Lake region (see above). Each lived in a somewhat different ecological niche, and was associated with and influenced by other groups. This in turn caused the minor cultural and historic differences which were apparent by the late 18th century and early 19th century. The differences, though great enough to readily distinguish between the different Shoshoni groups, were also few enough that all may be legitimately considered under one heading.

The historical Shoshoni which were of importance in the Triangle Area were the Wind River Shoshone, Comanche, the Weber River Ute, the Gosiute, and the Bannock. All were technologically similar. They were hunters and gatherers whose food was gleaned from a rather harsh environment. The Bannock, Wind River Shoshone, and Comanche had less trouble gathering food because of the greater natural productivity in their region and because of technological innovation (the horse with the eastern groups); but, as a rule the food was meager enough to dictate against becoming organized on any level above the band. There was little or no horticulture practiced, nor was domestication of animals an important energy source. The Indians exploited most food plant, and for protein would eat almost any animal found in the region. Clothing was generally simple, consisting of rabbit fur robes and breechcloths. All Shoshoni groups in the Triangle Area made pottery.

The Eastern Shoshone, including the Comanche, had early adopted many Plains traits as had Utes who also (periodically) utilized the area around the Great Salt Lake. Between the time of Spanish contact and later Anglo contact in the 1800's there were increasing acculturation pressures on the Indians of the Triangle Area. There is some indication that these pressures were being resisted by the Shoshone and the Utes.

Despite the fact that the Wind River Shoshone and the Comanche had already adapted to a Plains lifeway by the time Escalante reached the shores of Utah Lake, the Utes of the Triangle Area maintained a pattern of living similar to that of the Shoshoni groups in the same area. The reasons could be as follows: (1) It's possible that the horse and rifle were relatively scarce in this still isolated region. The Timpanogos Utes and the Western Shoshone probably knew about firearms and the advantage of owning horses, but were unable to obtain them due to lack of contact with the whites; therefore, the only way to obtain these new items would be from the eastern Indian groups (Plains or Eastern Shoshone).

It is unlikely that they could have obtained them by trade as these cultures at this early date probably did not have enough rifles or horses for themselves. It is also unlikely that Indians would be willing to trade items which would give them an advantage over other groups (an analogy could be drawn to the distribution of nuclear power in our modern world). (2) The lack of mobility of the Salt Lake Indians would have made it impractical to steal either horse or rifle and engage in warfare with a group which had superior weapons would have been foolhardy. (3) The horse never really became established in the Triangle because the Indians could not feed and maintain them in such a harsh environment. This concept, though readily accepted by many modern anthropologists, is probably much overrated. It seems more likely that these Indians did not make greater use of the horse because

they were unwilling to radically alter their way of life. The alteration would have been more disruptive for the Western Shoshone because the Plains and Eastern Shoshone groups had already partially adapted to big game hunting. The horse is an advantage when chasing large herds of bison. It is of less advantage in the hunting of deer or antelope, small numbers of bison, and of no advantage when hunting rabbits. Of these animals the Triangle Area supported only the rabbit in significant quantity. To adopt the horse the Indians would have had to abandon a successful pattern of subsistence in order to pasture the new domesticates.

The acceptance of the horse would have also demanded that other organizational facets of their culture be changed. In total, the costs in terms of stress on the cultural system, as compared to the advantage gained by accepting this new technological trait would have been prohibitive.

The use of the rifle probably gave the natives of the Great Salt Lake area no real long term advantage. The initial impact of this weapon would have enabled the hunter to more easily kill game, but the hunter, after expending his ammunition, would have been forced to rely on his old ways until he could replenish his powder and shot—a process which again would have been prohibited in terms of cost, time, and energy. It is more likely that in the early stage of contact rifles were accepted as weapons for defense rather than as weapons of the hunt.

Escalante states that the Timpanogos Utes were afraid to hunt to the north because marauding Comanche groups (Bolton 1950:186). This suggests that as early as 1770's the Comanche were utilizing the route, later known as the Oregon Trail, if not as a primary avenue at least as an alternate passage into the Triangle Area. That the Comanche entered the Great Salt Lake Valley is implied by another statement by Escalante. "On this occasion they (Escalante's party) entered by the last pass in the Serria Blanca de los Timpansis by a quarter north to the northwest, and by this same pass they say the Comanches enter, but not very frequently (Alter 1932:10; Bancroft 1898:16)." Whitney (1898) believes that this pass was Provo Canyon. The suggestion was made earlier that Indians of the Salt Lake region possibly resisted the pressures for change which came about from the Plains area. Escalante again gives us some data from which further inferences can be made concerning this resistance. He describes the *Timpanois* (Timpanogos Utes) as Indians who spoke the Yuta language, who ate fish, gathered seeds and herbs, hunted rabbit and birds; and who made cane huts. Cane was also used for their basketry. They also made robes of rabbit skin. Escalante also mentions another group of about twenty Indians who were distinct from the Timpanogos Utes in appearance but spoke the same language. These individuals wore short beards and pierced their noses, in which they wore small ornaments of bone. These Indians also wore the rabbiskin robe (Alter 1932:10; Bancroft 1898:15). These traits are very similar to Western Shoshone traits and indicate that the donor cultures in this system of acculturation may have been Shoshone.

This is not to suggest that the Plains culture had no effect on both the Shoshone and Utes of the Great Salt Lake area. In fact, it is fairly evident that such items as buckskin moccasins, leggings, and jackets were, at least indirectly, attributable to Plains influence. However, we cannot know whether these traits came by way of the earlier Fremont people or whether the traits were accepted through the pseudo-Plains groups—The Wind River Shoshoni and Comanche.

Escalante described the Indians who live in the Great Salt Lake area by quoting the *Timpanois*,:

> We are told that in the circuit of this lake there live a numerous and quiet nation, called *Puaguampe*, which means in our language Sorcerers: they speak the Comanche language, feed on herbs, and drink from various fountains or springs of good water which are about the lake; and they have their little houses of grass and earth, which latter forms the roof (Alter 1932; Bancroft 1898; Whitney 1892).

This description of a grass and earth house is suggestive of the Fremont wattle and daub structure. If this statement is accepted, one must assume that either there were Fremont living around the Great Salt Lake during historic times or that the Shoshone people of this region borrowed this particular culture trait for a short period. There is ample evidence of the use of the brush shelter by the Western Shoshoni by the middle of the 19th century.

The next record of contact with the Indians of the Utah-Salt Lake area is in 1833 when Mauricio Arze and Lagos Garcia brought a trading expedition to the Timpanogos Utes. They tell of the Timpanogos slaughtering their (Arze's and Garcia's) horses, and that the Utes "…would trade nothing but Indian slaves (Hafen and Hafen 1954:264)." This suggests that these Indians were not yet acculturated in terms of using horses for transportation and warfare. ■

Endnotes

1. Two carbon-14 dates, A.D. 1365±90 years and A.D. 1605±100 years, have been obtained from charcoal found at the "Injun Creek" site at Warren, Utah (Aikens 1966). This site is situated on the bank of a tributary of the Great Salt Lake and is part of the Warren Mounds described by Julian Steward in 1933. If these dates are correct, then the last is only 84 years earlier than Baron La Hontan's account.

Evidence of Acculturation among the Indians of Northern Utah and Southeast Idaho: A Historical Approach (Part 2)

1966 Vol. 12 No. 4

John R. Dewey

Trappers and Explorers

In 1824, Etienne Provot led one of three bands sent out by Ashley's American Fur company into the region of the Bear and Weber Rivers. Heading other groups of Ashley's trappers were Jim Bridger and Jedediah Smith. The three groups met and wintered in Ogdens Hole—a favorite wintering area for the Ashley trappers, at the head of the Ogden River (near the present day town of Huntsville).

In 1825 Jim Beckwourth led a group back to Cache Valley. During this trip; two of them died. The Indians with the group disposed of the corpses by hoisting them into trees (Bonner 1856:70; Hafen and Ghent 1931). This method of burial (sic) indicates that the Indians with Beckwourth's group had adopted this particular Plains trait or were actually members of some Plains tribe who had accompanied Beckwourth into the area as guides.

In 1826 Beckwourth described an encounter with sixteen Flatheads who brought him news of another group of Ashley's trappers. On the way to meet the other trappers they battled with a large group of Blackfoot who were mounted; some were armed with rifles. Two days later, after returning to Ogden's Hole, Beckwourth describes the "fruits of battle" as being "…173 scalps, with numerous quivers of arrows, war clubs, Battle axes and lances (Bonner 1856:73; Hafen and Ghent 1931:64)." It would seem that by 1826, the Blackfoot were still not well armed with rifles but depended in battle on their arrows and lances combined with the increased mobility from being mounted.

Jerediah Smith in 1827, on his return from the Colorado River, passed the southwest corner of the Great Salt Lake and there met a group of Gosiute Indians. They "…appeared the most miserable of the human race having nothing to subsist on (nor any clothing) except grass seed, and grasshoppers…(Alter 1932:20)," Smith gives no indication that these Indians had horses or guns at this time.

Thomas Fitzpatrick, another of the Ashley trappers, described problems with the Blackfoot and Gros Ventre. These Indians were raiding the trapper's caches (in Cache Valley) when possible. He also tells of Flathead Indians in the Ogden area (Hafen and Ghent 1931:60-62). Here again is evidence that the Triangle Area and probably the smaller Great Salt Lake region were commonly used by various Indian groups other than the Shoshone and Ute.

In March, 1828, Peter Skeine Ogden returned to the Salt Lake Valley and noted that at that time of the year the Blackfoot and Snakes were scattered, searching for fish and roots (Alter 1932:22). This suggests that the Blackfoot were common to the area and that possibly they were not as "Plains oriented" as is generally believed. It is possible that Ogden was mistaking Blackfoot for Bannock, but this is rather unlikely because Ogden had been dealing with both groups and certainly knew how to distinguish between them. In addition, Ogden describes a route from the Bear River Valley to the Ogden River, then through Ogden Canyon, Eden, Paradise, Logan and to Idaho as a "…well used Indian and trading route (Alter 1932:23)."

Of all the trappers who wrote journals about the Triangle Area, Osborne Russell was one of the most descriptive. In 1835 he assisted in the establishment of Fort Hall and then traveled to the outlet of Bear River where he found 300

lodges of Snake Indians. He later moved to the present site of Salt Lake City to stay with friendly Indians. By 1840 he was back at Bear River where he wintered with a Frenchman and his Flathead wife (Alter 1932:30). He describes the camp as consisting of about twenty lodges of Snake Indians. In this camp were numerous families composed of members from various areas and cultures. This indicates contact over a fairly broad area.

In 1841 Russel stayed at a "Eutaw" village on the southeast extremity of Great Salt Lake. During his visit he inquired about the Indians living in the most southern portion of the Salt Lake, "…but all that I could learn was that it was a sterile, barren, mountainous country, inhabited by a race of depraved and hostile who poisoned their arrows…(Alter 1932:32)." He described the Indians of the Ute village as wearing buffalo robes and making raft voyages to the largest island in the lake (Antelope Island) where they hunted antelope. The natives told him that they remembered when the buffalo passed over dry land to get to the island (Alter 1932:32).

By 1841 it appears that the Ute Indians were orienting their food gathering habits toward the bison and antelope. Whether this shows influence of the more easterly and Plains acculturated Utes is hard to tell. At least the statement indicates a change in food gathering patterns from the descriptions of the Timpanogos Utes made by Escalante and Arze.

In 1843 John C. Fremont came into the Triangle Area by way of the Trapper's Route via Bear River to the Weber. He indicates in his journal that the Root Digger Indians at this time were "…miserably poor, armed only with bows and arrows, or clubs…(Fremont 1886:216)." Fremont also seems to make the classic distinction between the Shoshoni groups—those which were mounted were "Snakes;" those unmounted were "Root Diggers."

In Fremont's encounters with the "Digger" groups there is no mention of either the horse or the rifle. He does indicate, however, that the Shoshone were shy of him and his men but were not afraid.

> They were very much startled at our appearance, but we soon established an acquaintance; and finding that they had some roots, I promised to send some men with goods to trade with them. They had the usual very large heads, remarkable among the Digger tribe, with matted hair, and were almost entirely naked…(Fremont 1887:223)

This statement also indicates that the "Diggers" were willing to trade with the Whites. Later in his journey, on the way back up the Bear River, Fremont noted that they traded powder and ball for an antelope from a mounted Snake Indian. That same day they had contacted a camp of Snake Indians—two families "…from them we purchased a small quantity of kooyah/Veleriana edulus/ (Steward 1938). They had piles of seeds, of three different kinds, spread out upon pieces of buffalo robe…" "They had a band of twelve or fifteen horses, and appeared to be growing in the sunshine with about as little labor as the plants they were eating (Fremont 1887:238)." Fremont describes the Salt Lake Basin as a most desirable spot to live, a place where there was plenty of bunch grass for pasturage. "The beasts of the Indians were fat upon it; our own found it a good subsistence; and its quantity will sustain any amount of cattle. (Fremont 1887:239.)" Assuming that it is correct to state that the "Digger" groups did not have horses, we must also assume that the reason was not because of lack of forage for the horses but was, instead, cultural. It is probable that those Shoshone who inhabited the most desolate desert areas could not have kept horses even if they had wanted them; but we find that the "Digger" Shoshoni all the way from Idaho through the Great Salt Lake region were not utilizing the horse to any extent, even in those areas where there was pasturage.

Fremont states that on May 20, 1844: "We met a band of Utah Indians, headed by a chief who had obtained the American or English name of Walker, by which he is quoted and well known. They were all mounted, armed

with rifles, and used their rifles well (Fremont 1887:305-6).” (This contact was near Lake Sevier and outside of the scope of this paper, but does illustrate the point concerning the acculturation gradient existing between the Utes, Digger Shoshone and Europeans.) On May 24 Fremont met three Utah Indian scouts near Utah Lake who were mounted and bore firearms. He also explains that they encamped near a “Utah” village but moved out after finding the Indians to be quite “troublesome.” (Fremont 1887:387). Although there is a time differential of nearly a year between his discussion of the “Diggers” and the Utes, the implication is that by A.D. 1843-4 the Utes were starting to resist the Whites whereas the “Digger” Shoshone were still amiable and completely willing to trade with non-Indian outsiders. There is little information of reciprocal relations between Ute and “Digger” groups except that (Fremont states) the Utes kept the “Digger” from fishing the Utah Lake area (Fremont 1887:391). It would appear that by the early 1840’s the Utes of the Triangle Area had become much more acculturated to the use of the horse and the rifle than had their Shoshone neighbors. This data supports the hypothesis that acceptance of these traits (in this area) was due to cultural factors rather than environmental limitations.

In 1845 Fremont was again in the area and described a trip to the large island of the lake (Antelope Island). There his men killed an antelope. When they returned, an old Ute Indian told them that the island belonged to him and was his private hunting ground (Fremont 1887:431). This statement may indicate that the Utes had the concept of private ownership of land or at least private tenure. This was possibly implied by Arze in 1813 when he talked of the Timpanogos Utes as having “rancherias” (Alter 1932:13). It also could mean that Fremont and his men met a shrewd Indian who was manipulating them, but at least, it suggests that the old Ute was familiar enough with European concepts of property to have been able to pursue a course of exploitation in this particular situation.

James Clyman in 1846 reports that while trading with several friendly “Eutaw” Indians he was told by them that the Snakes and the Whites were at war and that the Snakes had killed two white men (Alter 1932:42). Clyman also indicates that the Blackfoot (in all areas) were hostile to whites and that as early as the middle 1820’s were very well armed and well mounted (Camp 1928).

In 1846 one of the first emigrant groups through the area was the Edwin Bryant-Wm. H. Russell expedition which reported meeting 15 or 20 non-hostile Ute Indians near Weber Canyon:

> Most of these Indians were armed with bows and arrows. There were among them a miserable rifle and musket, which they had evidently procured from Mexican trappers or traders, as, when I (Bryand) inquired of the owner of one of them its name, he pronounced the word “carabina”. They were all miserably clothed, some wearing a filthy, ragged blanket, others a short (?) and gaithers made of skins, and others simply a breech cloth of skins (Alter 1932:47).

He later describes another encounter with an Indian near the marshy areas of the Salt Lake. This Indian had only a bow and arrow and was on foot (Alter 1932:47). In the last case it is probable that the Indian described was Shoshone, and is likely that the first group were not Ute but rather Weber River Utes who were also Shoshones.

Mormon Settlement

By the time of the Mormon pioneers, the Utes were hostile. William Clayton reported a conversation with the famed trapper Jim Bridger who described the Utes:

> The Utah tribe of Indians inhabit the region around the Utah Lake and are a bad people. If they catch a man alone, they are sure to rob and abuse him if they don’t kill him, but parties of men in no danger. They are mostly armed with guns (Alter 1932:68).

In this same report to William Claytone, Bridger made one curious statement:

> There is a tribe of Indians in that country who are unknown to either travelers or geographers. They make farms and raise abundance of grain of various kinds. He (Bridger) can buy a quantity of the very best wheat there. This country lies southeast of the salt lake. (Alter 1932:68).

This mention of agriculture (especially wheat) is curious unless Bridger was referring to areas a great deal distant from the salt lake, i.e., the areas of New Mexico and Arizona. If this is the case, it is unusual that he used the salt lake as a geographical referent.

The first Indian children were purchased by the Mormons in 1847 or 1848, to save them from being shot by their Ute captors. About the same time (1850) the measles first appeared among the Indians of Salt Lake Valley. "They assembled in large numbers at the warm springs, bathed in the waters, and died (Bancroft 1889:278)."

During the years immediately following the occupation of the area by the Mormon emigrants, a great many hostile incidents occurred between Indians and Whites. These culminated with the Battle of Bear River in 1863 between the army and about 300 Bannock and Shoshoni.

