



# NEVADA

# Archaeologist

Volume 4, Number 1, 1983



**Peter Ting, Sr. at the Spooner Summit site in 1967.**

Photograph by Norman Beesley.

**Nevada  
Archaeological  
Association**

## Nevada Archaeological Association

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Manuscripts submitted to the *Nevada Archaeologist* should follow the style guide of the January, 1979 issue of *American Antiquity*. Manuscripts should be typed and double spaced throughout, including notes and bibliography, and illustrations should be camera-ready with a caption typed on a separate sheet of paper, also double-spaced. Something less than these standards will be accepted reluctantly if what you have to say is more important than the format expressed above.

A future issue will be dedicated to Peter Ting, Sr., and more manuscripts relating to Mr. Ting's activities or to Nevada archaeology and anthropology, in general, are solicited.



# NEVADA Archaeologist

Volume 4, Number 1

1983

## DEDICATION

This issue of the *Nevada Archaeologist* is dedicated to the memory of Peter C. Ting, Sr. Peter was an avid amateur archaeologist whose scientific training was in biology. His interest in archaeology reached fruition when he became acquainted with Dr. Robert Stephenson who came to Nevada in 1967 to head the Nevada Archaeological Survey, then a unit of the Desert Research Institute of the University of Nevada, Reno. Peter Ting, Sr. was elected the first president of Am-Arcs of Nevada when that group was founded in 1967, and later, frequently served as a board member of that organization.

Peter made a number of substantive contributions to professional archaeology in the form of several short papers most of which were published either in the *Nevada Archaeological Survey