Factors contributing to these hostilities seem clear. The Indians were under a great deal of stress, both physical and cultural. They were losing prime hunting land and water areas (Bancroft 1889:630). There is some evidence that during the early years of trouble the Indians did not comprehend the Mormon concepts of ownership. Conversely, the emigrants did not understand the reasons why the Indians were helping themselves to wheat and cattle. It was a generally misunderstanding about what theft was which resulted in the small incidents of depredation. The Mormons would inflict retribution for theft on the first Indians that they came across, rather than finding out who really committed the act. Next, there is some evidence that a few settlers did not have much regard for Indian life and made a sport out of shooting Indians. In 1849 near Malad two Indian women were killed and their horses stolen. There were Indian reprisals extending as far south as Ogden, Utah. (Bancroft 1889:472).

Another possible factor of importance in the continuing problems between settler and native was the enforced apprenticeship of Indian children legalized by the Utah Legislature in 1852. Indenture could not last longer than 20 years however (Bancroft 1889:477). At an earlier date, the *Deseret News* (November 15, 1851) had run the following editorial:

> Indian Slavery, Editorial: A copy of a license given to Pedro Leon to trade with the Utah Indians, signed by James S. Calhoon, Superintendent of Indian affairs, dated Santa Fe, August 14th, 1851, attested by D.V. Whiting, has fallen under observation; and we understand the said Pedro Leon was at Manti in the county of San Pete, on or about the 3r. inst., accompanied by about 20 Spanish Mexicans, trading and desiring to trade horses, for Indian children, fire arms, etc., and we are also informed that two other companies, of about the same size, and from the same source, one of whom holds a blank license, dated "Executive Department, Santa Fe, New Mexico, July 30, 1851," signed by "J.S. Calhoon, superintendent of Indian affairs," authorizing said blank holder to "proceed to the Salt Lake country, in the Territory of Utah, for the purpose of trading with the Utah Indians in said region." We are also advised that the ostensible object of side traders was to "purchase Indian children to take to New Mexico, or Mexico, and also purchase guns and ammunition, to furnish the Navahoe Indians…
>
> We have no objections to Spaniards, Mexicans, or any other nation coming in our midst, buying tea, sugar, coffee, or molasses, buying selling, swapping horse, mules, or any other animals or property which will tend to the public good; but from what we have heard of the affair before us, we feel to raise our warning voice to all men within our limits, and especially to the citizens of Utah Territory, to beware how they furnish arms or ammunition to any tribe of Indians whatsoever, and especially to any tribe at war with the United States, or to any man or set of men, of whom it can

> be reasonably supposed they have any disposition to furnish munitions of war to hostile tribes. And we further counsel that no person whatsoever be guilty of trafficking in human blood, or of selling Indians or Indian children to be transported out of the Territory or from one part of the territory to another. Our limits will not permit us to say more at present, our feelings would not permit us to say less; should we learn more concerning this matter hereafter, we shall communicate freely (Alter 1932:172-173).

Then in a turnabout, Brigham Young (May 1854) took arms and ammunition to Walker and his Utes:

> And as it was the object of the Mormons to protect, as much as possible, their people from the aggressions of the Indians, and also from the continual descent upon their towns—begging for food, and stealing when it was not given, he thought it more advisable to furnish them with the means of shooting their own game. The Utah Indians possess rifles of the first quality (Alter 1932:173).

The above action was possibly the best and most realistic endeavor, during the period of 1847-1863 taken by the Mormon leaders in dealing with Indian problems. It also indicates that Brigham Young understood some of the cultural concepts of the Ute Indian and thereby was able to understand the problems which arose.

Another incident possibly illustrates the idea that stress from loss of land and food was heavily felt by the Indians. The *Deseret News*, September 21, 1854, records two cases of war sorties between the Utes and the Snakes near Ogden. Previous to this time the Utes and the Snakes (at least as far as I could determine) had avoided contact and fought only in cases of territorial trespass.

The real attitude of the Mormons toward the Indians can be seen in another series of statements which appeared in the *Deseret News*.

> Brigham Young stated that peace with the Indians was holding and had held for the past year except for one incident in which two Mormons were killed. In this case the Indians turned the offenders over to the U.S. Authorities for trial. He also stated that the great amounts of beef, wheat, clothing, guns, etc. that had been given to the Indians would not overcome their natural savagery and indolent natures. He also suggested that the Shoshone were superior to the Utes in providing for themselves. However, he felt that the continual gifts to the Indians by the Mormons did have a tendency to induce them to labor for themselves. He felt that the course of liberality was a severe tax and burden upon the Mormons, but that this burden would soon be lessened because the Federal Government would soon be making appropriations for holding treaties with the Indians. He warned, however, that the Indians could be expected to make further depredations and that anyone settling an area must've prepared to defend his family against occasional Indian difficulties. In the long run, it would be manifestly more economical, and less expensive, to feed and clothe, than to fight them (Alter 1932:184–185).

Brigham Young also described an experiment in Weber County where individuals and families of the small band which generally inhabited that area (Weber River Utes?) were distributed among the Mormon families and given food, shelter, etc. in exchange for their labor. He suggested that in situations where Indians are working for whites, that the Indians must be paid fairly. (Alter 1932:185).

This experiment is interesting historically in terms of its "applied" value. It appears to be much the same program that the Mormon Church is carrying on at present, with the exception that the Mormon families keep the children only during the school year and return them to the reservations during the summer months.

On October 20, 1855, the *L.D.S. Millennial Star* noted that there were Indians attending church services in Provo. The article also stated that Brigham Young had suggested that the people of Provo should divide the land near Utah Lake in half and establish a place where the Indians could live and fish. He further suggested that the Mormons should help the Indians build homes and make clothing (Alter 1932:202).

By 1855 the Mormons had changed their attitudes toward the Indians a great deal. There were definite attempts by the leaders of the church to understand the problems facing the Indians in order to solve their own problems. It is also apparent that the Indians were trying to solve their own problems.

Summary

During the years between 1776 and 1850 there were great changes occurring in the Indian populations of the Triangle Area and especially the Great Salt Lake Region. Subsistence patterns changed from that of hunting and gathering to subsistence based on begging and stealing. However, a few Indians did learn to plant a few staple under the guidance of their Mormon neighbors.

Patterns of travel were enlarged with the advent of the horse among some groups such as the Utes and Eastern Shoshone. Other groups like the Gosiute, Bannock, Timpanogos Utes, and Western Shoshone were content to resist, for a time the greater mobility offered by the horse. The same Indian trails were still being used but were being used more often by those groups with horses.

It also appears that the Western Shoshoni groups tended to resist the rifle even in the latter days of Mormon influence. Whereas the Utes, by the time of the settlers, had almost completely adopted the rifle, the Timpanogos Utes resisted it more than the other Ute groups. The Wind River Shoshone, Comanche, and Blackfoot had readily adopted the gun.

During the period 1776–1855 there were a few minor shifts in alliances between Indian cultiunits and many shifting alliances between whites and different Indian groups. The Utes and Western Shoshone tended to ignore the pressure of each other unless territory was challenged.

The Blackfoot were at odds with nearly all groups, especially the Eastern Shoshone, and were continually marauding throughout the Triangle Area.

During the earlier contacts the Indians and trappers tended to get along fairly well, but by the time of Mormon settlement, most of the Indians were at least confused about European property rights if not outright hostile. Indian and White depredations were frequent during the years 1847–1863.

There is also some evidence that the Indians were interested in the Mormon religion; some actually attended services. There is no evidence that Mormon settlers, on the other hand, became more than academically interested in Indian ideology.

Modes of dress changed radically after Mormon contact, especially among the mounted Indians. The unmounted and supposedly miserable Western Shoshoni Indians again resisted acculturation until the mid 1800's. One exception appears to be Little Soldier of the Weber River Utes. He was often described as being extremely proud of his pink, checkered shirt and tailored trousers. The Weber River Utes were more acculturated that other Western Shoshone groups.

During the time period of contact between trappers, explorers and Indians, there is some evidence of acculturation feedback in terms of subsistence patterns, hunting techniques and even the counting of coup (at least taking scalps) by the trappers. Undoubtedly, the trappers picked up this last trait from Plains Indians rather than from Indians of the Great Salt Lake area.

Cultural feedback appears to have lessened during the period of the settling of the valley, but acculturation was more rapid for the Indians during this same period. ■

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U.S.A.S. Capitol Display Installed

1967 Vol. 13 No. 2

George Tripp

Have you visited the Utah State Capitol Building since it has been refurbished? If you have, did you see our display? We think it is the best one there, although a few observers while not daring to openly disagree with us, have, as diplomatically as possible, pointed out that our opinion might be slightly prejudiced. Be that as it may, the fact remains, that members of the Utah Statewide Archeological Society can take pride in the outstanding contribution our display makes to the decor of the State Capitol Building.

We wish to acknowledge the helpful suggestions and full support of Dr. Jesse D. Jennings, of the University of Utah Dept. of Anthropology, Don Hague and Gail Hammond of the Utah Museum of Natural History, and Floyd Memmott, President of the Salt Lake-Davis County Chapter of the U.S.A.S. without which the successful completion of our display could not have been accomplished.

The display is set up in a vertical case, which is located in the east wing of the main floor of the Utah State Capitol Building to the right of the Utah Historical Society display. By erecting a vertical panel we were able to, in essence, make each side of the case a separate display—sort of a "two for the price of one deal".

One face of the display welcomes our visitors and presents an encapsulated Archeological History of Utah, with a few carefully selected artifacts to represent each archeological period.

The reverse face, which is designed to facilitate changing the display, features Danger Cave, Utah's oldest known habitation site, ±12,000 years. At the Danger Cave site early Utahns were forced to use every bit of ingenuity they possessed in order to survive. Every known edible resource was utilized, 240 different plant and animal resources were eaten. This is in marked contrast with the Plains Indians who depended primarily on one animal, the American Bison, to furnish him with food, clothing, and shelter. ■

A Mountain Sheep Skull Exhibiting Unusual Modifications

1967 Vol. 13 No. 2

George Tripp

Throughout Utah, wherever pictographic or petroglyphic panels have been found, the Big Horn Sheep is almost always represented (Figure 1). Many petroglyphic and pictographic panels also bear anthropomorphic figures wearing horn-like headdresses (Figure 2). Why so many figures were adorned with horned head wear by the artist who created them is unknown. However the fact that such figures are so commonly found would seem to indicate that horned headdresses were often worn by early Utah Indians. Perhaps the horns were part of the paraphernalia worn by shamans in certain ceremonial functions to bring good luck to hunters, etc. The fact that many horned figures bear weapons could indicate that the "horned ones" were warriors or hunters or perhaps, like modern Utahns, these people may have been victims of a fickle dame fashion whose decree was that anyone who was anyone wouldn't be seen outdoors without a horned hat. We may never learn the answers to the riddle of the horned figures.

A recent discovery by Mr. William "Bill" Mobely of Green River, Utah, of what appears to be a headdress made from the top of a Mountain Sheep skull with the horns attached (Figure 3) has attracted considerable interest among all students of Utah Indians.

In an effort to lighten what could have been a rather uncomfortable piece of apparel, the maker of this "headdress" cut a 2 inch wide strip from the rear of each horn extending from near the base of the horn to the tip (see rear view Figure 3). Clearly discernible knife or scraper marks are evident along the skull's lower margin below the right horn. It isn't known if part of the sheep's skin or other covering was attached to the skull, at least there is no evidence of a means of fastening any such covering.

All who have seen "Bill's" headdress agree that it is one of the most unusual Indian artifacts found in Utah. ■

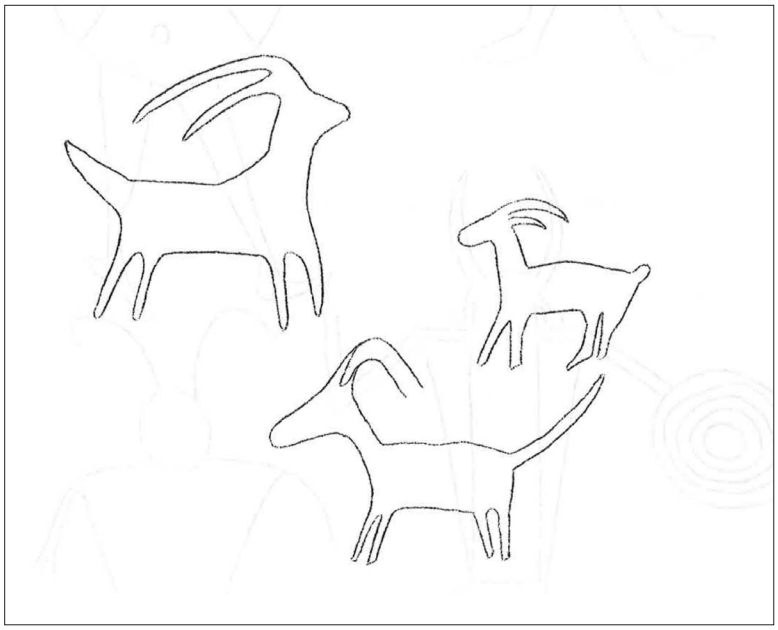

Figure 1.

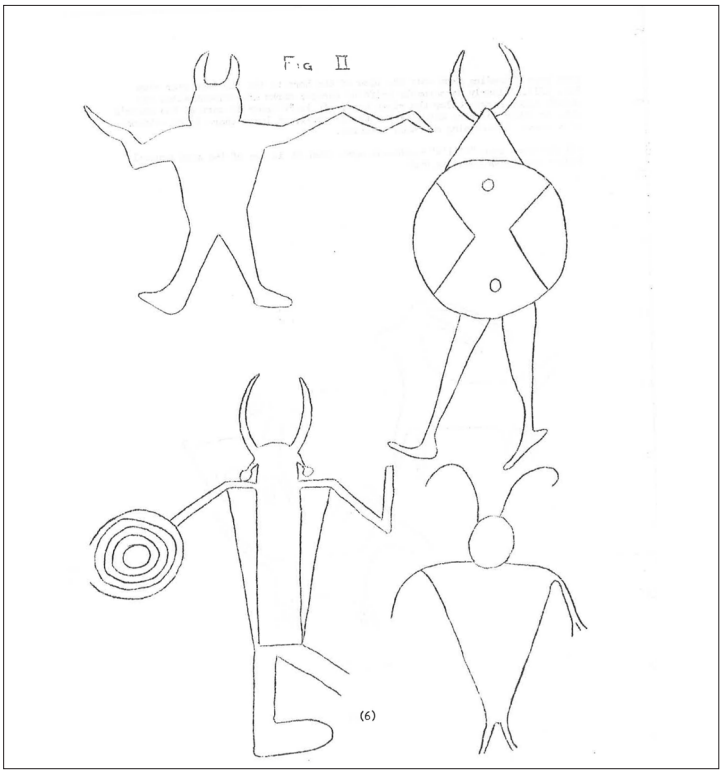

Figure 2.

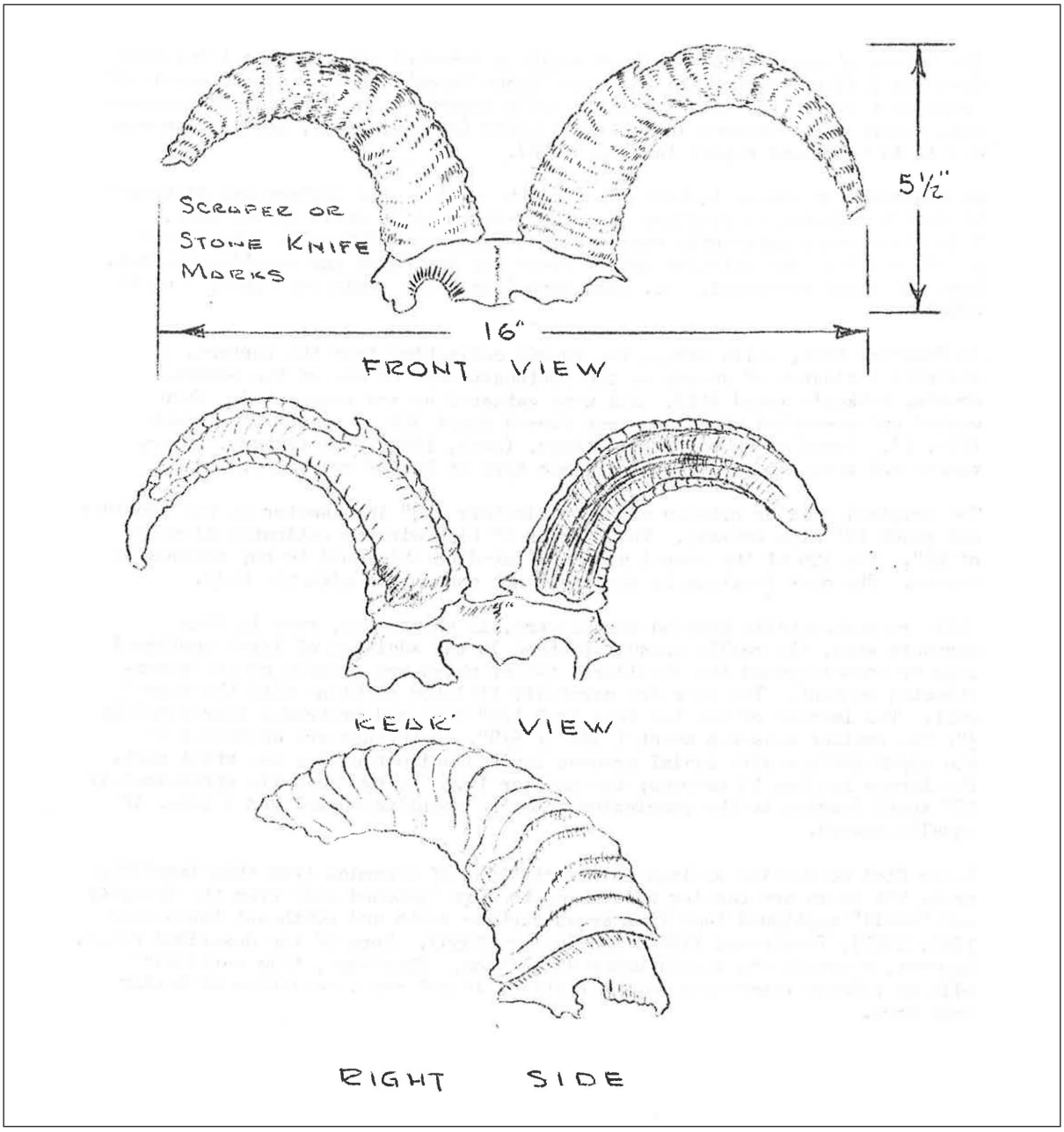
SCRAPER OR
STONE KNIFE
MARKS
5½"
16"
FRONT VIEW
BEAK VIEW
RIGHT SIDE

Figure 3.

Split Twig Animal Miniatures in the Southwestern United States

1967 Vol. 13 No. 3

Grant M. Reeder, M.D.

On a voyage down the Colorado River in June 1967, we explored a cave in the canyon wall. One of the members of the group found a small effigy under a rock, intricately formed by the intertwining and twisting of a long strand of a twig split down its center. The effigy was incomplete and represented the head, neck, and shoulders of the statuette of a quadruped (Figure 1).

These interesting artifacts found in the Southwestern United States are called, in archeologic literature, *split twig figurines*.

I had the opportunity to examine the figurine closely and subsequently came to recognize and appreciate the degree of skill involved in making it.

The location of the cave has some features that are significant in the light of the information I have obtained. The cavern is formed in the Redwall Limestone formation about halfway between Lee's Ferry, Arizona, and the confluence of the Colorado and Little Colorado Rivers, which is the stretch of the Colorado known as Marble Canyon.

Upstream from the cavern, about a half mile, is a tributary canyon. At the mouth of the canyon, situated on a shelf about 100 feet above the river are a number of ruins, remnants of walls of stone without mortar. Potsherds may be found in association with the ruins. According to the students of Grand Canyon archeology, the effigy found in the cave pre-dates the nearby ruins many hundreds of years.

Access to the cave would have to be made by one of two routes. The first approach made by the Colorado River, the second by hiking down the tributary canyon. The Indians in historic times have been very cautious about traveling down the Colorado. None of craft known to be used by North American Indians for travel on water are suited for enduring the rapids of the Colorado. The tributary canyon has been used as an access route in recent years.[1] I have hiked into the lower end of the canyon and know it to be a passable but very difficult traverse. It is the route most likely used by the aborigines to travel to the river at this location and to the cave.

Starting on a project to find out what I could about the twig effigy, I frequently encountered the question: "Do you think it is a fake?" (Others report the same response.)[2] I found that the people who could tell me anything about the split twig miniatures are very scarce. I found some excellent papers written on the subject in the archeological journals.

The making of effigies seems to be a persistent human activity. Effigies are found in the remnants of prehistoric as well as in historic and contemporary civilizations. Arriving at an acceptable explanation for the creation of prehistoric statuettes isn't always easy and sometimes is conjecture at best. Our own culture, highly complex, is difficult to define and analyze even by us; we who know it better than anyone else. Consider the puzzling challenge that will confront some archeologist 4000 years hence when he finds the remnant of a Gift or Curio shop of the 1960's (possibly reduced to ruin by civil disturbance), as he tries to explain the table decoration for a banquet, (a miniature twisted tree of artificial material placed in a shallow dish), the novelty salt and pepper shakers, the

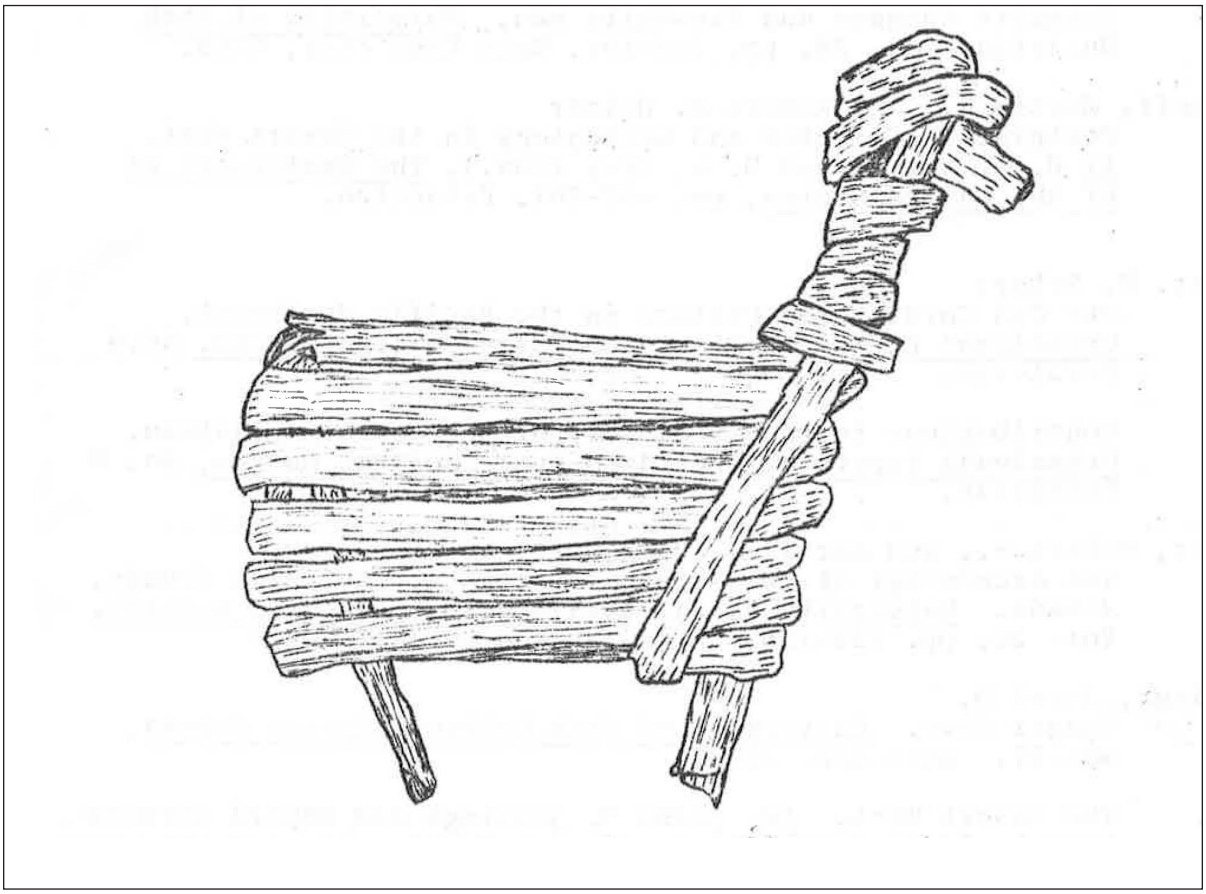

Figure 1. Basic Frame of Wicker Figurine before Body, Neck, and Head are wrapped.

mementos of Yellowstone Park or Fisherman's Wharf (bearing the inscription "Made In Hong Kong"), or the figurines and vases that are truly exquisite works of art.

To reach a conclusion about the purpose and function for each of these items, one must have an insight and understanding about our culture and how the item fits into it. In the same way, we need to understand the culture that produced the twig effigies to explain them. In this regard, we are at a disadvantage. The search for information about that culture has some fascinating history.

An early report published of the discovery of such effigies appeared in 1937 by S. M. Wheeler.[3] He described some animal/ miniatures found in Etna Cave in Southern Nevada in a Basketmaker III deposit. Effigies of the same type had been found in 1933 near Clarkdale, Arizona. Still others had been found in a cave by voyagers in 1934 on a journey through Marble and Grand Canyons. None of these discoveries were publicized until after Wheeler's 1937 report.

Twig figurines have been found in ten locations in the southwestern United States. These locations were: Southern California, Southern Nevada, Utah, Northern Arizona and in the Grand Canyon vicinity.[4] A paper published in 1966 stated that up to that time, a total of about 200 figurines had been accounted for.[5] Most of these have come from caves in Marble and Grand Canyon.

As more figurines and sites have been reported, students have noted a consistent set of conditions in which they are located:

1. All of them have been found in caves, most of these caves have very difficult access.

2. The caves have little evidence that they were used for dwelling purposes.

3. There are no definite cultural relationships. The creators of the figurines are not positively identified.

Initially the figurines were classified Basketmaker III, dating them around A.D. 500-700. Some of the accompanying artifacts (atlatl points) suggested an association with the ground sloth hunters studied at Gypsum Cave which dates them to 8000 years of age or more.[6] They have also been considered as Puebloan and as Yavapai and they have been dated from 10,000 years of age to around A.D. 1300.[4] Most of the earlier discoverers regarded the effigies as Basketmaker III. This view prevailed for a number of years.

The antiquity of the effigies was not definitely established until radiocarbon analyses were reported in 1958 by Schwartz, Lange, and DeSaussure at 3100 ± 110 and 3530 ± 300 years of age.[7]

Euler and Olson in 1965 reported further radiocarbon datings confirming the 1958 determinations. Their results, using specimens from different sites and the services of two separate laboratories, had a range of 3500 ± 100 to 4095 ± 100 years of age. One of the specimen sites used for this study was a cave in Marble Canyon. The other was a cave in Walnut Canyon, a few miles east of Marble-Grand Canyon.[8] The studies provide the evidence for the earliest known occupation of the Grand Canyon by man. The information thus obtained does not indicate how long these people utilized the area or remained in it. The next earliest cultural occupation of the Grand Canyon started about A.D. 700 by Basketmakers.[9] The Cohonino Branch is known by tree ring dates to have settled in the Grand Canyon area about A.D. 750.[10]

The culture of the Western United States for which there is agreement in geographic area and period of time established for the figurines is the Desert Culture.

In 1964, McNutt and Euler made a discovery at Red Butte a few miles south of Grand Canyon identified as Pinto Complex (first described at Pinto Basin in the Mojave Desert). Pinto Complex is a specific subdivision of the Desert Culture. Because of the proximity of Red Butte to the Grand Canyon and because it corresponds in time to the carbon 14 figurine dates, it has been suggested that these people, the Pinto Complex, made the figurines.[11] Except for this probable association, the creators of the figurines have not been identified.

Some observers have thought that the figurines were made for objects of amusement. Most authorities, at the present time, think that they had magico-religious significance, that they probably were made for use in rituals invoking hunting success. The reasons for this interpretation are these:

1. All such figurines appear to represent quadrupeds. (game animals)

2. A few of them had a straight, unsplit twig passing through the body, apparently representing a spear.

3. Most of the figurines have been found in caves with a difficult access, apparently to preserve the sanctity of the sites for ceremonial use.

4. The sites contain no evidence that they were used as living quarters at that time.

In support of this concept, M.F. Farmer quoted a Yavapai, who remembered from his boyhood, seeing the men of his tribe make similar stick effigies before going on a hunt an placing them in a cave. However, there was some doubt expressed about the reliability of the Yavapai claim.[12]

The material used most commonly in making the effigies has been identified as willow. A desirable characteristic of the willow is its uniform diameter with very little taper over a length of several feet. Curious about what was involved, I tried to make a figurine. Although they appear to be very simple in construction-patience, practice, and skill are prime ingredients.

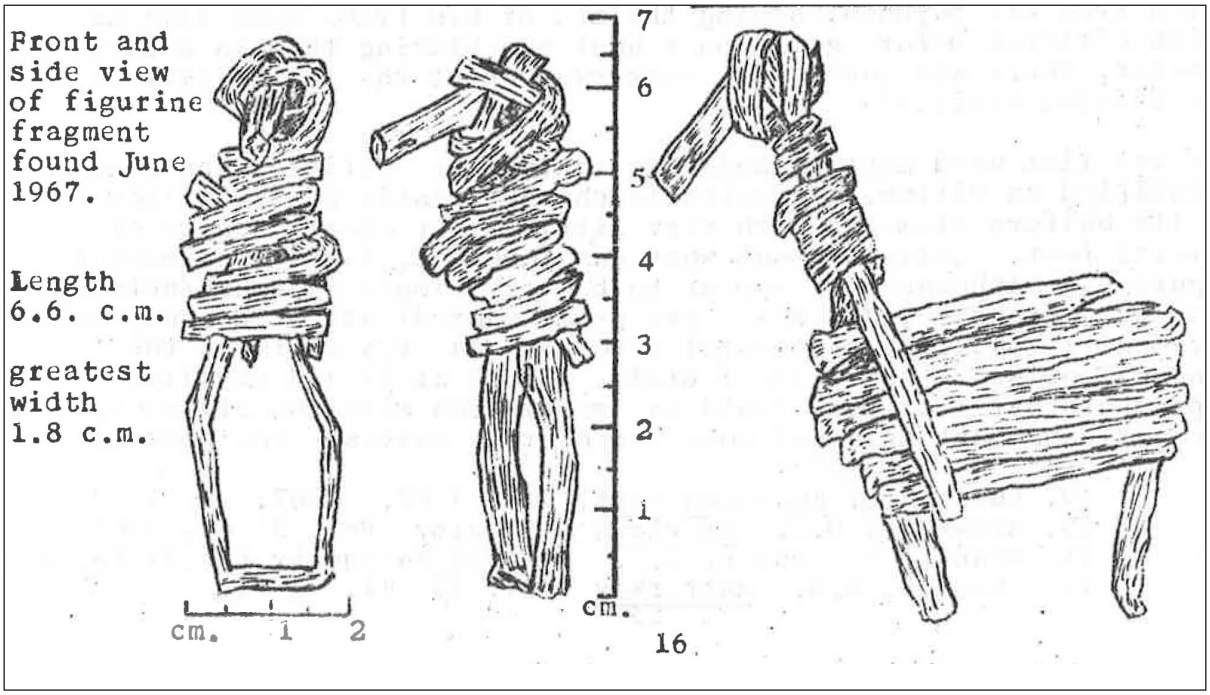

Figure 2. Complete Wicker Animal Figurine.

The only instrument I could use successfully to make an even split of the long willow was a sharp steel blade. Since steel and metallic implements have not been found in association with the effigies, the artisans must have had some sharp stone knives. The process of weaving the effigies takes a degree of excellence that does not come readily. Speculatively, I suggest that the effigies were made by skilled artisans who probably served an apprenticeship in some sort of priest role for learning the art of making the figurines and for performing the related ceremonials.

The creation and use of figurines for ceremonial purposes is a logical explanation. No one is certain who made them. We know that they were made a very long time ago, in a period of time by a culture about which we have very little information (Figure 2). ■

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The Determination of Prehistoric Dietary Patterns by Means of Coprolite Analysis: A Glen Canyon Example

1969 Vol. 15 No. 2

David J. Steele

The analysis of fossil fecal material (coprolites) offers new dimensions in archeological and paleoecological interpretations. In the past the archeologist has had to rely upon the artifactual floral and faunal remains recovered during excavation of archeological sites in attempting explanations of prehistoric dietary patterns and natural resource utilization. The greatest limitation to this type of analysis is the difficulty in ascertaining the exact use of such remains. Coprolite analysis, on the other hand, provides a means of analyzing the remains of actual meals, thus eliminating the speculative guess work that is intrinsic in the determination of diet by analysis of artifactual floral and faunal remains.

In the following paper, I will examine coprolite analysis in terms of its potentials and limitations, describe the techniques being employed by our group at the University of Utah, and finally discuss some preliminary findings in the study of human coprolites now undergoing extensive study from the Glen Canyon area.

Not only does coprolite analysis provide a means of reconstructed aboriginal patterns of diet and natural resource utilization, it also can be used as an investigative tool for other areas of interest to the archeologist and ecologist. Much can be learned about prehistoric disease patterns through the parasitological and chemical analysis of human coprolites (Callen and Cameron 1955; Samuels 1965; Fry 1968a, 1968b). Martin and Sharrock (1964) have demonstrated the potential of coprolites for use in pollen analysis, which not only yields information on diet but also has implications for the study of prehistoric climatic conditions. Methodical special and temporal studies of coprolites could provide valuable insights into the study of man's biological and cultural adaptations to changing environmental conditions.

There are a number of limitations to coprolite analysis, however, these are greatly outweighed by the information gained. One of the greatest problems involved in such studies is acquiring a sufficient sample for statistically valid research. Owing to the perishable nature of coprolites, they can be found only in extremely dry deposits such as caves and rock shelters. This limits the potential number of specimens available for analysis and the range of environmental settings that can be studied by this method. Coprolites recovered in archeological excavations may only represent seasonal or regional patterns of adaptation. Another limitation is that the identified components may not represent by weight the actual percentages of items eaten as meals. Some food items, such as meat or finely ground vegetable products, may be digested and leave no trace in the coprolite, or may occur in such small quantities that it is difficult to assess their dietary importance.

By the same token some food items, such as coarse vegetable material, hair, etc., may pass through the alimentary system largely unaffected by the digestive process and appear in greater quantity than the actual dietary importance would warrant. Finally, once coprolites are recovered, one is faced with the problem of determining origin. To date, no test has been developed to determine if a coprolite is human. This problem, however, can be greatly reduced by careful sampling. Recognizing the fact that man is one of the world's most omnivorous creatures, samples should be selected that have mixed components, i.e., plant material, bone, hair, charcoal, etc., in the same specimen.

Analysis of coprolites from Danger Cave, Hogup Cave, and the Glen Canyon, have been conducted in the Department of Anthropology, University of Utah under the direction of G.F. Fry, who is responsible for the development of the integrated techniques here reported. Specimens are selected on the basis of their shape, color, (black or brown) and observable components. Human feces are generally elongated with a round to oval cross section, therefore, those exhibiting this characteristic and containing mixed components are selected for investigation. Chalky white or gray specimens are rejected as being possibly of canine origin. After selection, extraneous material, such as rocks, twigs, etc., are removed and the specimen is weighed, measured, and described. Depending upon the overall size of the specimen, a 2 to 10 gram sample is removed and soaked for 72 hours in a .5% solution of trisodium phosphate as Callen has done (1955, 1960, 1963, 1965, 1966). Trisodium phosphate is used in the hydration of dried biological specimens since it will not cause structural damage.

The reconstituted coprolite is then screened through a series of three graded geological sieves by washing with tap water after the method of Heizer (1967). The recovered material is then dried, weighed, and separated into meal components with the use of a stereo-microscope. Following separation the components are identified. If exact identification is impossible, they are placed into general categories such as plant tissue, seed fragments, etc. The components are then weighed and percentage weights are determined for all components of each screen. The use of actual weights has the advantage of providing easier and more meaningful quantification of data (Fry 1968a, 1968b).

A sample of 41 coprolites recovered in archeological excavations conducted by the University of Utah at various sites in the Glen Canyon are under analysis. These specimens represent the Basketmaker II, Pueblo II, and Pueblo III stages of the Anasazi culture, and the southern variant of the Fremont Culture. All of these cultures relied upon wild plant and animal resources, supplemented by the cultivation of maize and the pumpkin-squash complex of cucurbits. However, the analysis is not yet complete and statistical studies have not yet been conducted. The following findings are only tentative, yet they illustrate the potential of such studies.

It appears that the overall complexity of the diet, as measured by the number of different meal components in each specimen, changed little in the 1300 years of prehistory covered in this study. Nor did the overall complexity vary greatly from culture to culture. After lumping unidentifiable components, the average number of components during Basketmaker II and Pueblo III times was 8.2; during the Pueblo II stage-8.4 and in the Fremont culture-8.3. It is not surprising that the degree of complexity varies so little when one considers the fact that prior to Lake Powell the Glen Canyon ecosystem exhibited a high degree of stability and homogeneity subject to only minor climatic and biotic differences (Jennings 1966).

When one examines specific dietary components, however, a few differences can be noted which I propose can be explained in cultural terms.

Looking first of all at the three stages of the Anasazi culture represented in our sample-Basketmaker II, Pueblo II, and Pueblo III-one observes that during the Basketmaker II phase there was a strong reliance upon both animal and cultivated foods. Wild plant materials supplemented this complex, but seems to have been less intensively exploited during this phase then those that followed.

At the Pueblo II stage of Anasazi cultural development a strong reliance upon the exploitation of both wild plant and animal resources was observed. Utilization of cultivated products, however, is less than that displayed during Pueblo III times and, surprisingly enough, also less than at the Basketmaker stage.

Upon examination of coprolites representing the Pueblo III phase, one notes a sharp

increase in the degree of commitment to horticultural products over the two earlier stages. Accompanying this increase is a gradual increase in the variety of wild plant material being utilized and a gradual decrease in the amount of animal resources being consumed. All this would suggest a gradually cumulative adaption to the floral conditions of the Glen Canyon.

Analysis of human coprolites ascribed to the southern variant of the Fremont culture demonstrate that this culture was less strongly oriented towards the cultivation of plant materials and more strongly reliant upon wild vegetation. Additionally, exploitation of animal resources was seemingly low in comparison to that of plants.

When one examines each culture in terms of the cultigens present some interesting cross cultural differences can be observed. It is evident that of the four cultures being studied, the southern Fremont relied most heavily upon the cucurbits. Other cultigens however, are not present or occur in very small percentages. Added to the very high percentage of wild plant remains in these specimens one is led to question the importance of horticulture to the southern Fremont. It is possible the cucurbits grew in a semi-wild state and were available as part of the plant inventory for gathering.

Maize and cucurbits appear to be of about equal dietary importance during the Anasazi era although there is a slight preponderance of cucurbits over maize during the Pueblo III times. Cotton was not recovered from Fremont Coprolites.

Cactus, cheno-am seeds, grasses, and composites are the most common identified wild plant materials recovered to date. Of these, cactus appears to be most common and was most highly exploited by the Fremont culture. All of the identified wild plants appear to have been most extensively exploited by the Fremont.

Finally, I must emphasize the fact that this study is not yet complete and the findings presented in this paper are only tentative in nature and may be subject to change as the total analysis, including statistics, is completed; yet it can be seen by the material presented in this paper, that methodical analysis of human coprolites, including rigorous statistical verification, has great potential in the study of man's biocultural adaption to his physical environment. ■

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Testing Matheny Alcove, Southeastern Utah

1969 Vol. 15 No. 3

Dee F. Green

Several years ago while Dr. Ray T. Matheny of Brigham Young University and Dick Smith, a local pilot, were flying in and out of canyons west of Blanding, they spotted a large alcove with several intact ruins present. Later, in the fall of 1967 the writer accompanied Dr. Matheny during the initial ground survey of the site. Surface finds indicated that despite the large size of the alcove not much rain had penetrated the interior. Corn tassel, yucca knotting, turkey feather string, etc. were present on the surface along with the usual nonperishable items such as pottery and stone tools. Although the site had suffered some vandalism, it had not been extensively pothunted and was obviously worth some testing if not full excavation. As I had just come to Weber State and was anxious to once again become involved in Anasazi archeology, Dr. Matheny generously suggested that Weber State test the site with an eye toward future cooperative excavation if it proved worthwhile. The following year Weber State obtained a federal permit for the work in the area. The site was named after its discoverer, and a test pit was begun. I should like to thank Mr. and Mrs. William A. Penberthy, students at WSC who excavated the pit, and Mrs. Penberthy who conducted the specimen counts and preliminary analysis in our laboratory. Also Sandra Montes who was responsible for the art work.

Matheny Alcove is located in the Cedar Mesa country southwest of Blanding, Utah, on the western slope of a small unnamed side canyon which eventually drains into Comb Wash. The alcove is about 5200 feet in elevation and some 250-300 feet below the canyon rim. The mesa top is covered with the typical pinon-juniper forest of the area. Water was available at a seep in the alcove which is now heavily overgrown with reeds. The alcove itself is about 150-200 feet long and over 50 feet high at the drip line which extends 40 feet or more out from the canyon wall. A total of 19 structures including two kivas and a row of seven granaries have been discovered within the alcove. One of the granaries has a roof preserved in almost perfect shape. The larger kiva is partially exposed and shows some rebuilding as well as traces of interior plaster. The other kiva has almost been obliterated by a rock fall from the roof of the alcove. Human figure petrographs in red paint and several ax and awl sharpening grooves are located on the downstream side of the site.

The row of granaries sits near the front of the alcove just inside the drip line. They serve to protect a small plaza or use area from rain or snow entering the front of the alcove. Surface preservation in this area was very good, and while most of the pothunting had gone on here, we were able to locate an undisturbed five feet square for our test pit. The pit was sunk five feet behind the granaries and about 250-30 feet from the cliff wall. It went to a depth of five feet where bedrock was encountered. The deposits were sandy and filled with a great deal of plant material. It was very difficult to maintain any kind of a profile due to the looseness of the sand so the sides of the pit were sloped. The stratigraphy was also very difficult to read consisting of sloping and intermixing bands of plant remains. Artifact production was excellent, however, especially in terms of normally perishable items, here preserved due to the extreme dryness.

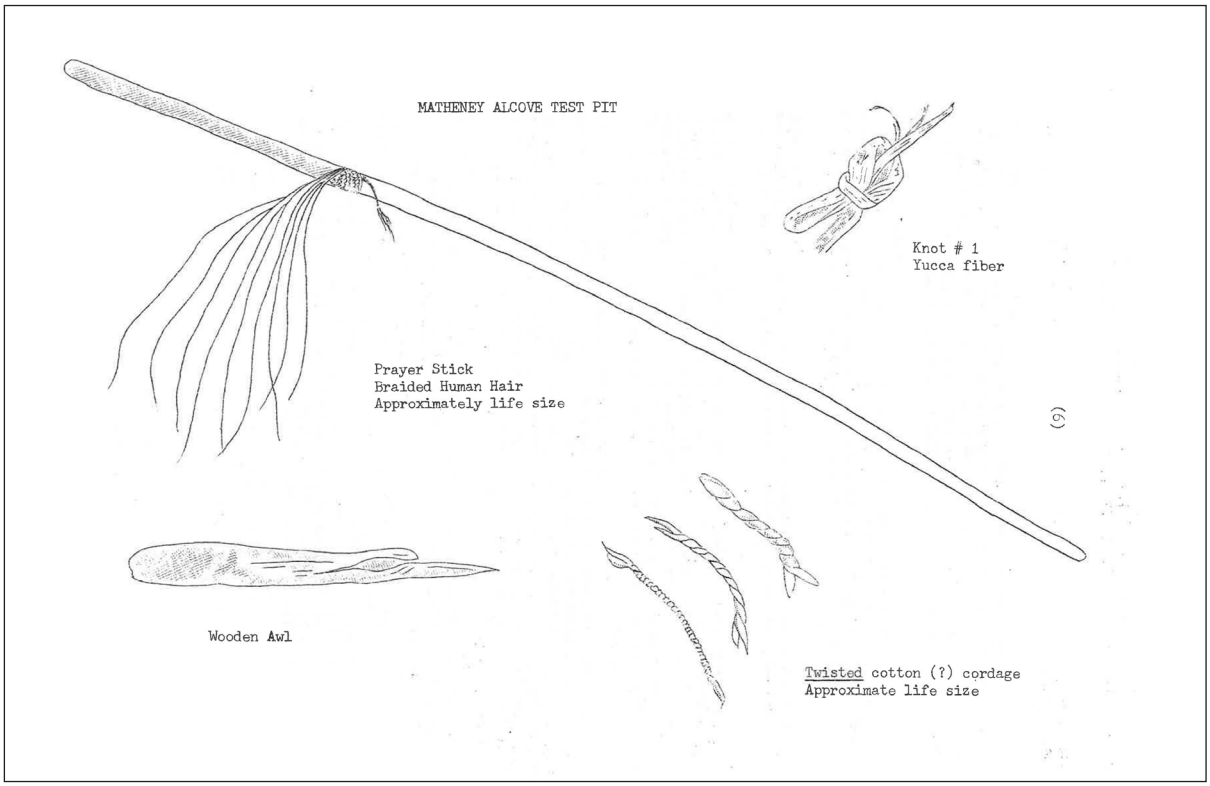

Figure 1.

Most of the artifacts were found in the first two levels, including a prayer stick tied with human hair (Figure 1). The Table 1 is a sample of materials recovered from the test pit. I have emphasized perishable items, and the list does not include all specimens recovered. These will be reported in the final field report when analysis of them is completed.

While no dendrochronology dates nor C14 dates are yet available, it appears from the ceramics that the site is Pueblo II with perhaps some Pueblo I occupation. The pottery is essentially corrugated and plain grey with a few Pueblo II Black-on-White types as well as some of the San Juan Red series. Only a single piece of Mesa Verde Black-on-White and three polychrome sherds were found. The test pit yielded 95 sherds and 38 stone artifacts. Total material recovered from the pit was 3235 items of which close to 3000 could be considered artifacts, mostly perishable plant food remains. This suggests that the area of our test pit had importance as a food preparation location. It also suggests, of course, that open sites where perishable material decays tend to give us highly skewed notions of the quantity of pottery and stone tools present in proportion to other classes of artifacts.

Outstanding preservation coupled with size and depth of fill at Matheny Alcove offers us an outstanding opportunity to continue the elucidation of Anasazi culture history and cultural ecology. In the next few years you will be hearing more about this important site in southeastern Utah as our researches continue. ■

Table 1. Sample of Recovered Materials.

Class	Number of finds
Bean pods	59
Beans	22
Cordage of various kinds	56
Corn cobs	738
Corn Kernels	144
Curcurbit seeds	34
Feathers	130
Human hair strands	17
Knots of yucca fiber	59
Portions of corn stalks and leaves	401
Portions of Curcurbit rinds	177
Reeds	59
Turkey feather cordage	3

Some Historic Indian Burials from Utah Valley

1969 Vol. 15 No. 4

Evan I. DeBloois

In November of 1965, three rock hunters discovered a burial near Salem, Utah at the south end of Utah Valley. They reported their discovery to the writer and showed him the location of the site. The burial is located in Water Canyon east of Salem. Upon examination the "burial" turned out to be two burials and possibly three in shallow rock-covered graves at the base of a rock slide. The remains of the burials and the associated artifacts were removed to the Museum of Archaeology and Ethnology at Brigham Young University where the author was a graduate student. This discovery was originally described in the author's Master's thesis (DeBloois 1967) and is reported here because of the detail it gives concerning a very important period of Utah history about which little is known archaeologically.

The Indian burials near Salem (42UT225) yielded many artifacts from the early historic period of Central Utah. These are individually described under the headings of metal artifacts, bone, and shell artifacts, leather artifacts and ceramics.

Metal Artifacts

Most of the metal objects were badly rusted from exposure to the elements in the shallow rock-covered graves. According to the informants, most of the items found were associated with the uppermost burial, designated Burial 1.

A pair of common square-tipped household scissors, 7 ¾ inches long, a tablespoon 7-⅞ inches long with traces of leather rusted to the handle, and a knife 7 ¼ inches long were among the items found. All of the above items were badly rusted, and the tip of the spoon broke off upon removal. The remains of a wooden handle and the copper rivets that attached it to the shank of the knife were still preserved. A second knife 7 ¼ inches long and 1-⅛ inches wide fits a leather sheath described below. The point is missing, but most of the wooden handle is still attached by metal rivets.

An 18 inch long iron spear point with double-edged blade is 1-⅜ inches wide. The metal collar from the fore-end of the handle is still held on the square shank of the spear by the tapered crosspin that once held the wooden handle. The lower three inches of the blade contain a series of notches filed into both edges, 19 on one side and 20 on the other. The blade is heavily pitted with rust.

Eleven metal projectile points were recovered with Burial 1. These are long (4 inches to 5-⅛ inches), narrow (¾ inch to ½ inch), and thin ($^1/_{16}$ inch) iron blades with parallel-sided stems. The blades have straight sides and slightly rounded points. Two of the points have pieces of fabric rusted to them, either from a cloth container or from contact with fabric in the burial. Slight traces of organic material on the tangs of several other points may be the remains of wooden shafts. Although longer than most stone projectile points, the consistent size and frequency of these metal points indicates their use as projectiles. They are about the same size and weight as many modern metal arrow points.

Also found with Burial 1 were the parts of a cap-and-ball rifle. The wood stock and forepiece have disintegrated, but the metal parts were recovered. The barrel is three feet long and

octagonal in shape as is the bore. The front sight is a tapering blade, higher toward the rear. The rear sight is badly eroded, but it appears to have been a vertically adjustable notch sight. Three small tabs protrude from the lower surface of the barrel and tapering pins are wedged through holes in these tabs, probably to fasten the forepiece to the barrel. Pieces of fabric similar to those on the projectile points are rusted to the barrel also. The firing mechanism is side mounted and still contains a fired cap in position over the firing port. The trigger guard, trigger assembly, screws from the stock, a cheek piece, and two copper joints from the ram rod were also recovered.

Fragments of a powder flask, consisting of the narrow opening and top end and part of the wooden base were part of the burial goods. The wood still shows stains from black powder. Other curving pieces of metal may also have come from the flask. Another metal container was found in very poor condition and its use has not been determined.

Forty-two lead balls of three different calibers came from the burial site, the smallest balls fitting the above mentioned rifle. Sixteen balls are of large caliber, 1.3 cm. in diameter and averaging 13.4 grams in weight. Twenty-one balls are of medium size, 1.1 cm. in diameter and averaging 8.3 grams. The smallest rifle balls are 1.0 cm. in diameter and weigh an average of 6.8 grams. One of the large caliber balls is flattened on two sides as if it had been fired and then recovered.

Two bone-handled pocketknives were also found. Each is 4-⅛ inches long and 1 inch wide. They have two blades each and small metal insets in the bone handles. One is badly rusted and has broken into several pieces. The other is in fairly good condition.

One iron ax was included among the items from Burial 1. It measures 6-¾ inches long and tapers from 4-½ inches in width at the cutting edge to 3-⅜ inches at the heel. The cutting edge is convex and thick. A small piece of the wooden handle is preserved.

A brass pail with a wire bail measures 9 inches in diameter and 6 inches in depth. The outside is blackened with smoke and the rounded bottom has numerous dents. The bail shanks are riveted to the sides of the pail. Except for the rivets and the bail, the pail is in excellent condition with very little corrosion.

A tinned-iron basin 9 inches in diameter at the bottom and 12 inches in diameter at the top was found with the pail. Its sides are made of five sections of metal, four 8-½ inches long and one 4-½ inches long. The sides are 4-½ inches high and are rolled over a reinforcing wire at the top. The metal is still strong even though it is coated with rust.

Several metal buttons were discovered: nine are of the shank type, and one is a flat button with four center holes. The shank buttons are of different sizes and are decorated with two different designs. Five large buttons, 1 inch in diameter, are decorated with an outspread eagle with a shield on its chest. Three of these copper buttons were strung together on a leather thong 2 inches long. One button of bronze also carries the outspread eagle design.

Two small copper buttons are ½ inch in diameter. One carries the same eagle and shield design while the other has a four-pointed star inside an eight-pointed star. On the reverse of the shank buttons with the eagle design, the words A.N. VORSTMANN & ALLINN can be made out. (The underlined letters are questionable.) This is apparently the name of the manufacturer.

The last of the metal buttons is made of copper with a silver coating. It has a design of a standing lion inside a circle formed by a belt with buckle and eyelets. Written on the belt above the lion's head are two words, some of the letters of which have been obliterated by corrosion. The first word is VIRIV IS, the two underlined letters being either questionable or unreadable (only one letter was underlined in original text). The last word is clearer, AMORE.

Three iron buckles were found associated with numerous leather straps. One buckle is 1 inch by ¾ inch, and two are 1-½ inches by 1 inch in size. Fragments of leather are observed

on the buckles and they likely are the remains of a bridle or harness of some kind.

A small copper bell was found with Burial 1. About ⅜ inch in diameter, it has a shank for mounting and a narrow slit with circular holes at each end for emitting sound.

A small bracelet of bronze or copper measures 2-⅜ inches in diameter and may belong to the smaller individual of Burial 2. It is made of a strip of metal ⅜ inch wide bent into a circle. It is much more rust resistant than most of the other objects.

Three wire rings 2-¾ inches in diameter of undetermined function were also found. These are made of wire $^{1}/_{16}$ inch in diameter. The ends are not fastened together, but the ends of the wire are tapered and grooved to fit together.

Shell and Bone Artifacts

Several small buttons made of white shell and one of yellow bone or ivory came from the burial area. Seven white shell buttons ⅜ inch in diameter with oval cross-sections and four holes probably came from the same garment. Three other white shell buttons are ⅜ inch in diameter and have a dish-shaped cross-section and four holes. The one yellow button is ⅝ inch in diameter and had four holes. The one yellow button is ⅝ inch in diameter and has four holes. It is flat in cross-section.

Leather Artifacts

The leather from 42UT225 is very fragile and brittle. With the exception of the shoes from Burial 1, only small pieces of leather were found. Numerous leather straps were all that remained of a bridle or harness. The shoes were in unusually good condition compared to the other items found. They are about size nine (the interior length is 9 inches). They appear to have been machine sewed and are laced through a pair of holes in the front of the shoe and two holes in each of two side pieces that wrap around the ankle. The toes are square.

A knife sheath of leather fits the wooden-handled knife described above. This scabbard is 7-¾ inches long and 1-½ inches wide. It was hand-sewed but the thread has long since decayed. Along the back edge of this sheath a series of 18 notches have been cut.

Ceramics

Only one ceramic object was found at 42UT225, a pipe bowl made in the form of a human head. This pipe is obviously of European manufacture and shows a heavily bearded man with curly hair. The facial features represented are distinctly European. The pipe is made of red-fired pottery with a glazed surface. In the interior of the bowl only a few signs of use are noticeable. The pipe measures 1-¾ inches from the chin of the head to the top of the bowl and the bowl is 1-¼ inches in diameter. The short stem was likely fitted with a mouthpiece of wood or some other perishable material.

Human Skeletal Remains

Two complete skeletons were removed along with a fragment of a third skull from the burial location in Water Canyon. These were designated Burials 1, 2, and 3 in order of their discovery. Burial 1 was the most recent and best preserved of all the skeletons, and was found directly above burial 2 and 3. This burial was associated with a number of artifacts dating to the early historic period of Utah and described above. It is likely a northern Ute burial of the 1800s.

The skull of Burial 1 is in excellent shape and is pronouncedly dolichocephalic with no occipital flattening. Measuring roughly 190 mm. in glabello-occipital length, and 130 mm. in width, it has an approximate cephalic index of 68.4. A small segment of the left zygomatic arch is missing and there is a small nick in the mandible directly below.

The teeth are all present except for the lower right canine and the upper right first pre-molar. The lower incisors and canines are crowded and have grown irregularly. The left lower third molar

was lost prior to death and the mandible has grown over the root hole. There is one large cary in the third molar on the right side of the lower jaw. The other lower teeth are free from caries except for very small ones in the first molars. The upper teeth are also in good condition, well-worn but not to the point of obliterating the cusps. All of the teeth are well developed. Both upper third molars have deep caries, but only a few small ones appear in some of the other molar and pre-molar teeth.

Burial 2 from 42UT225 represents a small delicate individual, probably female, and the skull separated into several sections along the sutures upon removal. The skull of Burial 2 measures roughly 170 mm. in glabello-occipital length and 135 mm. in width for a cephalic index of about 79.4. The teeth are little worn and indicate death at a relatively young age. All of the lower teeth are present except the right second molar, which was lost after death. Both lower third molars are impacted and the tooth buds can be seen developing through small root holes in the mandible.

More of the upper teeth are missing, as the left second molar, left pre-molars, right second incisor, right canine, and right pre-molars were lost after death. The two upper third molars are also impacted and can be seen well-developed just below the surface of the maxilla. Very small cavities in the fissures of the pre-molar and molar are the only ones seen. There was a considerable amount of over bite and the front teeth extend above and below the levels of the pre-molar and molar teeth.

The fragment of a third skull was found at 42UT225 upon the examination of the site after the other two skeletons had been removed by rock hunters. The fragment consists of the upper half of the left eye orbit, the left half of the supraorbital torus, and the left front section of the calvarium. Measuring only 50 mm. from the orbit to the top of the skull and 55 mm. from the supraorbital torus to the bregma, it is the skull of an infant or very young child.

Summary

The burials and associated artifacts were found about 500 feet into Water Canyon, at the foot of a rock slide some 50 feet wide and 150 feet long. The two burials were recovered from the foot of this slide by informants, and a third burial was removed from the same location several years earlier by a local resident. Broken limestone rock was used to cover the deceased, and some soil, probably windblown, also overlay the remains. The two burials were not contemporaneous, and the earlier (Burial 2) was greatly disturbed by the later one (Burial 1). Most of the artifacts found probably belonged to the latest burial.

The location of the burials near the foot of a talus slide appears to be a relatively common occurrence in this part of Utah as other burials with similar artifacts have been reported for different talus slides from the mouth of Spanish Fork Canyon south along the Wasatch front. These burials have not to my knowledge been reported in print, although artifacts from several have been donated to various museums, including Brigham Young University.

The nature of the associated artifacts suggests that these were historic burials, probably dating to the period of time shortly following the settlement of Utah Valley in the 1850s. The frequency of known northern Ute burials in these environments suggests the remains are of the same group. There are not artifacts of exclusively Indian origin in the burials, but the presence of "shovel-shaped" incisor teeth in both skeletons indicates they are Indian rather than European.

It would be useful to both the archaeologist and the historian alike to have more information from this little known period of Indian-White contact in Utah and hopefully other burials similar to those described above can be found and excavated in the future. ■

UMNH Open

1969 Vol. 15 No. 4

Dr. Jesse D. Jennings

The Utah Museum of Natural History opened on October 6, 1969, and has begun to have an impact as an educational resource for the State of Utah. With the cooperation of the news media and through the strong interest of elementary and secondary school people through the State, many folks are generally aware that the Museum exists and is now operating.

Far fewer people, however, are aware of the history of this new facility on the University of Utah campus. The Museum was established by the Utah State Legislature in 1963 by Senate Bill 18 which authorizes the establishment of a State Museum of Natural History. However, a comparable bill had been introduced in the 1961 Legislature. The 1961 bill was misinterpreted by some of the legislators who feared that the establishment of such a statewide institution would damage or harm or compete with other State institutions such as the Vernal Field House. The members of the Utah Statewide Archaeological Society were requested to inform the Representative and Senators of the need for a museum, explaining that there would not be competition with other institutions and that it would become a State resource as both a local educational resource and a tourist attraction. The Society members did their work well; the 1963 bill passed without dissenting vote. Particularly active in the campaign of persuasion were Messrs. George Tripp of Bountiful, Merril Peterson of Logan, and Eldon Dorman of Price. Thus in a very real sense the Archaeological Society gets credit for the difficult first step: an authorization.

After the establishment, the areas of cooperation in development increased greatly. On the University of Utah campus, Vice Presidents Maxwell, Hodson, Dykstra, Adamson, Emery, and King helped in every possible way, including persuading the regents to make available necessary space in the George Thomas Library when the new Library opened.

The enabling legislation provided no funds with which to create the displays so the University appointed a Director but made no funds available. It became necessary, then, to raise money in the community. First donations came from Mrs. Cleone Cooper Hansen of Monticello. The opportunity for the seed gift was made known to her by Mr. Cal Gaddis of Dean Witter & Company. Mr. Gaddis subsequently organized and incorporated the Associates of the Utah Museum of Natural History and has served as President of the corporation from the beginning. The Associates have succeeded in raising some $120,000, all of which has gone into planning, construction and installation of the Museum displays. Additional financial help has been received from the National Science Foundation while the University has made limited funds available as an advance against future income.

The October 6, 1969, opening came some 3 ½ years after the first exhibit was constructed. Exhibit Curator Hague, with a modest staff, built exhibits during the entire three-year period so that when the library building came available it would possible be assembled over 80 first-class, high-quality displays in a relatively short time. The opening itself was a simple affair to which all donors, including family membership holders, University administrators and members of the Junior League were invited.

In view of the fact that we think of the Museum as a community resource, it is designed for the layman viewer rather than the specialist.

Thus it is already popular with the schools; their support began the very first day. The Junior League of Salt Lake City has donated the salary for Mrs. Frances Minton, the Scheduling Officer; she is also Head Docent. She schedules all school visitations and schedules the many Junior League women to act as docents. These women are all volunteers. Without the continuous support of the League through the years and the volunteer work of these women, we could not operate the facility effectively. Junior League support has been manifest and continuous over the last four years. And at present the League is making firm plans to establish and operate a Junior Academy in conjunction with the Museum, further strengthening it as a service institution.

In sum, the Museum represents continuous dedicated labor and volunteer support on the part of many people over the years. Its success seems to be assured and all who have participated can well be proud. Construction of exhibits will continue for several years because one entire hall, basic Biology and Ecology, has not been built, but it is necessary for the rounding out of the natural history concept. ■

First Season's Excavations at Edge of the Cedars Pueblo, Blanding, Utah

1970 Vol. 16 No. 2

Dee F. Green
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Since Brew dug on Alkali Ridge in the early 1930's, systematic archeological excavation in eastern San Juan County has been confined to a few small sites. There have been a number of important surveys in the area, principal of which is the work of the University of Utah in the Glen Canyon Region (see Fowler 1959; Lister 1958; Lipe 1960; Sharrock 1961, 1963, 1964; Jennings, 1966) and by Dr. Ray R. Matheny of Brigham Young University in Montezuma Creek (Matheny 1962). Also during the past two years, the writer and Professor Matheny have surveyed and dug a few small dwellings on Cedar Mesa, and William Lipe has worked with Basketmaker II sites in and near Grand Gulch. The results of these later activities were not yet in print, except for a brief report by Green (1969). The county has seen a few other projects such as the Hammond Canyon survey by Gunnerson (1962), Sharrock (1966), and Aiken's survey of Canyonlands, Shroeder's excavations in Natural Bridges National Monument (Schroeder 1965), and an earlier survey by Rudy in Beef Basin (Rudy 1955). But the intensive excavation of a large village on the scale of Brew's Site 13 has not been attempted.

Last summer, however, two such projects were started in San Juan County, one by the BYU in a large Pueblo I pithouse village in Montezuma Creek, and the second by the writer at site 42SA700, a Pueblo II village on the outskirts of Blanding. The latter site, locally known as Edge of the Cedars Pueblo, is the subject of this report.

We first inspected the site in the spring of 1969 in the company of Professor Matheny and Dr. Dale Berge, also of BYU. The surface pottery clearly indicated that the site was culturally Pueblo II with perhaps some earlier material present but a surprising lack of Pueblo III or later material. The extent of the site, over 600 feet long and 200 feet wide, clearly put it in the class of Brew's Site (Brew 1946) in terms of size, although surface materials did not suggest that the time range for Edge of the Cedars approached the Basketmaker III to Pueblo III inclusive range suggested by Brew (Brew 1946) for his Site 13. Since our interests had already begun to focus on the Pueblo II cultural period, and we felt that the time was appropriate for some extended excavation at a single site, we were pleased by the kind invitation of Mr. Cleal Bradford, Director of San Juan Resources Incorporated, and the Chamber of Commerce and people of Blanding to excavate Edge of the Cedars Pueblo.

The site runs north and south along the western edge of town in a large field near Westwater Canyon. A spring below the site undoubtedly served the culinary and agricultural needs of the aboriginal inhabitants and is credited with saving the community of Blanding years ago when other water sources failed. Early inhabitants say that the site was originally covered with a pinon-juniper forest which was later cleared for planting. The central area of the site, however, proved to be too rocky to plow and was therefore left largely intact except for the removal of some stones for building purposes and surface collecting. Paradoxically, the site's proximity to the town and its private ownership has preserved it from the wanton vandalism so common on many archeological sites in the region.

We began our work by mapping the site under the direction of Professor Evan L. DeBloois from Weber State College. He has prepared a contour map of the site, locating the major ruin areas and large depressions as well as five control points for the site, lettered A through E. Excavation was begun around control point C, that is, in Complex C, which, from surface indications, appeared to consist of a series of contiguous rooms and a large circular underground structure or kiva, located approximately in the center of the site. We began on the western edge of the rubble mound in what appeared to be two rooms which we labeled Units 1 and 2. Subsequent excavation units (in this case identical with rooms) to the east number through 11. Of these, we were able to excavate Units 3, 4, and 6, as well as locate the corners of the remaining units. A brief resume of each unit follows: Unit 1 proved to be not a room at all, but a plaza area between what we infer is a kiva in Complex B and Complex C, Unit 2, which turned out to be a kiva.

Unit 2, from surface indications and its position on the west rather than south of the contiguous set of rooms in Complex C, did not at first appear to be a kiva. However, with the removal of the rock overburden, the circular walls and a remaining portion of the vertical ventilator were exposed inside the four walls forming the rectangular room. At this point we decided to bisect the circular portion of the structure in order to obtain a profile of the fill, which we felt would tell us something of the destruction process. We, therefore, cut into the south half of the circular portion and excavated same to clay floor. In so doing, we discovered that a narrow banquette, the pilasters, and the walls were all covered with several layers of red mud plaster in a fine state of preservation. While no painting was detected on the final coat or layer, traces of a white wash or paint in undetermined patterns appeared in some areas where roots had eroded the outer surfaces of the plaster. This cut also exposed a portion of the firepit and the ventilator tunnel, which was cut into bedrock and run under the floor from the vent shaft to just in front of the firepit, thus alleviating the necessity for a deflector stone.

As anticipated, the profile through Unit 2 revealed some interesting information about the destruction process. Upon abandonment, a thin layer of sand blew into the structure through the central roof hatch. This layer is thicker toward the middle of the room under the hatch and nearly disappears toward the edges of the room. There then followed a period during which debris, mostly in the form of sherds and dirt, washed from the roof of the structure and probably from the second stories of rooms to the east and began filling the room. This debris also piled up under the centrally located entryway, forming a mound in the center of the room which was clearly visible in our stratigraphic cut. Later, the cribbed section built on the pilasters along with the roof fell in, such that remnants of cribbing timbers were found along the walls between the pilasters. Rock fall from all the walls, but especially from the higher structures to the east, completed the process. There was no evidence of burning of the roof or cribbing timbers. The few fragments of timbers remaining were in such poor states of preservation that we could only estimate their original size and length, but their pattern of fall clearly indicated that cribbing had been employed to raise the roof from the level of the pilaster tops to the height of the outside walls, or some six feet.

After removal of the remainder of the fill, the sipapu was uncovered along with the remainder of the firepit, and a large trench running parallel with the firepit cut into the bedrock was discovered on the west side. I presently have no notions as to the function of this latter feature and indeed am not aware of it occurring at any site other than a kiva excavated by the BYU Field School last summer at site 42SA863.

Unit 3 is a rectangular room measuring 8x13 feet, constructed of double coursed sandstone blocks set in red mud mortar. The remaining walls stand between seven and eight feet high, and as we cleared the room we found the top four feet filled mostly with stone. The next 2 ½ feet

consisted of a mottled fill with fairly high sherd content and a lot of large charcoal fragments. Immediately above the floor in the southwest end of the room, a heavy ash concentration was encountered. Mingled in the ash and resting directly on the floor were a number of pottery sherds, all Pueblo II culturally. In addition, burned corn cobs and a large piece of burned basketry was uncovered. It was from this deposit that we also recovered a broken 3 centimeter long copper bell, the first of its kind reported from the state of Utah and presently under analysis by Kennecott Copper Corporation.

Units 4 and 6 are considered together, as they are essentially the same. Both are square storage rooms measuring 8x8 feet, constructed again of double coursed sandstone blocks set in mud mortar. The walls of these rooms have more conspicuous scabbing or chinking than in some other areas, although this practice is common over the walls so far exposed. The room fill was again mostly rocks from the fall of the stories above, for a depth of eight feet. Pueblo II pottery was fairly abundant, and field impressions indicate a strong emphasis on corrugated or domestic storage wares. In Unit 6, after cleaning the clay floor, we removed a test section in the northeast corner and discovered what we infer at this time to be a Pueblo I pithouse stratigraphically beneath the floor. Only a small portion of this structure has been excavated, but it appears to continue under Unit 4, as well as south toward the largest kiva on the site.

Besides the excavation activities enumerated above, we were able, through the kind help of our Navajo labor force, to complete the reroofing of the kiva designated Unit 2. We did this by cribbing up from pilaster to pilaster on the interior circular portion of the structure with juniper logs, then placing five beams to span between the outer walls. These latter were then cross-beamed and juniper bark placed over the whole to chink up any openings. Finally, a coat of mud was placed over the juniper bark and a central hatchway left for entrance. The reconstruction was modeled after an intact and undisturbed Pueblo II kiva discovered earlier last spring by the writer and Mr. Jeff Fee, an anthropology student at Weber State College, in the Cedar Mesa country southwest of Blanding.

On the basis of the small amount of work so far done on the site, we have confirmed the Pueblo II cultural nature of the masonry portion of the central site area. We have also discovered that Pueblo I structures are present stratigraphically, but their extent and nature remain to be investigated. We do not as yet, have any dates from our C14 samples, and therefore we estimate on the basis of comparative ceramic material and the architecture that the time span of the site is within A.D. 800 to 1100.

Excavations at Edge of the Cedars Pueblo will continue this coming summer beginning about the second week in June. We invite you to visit with us on the site between then and the middle of August. ■

Why Historical Archaeology?

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The question people usually ask me when they learn that I am working with sites that date from post-Columbian times are: (1) What is historical archaeology? (2) What good is it if we already have the documentary sources? (3) Why study historical archaeology? These three questions are valid to ask of any discipline—what is it, why study it, and what good is it? If they cannot be answered by the scientist, he should do something else to justify the use of his time. The justification for historical archaeology may be analyzed by answering these three questions.

(1) What is historical archaeology? I have used the term "historical archaeology" for definite reason. "Historic" (Guralnik and Friend 1959:689) means "famous in history," while "historical" also means "bases on or suggested by people or events of the past," "established by history, not legendary or fictional; authentic; real, factual," and "showing the development of evolution in proper chronological order." These latter definitions seem to me to suit the purposes of defining what archaeologists are working with and for in post-Columbian sites.

Those sites which are literally famous in history, like Jamestown or Gettysburg, could properly be called historic, but "historical" is more encompassing and includes the many less historically important sites. It further implies the way of life of common, ordinary people of which the world is comprised in far greater numbers than the famous heroes of history. I also believe that it is not necessary to include "sites" in this relationship. If we know we are dealing with archaeology, it is logical to assume the connection with sites. Archaeology is not archaeology, directly or indirectly, without sites as points of reference, even though archaeology is not just excavation. For these reasons I have used the label "historical archaeology."

In terms of general methods and theory, historical archaeology is little different from prehistoric archaeology except for the addition of documentary evidence. It is simply related to a different time period—like Mesolithic to Neolithic, or Preclassic to Classic. Certainly the Neolithic Revolution is of no more importance than the Industrial Revolution. Within post-Columbian times there are sites which reflect nearly all stages of human technological development, be they hunting and gathering or high civilization. In the area of theory, the interpretations of archaeological data are augmented by documentary evidence.

Strictly speaking, historical archaeology begins with the initial and permanent contact made by European people with the Indians of the New World. The beginnings of historic times in the New World is generally considered to have started with the landing of Christopher Columbus in the Bahamas. Although Norsemen had landed much earlier on the North American continent, occupation was not permanent and little documentation is available. Of course, these limitations do not exclude these sites from being a type of historical archaeology. Fontana's (1965a:61) definition of historic sites archaeology can easily be transferred to historical archaeology in the American Southwest since there is no difference in the two other than academic; specifically, his definition is: "…archaeology carried out in sites which contain material evidence of non-Indian culture or concerning which there is contemporary non-Indian culture or concerning which there is contemporary non-Indian documentary record."

Non-Indian material and documents imply a time period that is post-Columbian, but could also include "Viking" archaeology. I think time should be included in the definition of historical archaeology for the Southwest or other areas where definite temporal relations are known. The availability of European material was not readily accessible to all Indians of the New World at the time of initial New World contact. The contact between western Europeans and the Indian cultures varies in time throughout the New World so that European goods were potentially available to the Indians of the East before they were to those of the West. In general then, the historical archaeology of the New World begins in 1492; specifically, it begins at different times in different areas.

Historical archaeology of the American Southwest can be defined as the archaeology pertaining to sites whose artifacts consist in part, at least, of (1) non-Indian material, (2) Indian reconstructions of European goods, (3) contemporary documentary evidence, and/or (4) Indian sites which post-date the beginnings of permanent European settlement. A site may meet any number of these requirements.

Protohistoric implies the filtering in of some foreign items prior to actual contact with the foreign culture. With little archaeology having been done in connection with sites of this type in the Southwest, and since there were only approximately forty years between 1492 and Spanish contact, for convenience sake I call sites of the period from 1492-1539, protohistoric (Fontana 1965a:62). The pre-contact phase (1492-1539) will hopefully be better defined as it is delineated by future archaeology.

(2) What good is historical archaeology if we already have the documentary evidence? It is naïve to think that documentary records provide all the evidence necessary to reconstruct the culture history of any specific site. The available records may give names of individuals who lived in some particular structure and their occupations, but not always do they actually say anything about individual families—their habits, beliefs, values, and other human factors. Documents reveal even less about material culture, particularly those objects produced prior to mass production and advertisement. That the item was present is emphasized in historical documents, but not its form, meaning, use, and function (as defined by Linton 1936:401-421, and further defined by Fontana 1965b:87) of the individual objects. Deetz (1967:4) illustrated two examples of the lack of cultural data in historical documents.

> We know from history that the Plymouth Colony was founded in 1620, that the ship bringing the first colonists was the Mayflower, that separate land grants were given the settlers in the cattle division of 1627, and that the first houses were probably made from sawn clapboards. Yet no known historical documentation tells us exactly what animals were used for food by the Plymouth colonists, what types of nails, window cames or door hardware were used in constructing the houses. Archaeological investigation of seventeenth-century house sites in Plymouth has given the answers to all these questions, fleshing out much of the bare bones of the historical accounts.
>
> In the missions of southern California, we know from the historical record that quarters were constructed for the Indian neophytes, and that they were occupied by family groups. Such a structure was built at La Purisima Mission in 1814, but the resident Padre was satisfied with simply noting in his diary that the building had been erected. Archaeological excavation showed it to be 540 feet long, of adobe brick and heavy tile roof. Study of the contents of the apartment units within this barracks structure provided valuable insights regarding Indian life in the missions not forthcoming from the historical record.

(3) Why study or do historical archaeology? If the only task of archaeology were to excavate old items for description or museum display, then historical archaeology would have little value. There are numerous catalogues which describe many of the items used back in the 18th and 19th centuries. There are also many other books

by antique collectors or art historians which describe numerous exotic heirlooms of the past. None of these items though are ever related to any specific site. Moreover, what we usually find in the archaeological context are everyday, not so exotic, material objects.

In relatively recent times, Americans have acquired an interest in their historical past. Being a young nation, the United States has had a comparatively short history compared to that of the countries of western Europe that have long deep-rooted historical traditions. The main interest shown in historical material initially was that which pertained to Indians, and then to establish some relation with American prehistory. This is why prior to the late 1950s that when archaeological surveyors recorded historical sites, they were Indian sites. The collections in the Arizona State Museum from surveys made prior to about 1950 show many historical Indian sites recorded, but few that were non-Indian. The artifact collections from these sites consist mainly of Indian pottery sherds, although the site cards list artifacts like glass, iron, and china. This same fact is found in archaeological site reports in which non-Indian artifacts were merely lumped as "Anglo," "European," "Spanish," or of the "Industrial Age" (Fontana 1956a:64).

The recent interest in American history has greatly aided the development of historical archaeology where sites like Jamestown, Virginia, have been restored for viewing by the American public. Wasley (1961:11), discussing historical sites in Arizona, states:

> In the past our archaeologists have been more interested in prehistoric archaeology, or else have been forced to research their own historic site projects. Now some efforts are being made by Arizona historians and archaeologists alike to work together on projects of mutual interest. One of the earliest historic site archaeology projects in the state, again by the National Park Service, was that at Tumacacori National Monument in 1934. Since that time the Amerind Foundation at Dragoon has excavated the Spanish presidio and mission at Cuiburi, and the Arizona State Museum has performed historic site salvage archaeology at the Spanish missions of San Jose del Tucson and Loas Santos Angeles de Guevavi in the Santa Cruz Valley, at the Guevavi in the Santa Cruz Valley, at the Gila Bend Stage Station, and at Fort Lowell.

Fontana (1966:11), elaborating further, states:

> Since 1958 members of the Arizona Archaeological and Historical Society, and affiliate of the Arizona State Museum, and most of whom are not professional archaeologists have worked in such sites as Mission San Xavier del Bac; Johnny Ward's Ranch near Paragonia, Arizona; and, most recently, Mission Guevavi, located a few miles north of the International Boundary on the Santa Cruz River. The National Park Service and Museum of Northern Arizona in Flagstaff now find themselves similarly involved in Historical archaeology in the state.

The reason for this activity is stated by Fontana (1966:11-12):

> What we are beginning to learn from this exercise is that we don't know as much about our colonial-period and 19th century technology as one might expect. We have perhaps been too personally involved in one of the most explosive periods in man's tool-making history to be able to view it objectively or to take it seriously rather than for granted. It has not yet been 150 years since John Hancock Hall, working with rifles, proved at Harpers Ferry Armory that the idea of interchangeable parts was a practical one in the manufacture of goods; it has been less time since assembly-line production methods have been commonplace.
>
> The "junk" we are now getting out of the ground is the product of America's industrial revolution, and it shows promise of forcing us to consider this revolution in a new light. What have been the effects of tin cans, square nails, wire nails, automatic weapons, machine-blown bottles, and barbed wire on our society? What are these effects today?

The most important goal, or "why" of historical archaeology is the understanding of cultural development in the New World, both Indian and non-Indian within historic times. It is at this point that documentary history elaborates the archaeological record.

On the other hand, as Fontana has suggested, the interests of historians in archaeology have been to illustrate history. They restore "historic" sites with few or no theoretical questions in mind in relation to the cultural system involved. They make no statistical counts of artifacts in an attempt to solve problems of social or cultural history. The techniques used to obtain the data are no different, but what is done with the data separated the two fields of history and archaeology. By means of artifacts, archaeologists attempt to interpret the cultural development of a site. This point is well made by Chang (1967:9):

> Classes of artifacts are grouped together, not necessarily as objects sharing intrinsically common properties but because the archaeologist believes they represent similar behavior and, perhaps, intent. Classifications in archaeology and the time-space arrangement of the resultant classes thus assume cultural significance and become a part of the real culture history. Typology, by virtue of its identification with behavior and, perhaps, intent, is a theoretically systematic, persistent, and rigorous instrument with which to probe human behavior and human history.

More culture change has taken place in the last 300 to 400 years in the New World than in any other time in history. If we could understand why changes are taking place now and in the historic past, we may better understand why change occurred in prehistory. A study which shows how culture change may be interpreted in archaeological analysis and documentary records was written by Deetz (1965). Other examples of the use of cultural interpretations of archaeological materials are those by Martin, Longacre, and Hill (1967), Binford (1962), and Fontana (1965b).

A distinct advantage of historical archaeology is the use of informants to interpret the more recent sites. Site cards on file at the Arizona State Museum reflect that Ezell (1954) used a Walapai informant to help survey historical sites. The informant distinguished between camp sites and deer hunting sites by the lack of pottery in the latter. He stated that women did not go on the deer hunts so there would be no pottery found in the deer-hunting camp sites. Another example is given by Longacre and Ayres (1967) where an Apache woman was used to determine the meaning of the distribution of various artifacts of an abandoned Apache Wickiup.

The use of historical documents and informants help to make the interpretation of historical archaeology more factual. If we can better interpret the historical data, we can extend the theoretical insights thus learned to prehistory. In both prehistoric and historical archaeology the basic units of consideration are the artifacts. Historical documents have left us with few records of what types of artifacts to expect from various types of historical sites. This can only be discovered by archaeological techniques, as it is done in prehistoric archaeology. The association, arrangement, quantity, and quality of artifacts are the facts with which the archaeologist has to work. If the theories used for historical archaeology are well founded and supported by documentary evidence, then these same theories may be used for interpretation of prehistoric sites, and vice versa. The real distinction between prehistoric and historical archaeology is time since in both cases we are trying to understand about man in the past. ■

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A Pueblo II Structure, San Juan County, Utah

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Ray T. Matheny and Dee F. Green

In the vicinity of Cedar Mesa, southeastern Utah, we have found an area in which there was a sizeable Pueblo II period occupation. Included among the remains are village sites located on mesa tops, and in canyon bottoms, and granaries which are located on upper cliff ledges. Occasionally the ledges also hold other structures such as living units and kivas. One of the latter, is rectangular in plan form, and our discussion of its architectural features will constitute the body of this paper.

Archaeological research in this area has been limited. Since the visits by Prudden and Kidder in the early 1900s only small scale archaeology has been conducted in the vicinity by Sharrock (1964) on the Mesa's western edge, by Schroeder (1965) in Natural Bridges National Monument and by Gunnerson (1960) in Hannond Canyon to the north. Bill Lipe has conducted surveys and excavations in the vicinity of Grand Gulch but these are as yet unreported. The present natural environment consists of a pinyon-juniper forest on the mesa tops with agave, yucca, various cacti, and sage brush also in the plant profile. The canyon bottoms contain the same flora with Cottonwood replacing the pinyon and juniper when sufficient water is present. Faunal resources include large numbers of deer (we have seen as high as 100 head in one evening near the site area,) rabbits and other small rodents also abound.

Elevation at the mesa top is about 6000 feet, dropping to approximately 4000 feet in the canyon bottoms. Geologically our particular area is part of the Cedar Mesa sandstone formation with siltstone bearing Halgaito formation appearing in canyon bottoms. This latter may have furnished clays for local pottery manufacture.

Chert and other kinds of siliceous stones are available in canyon stream beds and in an intrusive lens near the canyon bottoms. There are permanent springs sometimes near the canyon heads which pool in the stream beds. We have discovered one which still contained about three feet of water as late as November. This pool is approximately 60 feet in diameter and constitutes a dependable perennial water source.

Culturally, Cedar Mesa has been occupied from at least the BMI through the P-III periods. In the immediate sites area, P-I period material is present in the form of slab-lined storage structures similar to those excavated by Schroder at Natural Bridges just 5 miles to the north-west. We also find P-I style gray sherds as well as Chapin Black-on-white and Bluff Black-on-red. This latter red ware is widely spread over the San Juan area, but in small quantity, however, it appears in surprising numbers in our sites area.

The Pueblo II period, especially Mancos Phase (based on Mesa Verde phases) is the major occupation in the area characterized ceramically by abundant Mancos Corrugated and Mancos Black-on-white sherds. A few sites contain Mesa Verde Black-on-white sherds as well as Tusayan or Citadel Polychrome indicting a later occupation.

The southeastern edge of the Cedar Mesa is cut by several large canyons and their tributaries. Along one of these a small mesa tip between two canyons forms a peninsula which is covered with sand dunes and exposed sandstone. Near the eastern edge, a large sand ridge runs north and south the length of the peninsula. The main village area is located along this ridge with various small use areas and some slab-lined granaries scattered over the remainder of the peninsula. The first

sandstone ledge about 50 feet below the mesa top supports most of the granaries and a structure we call a kiva as well as one living structure. Although access to the ledge can be gained from the heads of either canyon, traffic to the kiva and the major granaries can be controlled by removal of a bridge spanning 100-foot crevasse on the upstream side, and by the narrowing of the ledge to just bare crawling space on the downstream side.

An elaborate but small structure which we have referred to as a kiva was built on a ledge of sandstone where the natural weathered wall and a large fallen piece of rock were utilized. Naturally occurring sandstone there serves as a floor, and for two of the structures' walls with some modifications. Part of the soft sandstone ledge was made into a bench and capped with small sandstone slabs set in place without the use of mortar. The bench is restricted to the east wall.

The south wall consists of three courses of irregularly-sized cut stone; the exterior and interior stones being more carefully finished than the middle course. The exterior stones are in general, larger than the stones used in the other two courses, but some smaller stones are present. The stones are set in mortar without regard to alternating junctures, the size and shape of the stones dictating their position in coursing.

Mortar carries the architectural load in this wall. Small sandstone spalls are found in between coursed stones but do not touch them. Spalls seem to be used as a decorative feature and do not serve to bear architectural load. Also, they do not serve as chinking or as a means to punch mortar into spaces left by irregularly-shaped coursed stone.

Construction of a three-coursed stone wall served the following purposes:

1.To provide a walkway into the structure on top of the wall rather than on the roof.

2.To provide for the construction of a unique ventilator shaft built into the wall (to be discussed below)

3.To provide for the construction of unique large ventilator wall niches.

Two large niches are 32 x 18 inches and 30 x 20 inches respectively and are recessed into the wall about 14 inches. A hollow space in the wall is found behind the recess which was filled with trash accumulated during occupation of the site. Whole juniper and pinyon logs serve as lintel beams over the niches. The niche's sills are made of small sandstone slabs set in mud mortar.

A deflector stone is located at the foot of the entryway ladder. This stone is set into a notch cut into the sandstone floor, located directly between the fireplace and ventilator opening. The fireplace was destroyed by vandals before the authors were able to record any information on this feature.

Both pinyon and juniper were used in construction, although the latter species is found more abundantly. Large juniper beams span the entire length of the structure carrying the main roof weight. Branches have been hewn off close to the trunk and both ends of the beams have been cut suggesting sizing before use in construction. Since the juniper beam is naturally tapered, the girth being larger at the base, the builders of the structure raised the beam at the small end by placing several small pieces of sandstone under it bringing the top into a nearly level position. The end result is a relatively flat roof.

The roof has four large juniper beams running lengthwise and 25 smaller beams spanning the width of the room. The large beams are 7-10 inches in diameter and the small beams are 3-5 inches in diameter.

Where roof load was not heavy, beams were split into two pieces. This practice was restricted to timbers 3-4 inches in diameter and less. This may have been a conservation measure to make a natural resource go further.

The entryway is especially constructed for strength. Two beams 5 inches in diameter span the width of the room at this point and rest upon large beams spanning the length of the room. Split beams are found on the roof from the entryway over to the west wall. The entryway is found next

to the south wall and not placed in the center of the room. It is thought that entrance to the room was gained by walking on top of the south wall, then down the entryway ladder.

The ladder consists of a forked juniper pole and a single juniper pole. These have been trimmed of branches but enough branch knots were left for footholds. One ladder pole projects out the entryway approximately 3 ½ feet which serves as a handhold during entry and egress.

Cut timbers of juniper are found nearby the kiva, stored on the sandstone ledge, ready for use in construction. These have been cut by a stone implement whose marks still show at the timber ends. They have also been sized for length, and trimmed of branches.

Stones resting on top of the entryway beams were specially prepared to fit the size of the entryway opening, thereby providing an additional way to regulate the draft of air required for a fire. The stones are thin sandstone slabs slightly longer than the width of the entryway and are notched on the underside to fit the frame. It is thought that these stones could easily be placed along the wooden frame of the entryway inside the ladder poles, from the inside, thereby regulating air flow.

The kiva had at least two ventilating air sources, one directly opposite the deflector stone at the base of the south wall, and the other through a vertical shaft constructed through the interior of the south wall. Air flow was regulated by moving two sandstone slabs found on the outside of the wall. These stones could be reached from the inside of the kiva through the horizontal shaft with a stick. The wall is 34 inches thick at this point. The second means of regulating air flow was through the vertical ventilating shaft which was built as an integral feature of the wall and was constructed as the wall was being built. The shaft has its opening on top of the wall and extends the full 84 inch height of the wall connecting it with the horizontal shaft at the bottom. The shaft opening is 13 inches in diameter and remains nearly this same dimension for its entire length. The interior of the shaft is plastered with mud.

Two sticks are found spanning the inside diameter of the shaft 18 inches down from the top of the wall. Just below these sticks, two sandstone slabs are lodged in the plaster. These stones were most likely used on top of the sticks in order to dampen the flow of air through the shaft.

It is thought that during cold weather, the bottom vent opening (horizontal shaft) was blocked off with sandstone slabs on the outside, and that damper stones were adjusted to help regulate the flow of air down through the horizontal shaft, thence through the connecting horizontal shaft to the fire around the deflector stone. A further help in regulating air flow would be through the adjustment of the entryway stones as already stated. A winter fire could be precisely controlled with the combination damper and entryway stones.

In principle we have a New World chimney with sophisticated air regulation. In operation, we have a remote flue and damper regulating incoming air flow, with the room and entryway serving as a chimney, but with control of escaping air and smoke by use of entryway stones.

A further possible ventilation feature is found at the north masonry wall. This wall was largely destroyed at the juncture of the roof some time ago. The remains of a wooden frame covered with shredded juniper bark was found under a dirt fill on the inside of this wall near its tip. It is postulated that the frame and bark constituted a bark flap possibly used for control of ventilation during the summer.

Mud was used to seal roof timbers and to plaster interior walls. The roof mud is up to 8 inches in thickness and was probably 6 inches in most places. The mud has many fragments of rock in it that are fractured but unrolled. It appears as though small broken pieces of sandstone were thrown into the mud much as temper is put into pottery clay. Further, in some place vegetable fiber is found in the mud in such quantity as to suggest deliberate addition to the mud.

The south masonry wall was plastered over the entire interior surface with a thin (¼-⅜ inch)

coating of mud. This coating is free of the stone fragments of red pigment in such distribution as to suggest that the entire wall was painted red.

One pinyon dendro sample was submitted to the tree ring laboratory at the University of Arizona but it failed to date.

The following architectural features suggest to us that the structure was elaborately constructed and can only be called a kiva.

1.Use of large timbers for the roof spanning lengthwise rather than widthwise, which would have required much shorter beams, and an extra heavy wall using three courses of cut stone with mortar. Such work and materials go beyond average P-II period wall construction.

2.Two large niches in the south masonry wall.

3.A bench was cut into the sandstone wall.

4.An elaborate ventilator system with three air controls was constructed as an integral part of the structure.

5.Little debris that would normally accumulate from a domicile was found within the structure itself.

6.The kiva is situated next to a 300-foot drop off making it difficult to raise children there.

It appears as though this kiva was built during the P-II period as an adjunct to the village which is located on top of the mesa and to the storage units that are located on the same ledge. We have there on the mesa top an unprotected village where the majority of the inhabitants lived. We postulate that most of the villagers' crops were raised on the mesa top nearby the village with limited farming down in the canyon bottoms. An abundant perennial water source is found near the site in pools fed by springs, all within a quarter of a mile from the village. Further, bared sandstone rock near the canyon rim has numerous sizeable potholes that hold considerable water from rains.

The villagers' crops were stored in masonry granaries tucked up under the differentially eroded sandstone first ledge, protected from the destructive elements of rain and snow, and most importantly, they could be made free from rodents.

The village may or may not have had a kiva: erosion has destroyed much of the site leaving scattered building stones and living debris on the surface of the ground. A structure which we have called a kiva found on the same protective ledge as the granaries completes the P-II period cultural setting. ■

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A Great Basin Small Tool Tradition

1974 Vol. 20 No. 3

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In the summer of 1971 Alan Bryan and Ruth Gruhn of the University of Alberta and Don Tuohy of the Nevada State Museum conducted excavations at four caves or rockshelters in Smith Creek Canyon, which is located in eastern Nevada near the Utah border about 20 airline miles north of the town of Baker and Lehmann Caves National Monument. Council Hall Cave, at about 6700 feet, yielded a layer of bristlecone pine needles, the lower part of which has been radiocarbon-dated at 27,000 years ago. Excavation at Smith Creek Cave, at an elevation of about 6500 feet, exposed a Lake Mohave occupation zone which yielded four radiocarbon dates on charcoal (9940±160; 10,330±190; 11,140±200; and 11,680±160 years B.P.) and prompted another season of digging in that part of the cave in 1974. At Amy's Shelter, across the canyon at an elevation of about 5700 feet, a long sequence extending from at least 3000 B.C. to historic times was exposed in deep alluvial fan deposits. Kachina Cave, named for the many Parowan Fremont pictographs yielded a late cultural sequence dated from about 2000 B.C. to the historic period.

The Lake Mohave occupation zone in Smith Creek Cave yielded approximately 130 tools made on small flakes. Other artifacts include reworked Lake Mohave point fragments, scrapers, one piece with burin blows, wood shavings, cut cane, cut and incised bone, bone awl fragments, sinew and birch bark hafts, cut yucca, and yucca quids. Although no bones of extinct animals have been identified, hair (presumably from the processing of skins) of "deer family", bison, and "guanaco" has been identified. At Amy's Shelter a total of 95 small tools were found with a variety of artifacts in the lower occupation zones. The small flaked stone tools first appear in association with a Lake Mohave point base and Humboldt Concave Base points; and continue with a sequence of Gypsum-like contracting stem points, and stemmed indented base points. Only a few such small tools were found in association with the Elko corner-notched series and small corner-notched points which followed in subsequent occupation levels.

At Amy's Shelter, virtually all of the small tools were made on small obsidian flakes of irregular shape, the average size of the flake used being about 20 millimeters in diameter. At Smith Creek Cave, a high proportion of the flakes are of locally available quartzite; obsidian, chalcedony, and even basalt were also used. The average size of the quartzite flakes is about 25 millimeters in diameter; the flakes of other materials average about 15 millimeters. These small flakes were apparently made into burins, gravers, spokeshaves, or denticulates; or an edge of the flake was simply retouched. The five burins from the lower levels of Amy's Shelter included three angle burins, one dihedral angle burin, and one beaked burin. Burin spalls were also recovered. The gravers found at both sites were small flakes which featured one or more small sharp projections on the lateral edges or corners. Spokeshaves were flakes with one or more retouched concavities which had an average diameter of about 10 millimeters and an average depth of one to two millimeters. Many flakes had a deep notch on one or more lateral edges. Denticulated flakes had short series of serrations along a lateral edge.

Most small tools probably functioned as engraving, cutting, and scraping tools for working bone or wood. Bone tools, mostly awls, occur in the same levels.

Characteristic of the small tools is extremely delicate retouch producing a series of flake scars each less than a millimeter in diameter. The precise technique used to produce such fine flaking is uncertain. A flaking tool of bone or antler small enough is hard to imagine; it may be suggested that the flakes were retouched by crushing the edge with a stone flake fabricator. Another common technique manifest in the collections of small flake tools is deliberate snapping of the flake to produce thick edges and corners. Often a snapped edge is initiated at a notch, apparently placed to facilitate the process of snapping.

The stratigraphic excavations in Smith Creek Canyon have indicated that this Small Tool Tradition began relatively early and extended over a long period of time in this part of the Great Basin, from about 9700 B.C. to approximately 1000 B.C. Our own experience—most of the artifacts were found in the level bags after the material reached the field laboratory—suggests that such artifacts may have been overlooked, for the small delicate retouch is hard to see in the field. The total artifact inventory from early levels in Great Basin sites might be considerably increased if all flakes are examined very carefully.

Radiocarbon dates obtained from the Smith Creek Canyon excavations of 1971 deserve comment at this time. The original purpose of the Smith Creek Canyon expedition was to search for early man. Although the initial excavations in Council Hall Cave were a great disappointment with only two doubtful artifacts recovered, their association with a bristle cone pine needle layer is significant because bristlecones are now present only at timberline at about 11,000 feet elevation. Their presence four thousand feet lower 27,000 years ago should help confirm the late Wisconsin drop in snowline. There is also an updated bristlcone needle layer immediately beneath the Lake Mohave occupation zone in Smith Creek Cave, which is now situated low in the pinyon-juniper zone. Smith Creek Cave provided a splendid view of the southwest arm of pluvial Lake Bonneville, and our belief that the Lake Mohave people were living in the cave while the lake existed was confirmed by the radiocarbon date of 11,600 years ago from the occupation zone. The more generalized Lake Mohave adaptation to the varied resources of the Great Basin was apparently already well established by the time of the Clovis adaptation to specialized big game hunting farther east, as Clovis sites consistently date around 11,200 years ago. From this, the most significant implication is that both Clovis and Lake Mohave must have developed from yet older cultural bases in North America. ■

The Lake Man Point

1974 Vol. 20 No. 3

Dean Caldwell

The following is a report on two types of Archaic projectile points found in and around the Great Basin known by many local people as the Lake Man Point. They are described and catalogued by Jennings (1957) in the Danger Caver report as W-5, W-6, W-42, and W-8. Aikens (1970) refers to them as Humboldt and Black Rock points. This paper will attempt to show the similarities in manufacture of these two types and is intended to serve as a base for further investigation in other areas.

The name Lake Man was connected with these points because of their association with sites along the periphery of Holocene lakes in Utah and Nevada. These points are lanceolate in form, ranging in length from ½" to up to 6". The Humboldt is generally shouldered near the base while the Blackrock is not. The similarity in manufacturing of leaf-shaped points is the very delicate oblique chipping, or ripple-flaking. These flakes run diagonally across the point from the top left side to the lower right, and from the lower right to the upper left. Flake scars terminate at the approximate midline. In the collection I observed, [most] were flaked from top left to lower right and only three were flaked in the opposite direction (Figure 1; Q,R,S). Almost all of these points were obliquely flaked. I have tested different methods of hand pressure flaking, and find that for the chip to run in that direction the piece of stone must be held in the hand in such a manner as to eliminate uneven pressure. The chip is taken off with a diagonal stroke from the bottom, and then a platform is made for each chip before its subsequent removal.

Resharpening methods of secondary chipping on the edges is a similarity also found in the points. Ca. 95% of the points have small secondary chipping on only one side of the edge and on the opposite side of the other edge. The chipping seems to vary from side to side with the different points, but the method has been observed to be almost always the same. Also, ca. 95% of the points have been basally ground or percussion flaked to eliminate the sharp edge at the base.

The point found at Sharrock's (1966) Pine Springs site in Sweetwater County, Wyoming, have the same characteristics. In addition, a site near the reservoir at Enterprise, Utah recorded in Russel's publication (1962) contained points with oblique flaking running from top left to lower right. A large blade from Blackfoot, Idaho some 6" long has a different type of ripple-flaking with flake scars running from left to right. This same technique was used on associated drills.

The observations in this report are given with the hope that they will help in better identifying the Bonneville Lake Man. The following plate shows drawings of these points showing the characteristics mentioned above and the sites where each was found. ■

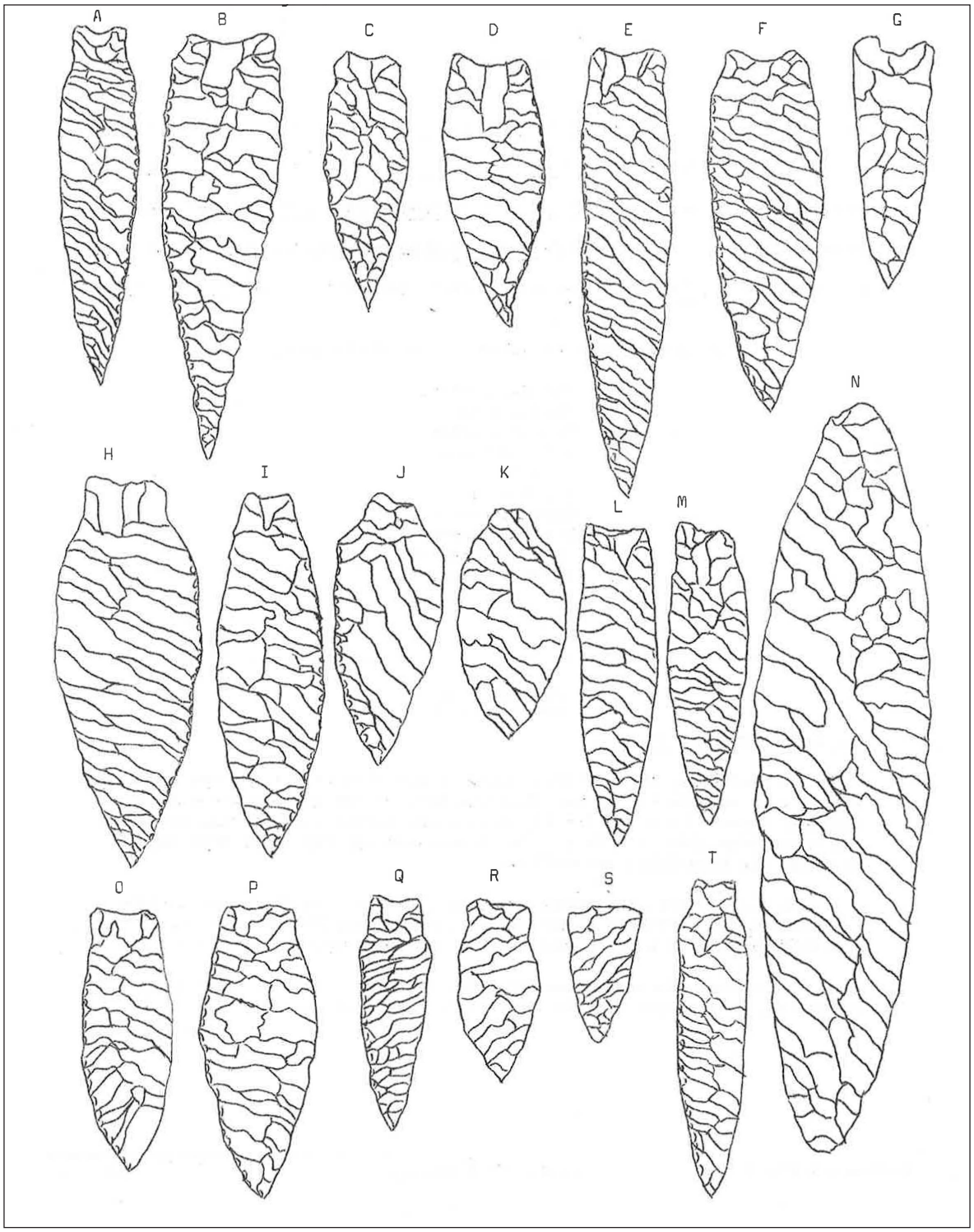

Figure 1. Lanceolate Points Ripple Flake.

Table 1. Reference for the Points in Figure 1.

Site	Material
A. Hogup (Dean Caldwell)	Welded tuff obsidian
B. Hogup (Dean Caldwell)	Welded tuff obsidian
C. Danger (Jesse D. Jennings)	Purple agate
D. Danger (Jesse D. Jennings)	Dark yellow agate
E. Wendover Shelter (Dean Caldwell)	Welded tuff obsidian
F. Wendover Shelter (Dean Caldwell)	Welded tuff obsidian
G. Stansberry II (Paul Raddon)	White agate
H. Millard County (Jay Gustaveson)	Obsidian
I. Millard County (Jay Gustaveson)	Dark chert
J. Enterprise (Dean Caldwell)	Welded tuff
K. Enterprise (Dean Caldwell)	Welded tuff
L. Remnant Cave (Gardiner Dalley)	Welded tuff
M. Deadman Cave (Garfield, Smith)	Welded tuff
N. Idaho Blackfoot (Dean Caldwell)	Welded tuff
O. Pine Springs (Floyd W. Sharrock)	Brown agate
P. Pine Springs (Dean Caldwell)	Brown agate
Q. Wendover Cave (Paul Raddon)	Welded tuff
R. Hogup (C. Melvin Aikens)	Welded tuff
S. Grouse Creek (Gardiner Dalley)	Welded tuff
T. Garfield Cave (Paul Raddon)	Welded tuff

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From private collections of the following:
Jay Gustaveson
Paul Raddon
Dean Caldwell
Keith Johnson
Fred Todd
Jay Rogers
Glen Furrow
Reed Bowthorpe
Mike Hurdsman
Keith Groves

News Notes: Bill Thompson Assists with Petroglyph Project

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Weber College in Ogden, Utah, secured a special permit from the United States government to make some molds from Utah petroglyphs for casting plaster replicas. To make molds of petroglyphs one must have a special government permit, and these are very rarely issued. Weber College was very desirous of having several castings made to hang in the museum at the college. A representative of the Bureau of Land Management, Bill Thompson (Salt Lake-Davis Chapter of Utah Statewide Archaeological Society) as guide, and a representative of Weber College who is an expert at making latex molds composed the group which braved the July heat and entered Nine-Mile Canyon in search of rock art.

Bill Thompson was chosen as guide because of his vast experience in locating and photographing the many petroglyphs in Utah. Nine-Mile Canyon has numerous fine petroglyphs along the length of the canyon as well as in the tributary canyons. They were able to make molds of a number of exceptional rock drawings in the two days they were in the canyon. The chief difficulty was in choosing just three or four from which to make molds.

The molds are currently being used to make several reproductions of the petroglyphs. Pouring the plaster casts and copying the original rock color is in itself a specialized and time-consuming job. Bill has been promised one of the large reproductions for his part in the project. ■

Atypical Stone Tools at Red Rock Predating Lake Bonneville's 19,000 Year Old High Stand Beach- Geology

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The Red Rock site occurs on the northeast flank of the Traverse Mountains. These mountains are considered a fault block spur resulting from Basin and Range faults which locally were most pronounced during late Pliocene to recent time. Most of the relief of the present topography was developed prior to Wisconsin time. The spur is bounded on the north and east by the Wasatch fault which locally expresses possibly 1524 meters (5,000 feet) of throw; minor faults transect and flank the spur; internal minor adjustments are numerous. (1)

Pleistocene glaciation was initiated, in this area, in the higher elevations of the Cottonwood intrusive to the east by a colder and more moist climate. At least two periods of glaciation are recorded by terminal and lateral moraines in the mouth of Alpine Canyon to the northeast. The stratigraphy of Lake Bonneville records four periods of alternate cycles of moist and dry climate.

The tool-bearing stratum east of Red Rock lies beneath an ancient erosional surface which has been uplifted, and erosion has cut a sharp "V" drainage through the north flank fault scarp. This uplift, erosion and subsequent undisturbed deposition of the Bonneville high stand beach provide a minimum age for the tools.

The north flank fault scarp has been referred to by Gilbert (2) as a great sea cliff cut by Lake Bonneville currents and wave action which developed maximum force while traveling the full length of the lake. The material derived from this area was transported to the Jordan Narrows area where large spits were developed. Marsell (3) followed the influence of Gilbert and called Steep Mountain scarp a sea cliff, but recent work done in the area by Dolan (4) reflecting the current concept of Marsell, shows the north face of Steep Mountain as an inferred fault scarp. Large slump fans occurring along the base of the scarp and the linear occurrence of Potato Hill and Red Rock Hill, located east and on strike with the north face of Steep Mountain, also strongly suggest faulting other evidence which supports this conclusion is as follows: (1) a sudden drop in the drainage profile which has developed sharp "V" gullies, thus dissecting the ancient erosional surface, (2) intense brecciation and silicification occurring along the trend of the scarp, (3) two highly brecciated orthoquartzite deposits occur on strike east of Potato Hill; these breccias may be reduced to a rock flour with light pressure between the fingers, and (4) zones of silicification and kaolinization occur along the scarp.

North of the Steep Mountain scarp near the (1219 meters) 4,800-foot contour, there occurs a fault line scarp 15 to 20 feet high. Coarse volcanic boulders occur above and below the scarp which has since been covered by undisturbed Lake Bonneville sediments. In the main wash, just north of the Red Rock site, that drains the area between Red Rock to Potato Hill, the scarp is exposed, showing an abrupt ledge which has been silicified and highly stained with iron-bearing solutions. Patches of andesite flow rocks are exposed above and along the strike of this scarp.

Other scarps may be present along the north flank of the East Traverse Mountains, but they are covered by Pleistocene lake sediments. (1)

Curry has defined the Bonneville high stand beach as follows:

> Water bodies in the Bonneville basin during the earliest Bonnevile cycle were limited in size on the perimeter of the basin and had an altitude

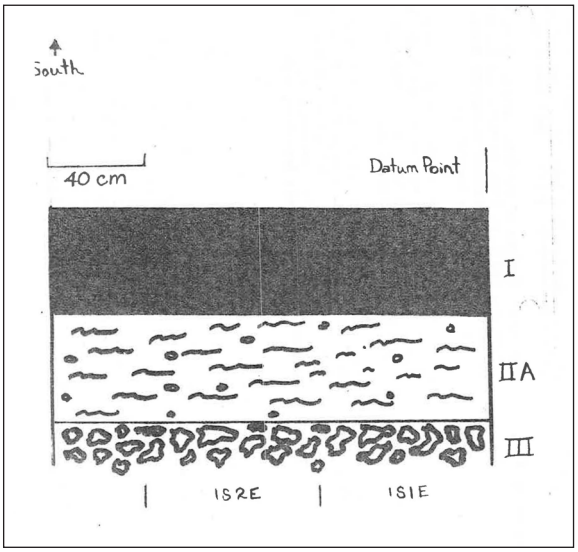


Figure 1.

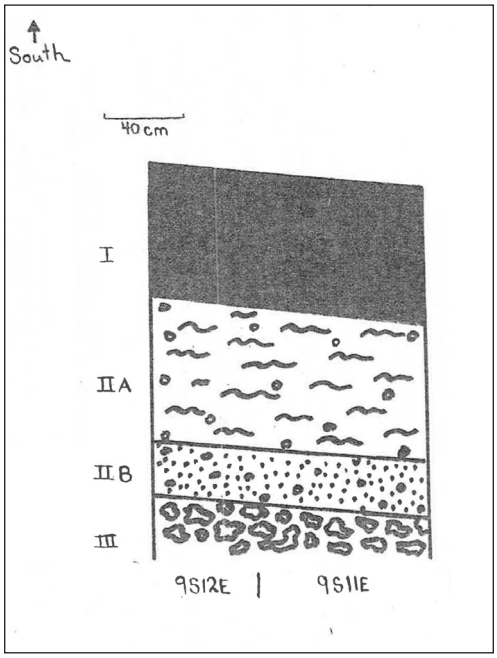


Figure 2.

of about 1550 meters (5085 feet) (5). The geomorphic features that developed along the shores of the largest water bodies comprise the Bonneville shoreline which in the vicinity of the Traverse Mountains is really a zone containing several individual shorelines. In the vicinity of Great Salt Lake, the upper limit of the Bonneville shoreline zone now ranges in altitude from about 1573 to 1623 meters (5160 to 5325 feet), or up to 73 meters (240 feet) above the original threshold-controlled altitude, because of isostatic rebound due to subsequent decreases in water load. Many interpretations regarding the number and age of the lake stands in the Bonneville shoreline zone have been proposed by previous workers and have been summarized by Morrison (6). Ongoing studies utilizing available radio-carbon dates place the ages of an earlier set of Bonneville shorelines and of a separate later Bonneville shoreline between 19,000 and 13,000 years ago.

This establishes a minimum age for the Red Rock artifacts. (7)

Stratigraphy

240 meters (787 feet) east of Red Rock Hill, the stone tools have been found underlying the ancient erosional surface. The sudden drop in the drainage profile due to vertical displacement of the north flank fault has developed sharp "V" gullies dissecting the erosional surface (2). The southern extremities of these gullies dissect a flat surface. This is at an altitude of approximately 1,627 meters (5341 feet). The flat area forms an oval about 260 meters (853 feet) in length and 90 meters in width, the long axis of which runs east and west. At the southwestern extremity of the oval lies a small spring which drains seasonally through a sharp "V" drainage through the north flank fault scarp approximately 180 meters (590 feet) east northeast of Red Rock.

Three two-meter test trenches (Figs. A, B, C) were dug, beginning at a datum point (Figure 1) 36 meters (118 feet) south southeast of the spring, at the base of a l3-meter (42 feet) linear escarpment which runs roughly east southeast. They are approximately 12 meters (39 feet) apart. Each of these trenches has yielded stone tools from an alluvial sand, gravel and cobblerock stratum (Level 3) from 1.22 meters (4 feet) to 2.3 meters (7 feet) beneath the surface (Figures 1, 2, 3). The

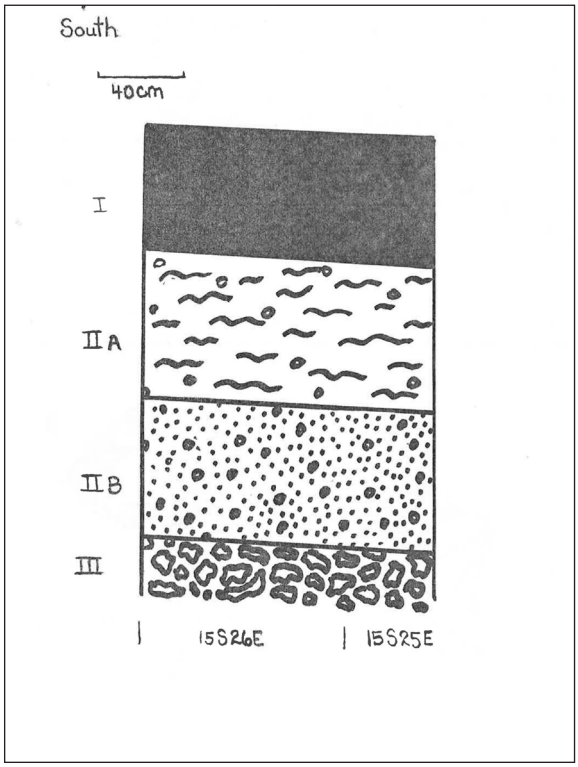


Figure 3.

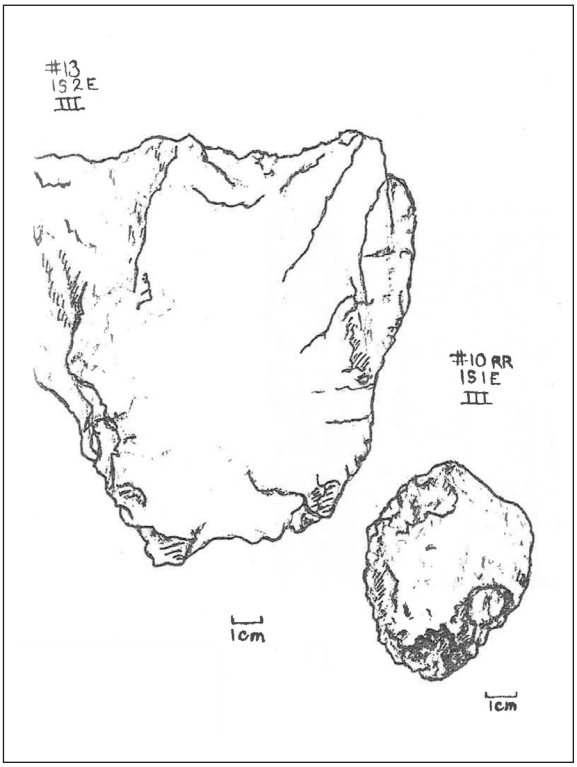


Figure 4.

depth of the productive stratum increases with the distance from the spring. This productive stratum is overlain by topsoil and well-defined strata of gravel mixed with sand and clay. The coarser sand grain sizes (1.00 millimeter and larger) consist of ortho-quartzite fragments with minor amounts of gray-black andesite. The medium and fine grain sizes have a similar composition. Sand makes up approximately 22% of the stratum excluding the cobblerock. The gravel varies from five to thirty millimeters in size and is exclusively of ortho-quartzite. Gravel makes up approximately 42% of the stratum. 36% of the stratum is a fine light brown clay. The remainder is made up of cobbles varying from 6 to 26 centimeters in size. These are of andesite varying from red to gray in color, ortho-quartzite, and pebbledike breccia.

Artifacts

The tools consist of hammerstones, (Figure 4) of both orthoquartzite and andesite, abrader or fleshing stones, (Figures 5 and 6) flakes, (Figure 7) cores, (Figure 8) all of andesite as well. No bones occur with the tools. There are no grinding stones or sherds. 2–6 millimeter flecks of carbon staining occur in association with some of the tools. There is no integral carbon present.

Three rocks have been grooved, incised, or notched. All three of these worked specimens are from Square 1 South 1 East, Level 3. The first (Figure 9) is an ovoid gray andesite pebble, approximately 6 by 4 by 3-½ centimeters. At right angles to the long axis, on a flattened side of this pebble, are five discontinuous incisions. These vary from approximately 1 centimeter to 3 centimeters in length. They vary from 1–2 millimeters in width and from 1 to 11 millimeters in depth. They are approximately parallel. The total width of the incised area is approximately 2.4 centimeters.

The second worked specimen (Figure 10) is a roughly ovoid pebble measuring 6.2 by 4.5

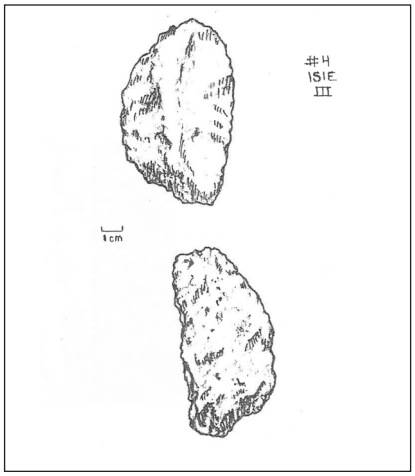


Figure 5.

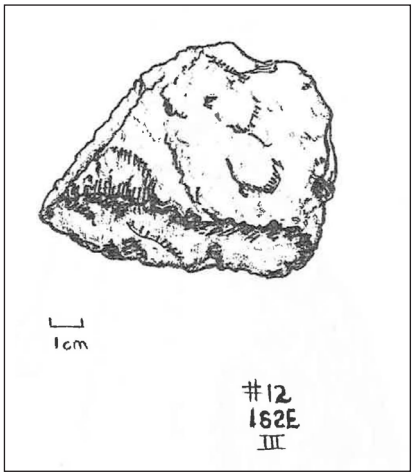


Figure 6.

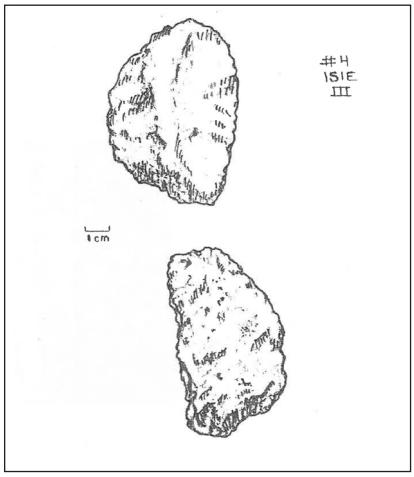
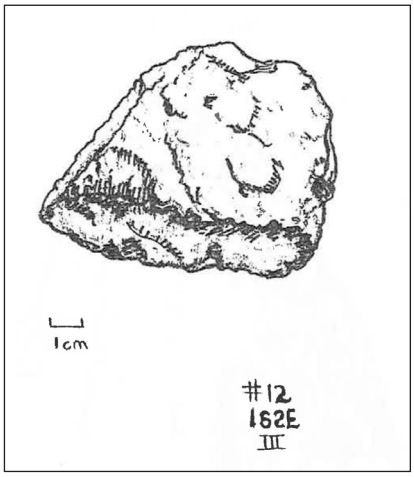


Figure 7.



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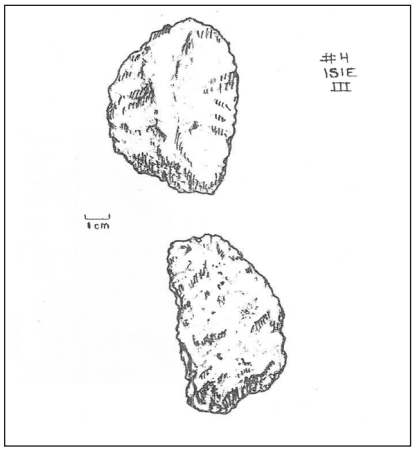

Figure 9.

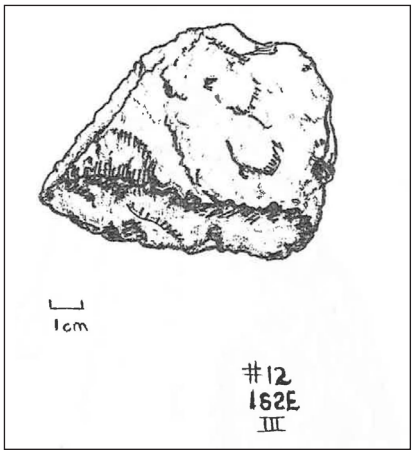

Figure 10.

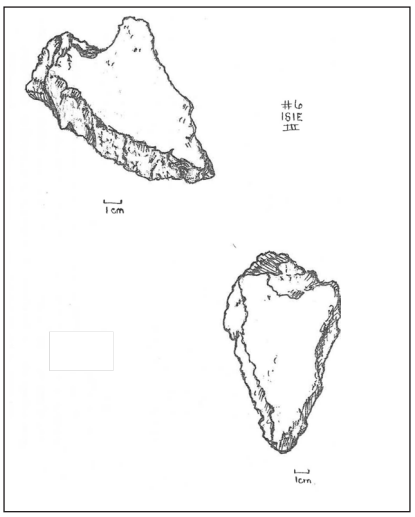

Figure 11.

by 2.3 centimeters. 1.8 centimeters distal to the larger end of the pebble is a notch 2 centimeters in length.

The long axis of the notch intersects the long axis of the pebble at about an 80 degree angle. The distal wall of the notch is approximately ½ centimeter in width and inclined to the base of the notch at about 20 degrees. The proximal wall is about .4 centimeters in width and inclined at 40 degrees.

The third specimen (Figure 11) has the form of a rough obtuse triangle measuring approximately 13 by 6 by 5 centimeters. The larger end of the specimen is cut by a notch measuring about 3.4 centimeters in width, .8 centimeters in depth and 6 centimeters in length. ■

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ABOUT THE AUTHORS

Dr. Lealand L. Clark is a Salt Lake City dermatologist whose principal pride is his archaeological training at Columbia University. He has a strong belief that man has a greater antiquity in the New World than has been previously thought and much of his research effort has been directed toward finding fresh evidences of that antiquity. Other work of Dr. Clark's has been published in a previous issue of Utah Archaeology.

Reuben L. Bullock of Cody, Wyoming has fulfilled the requirements for the degree of Master of Science in Geology from the Brigham Young University at Provo, Utah. His particular interest and area of research has been Lake Bonneville and its geologic history, coupled with an interest in archaeology. He is a well-known rancher in Wyoming.

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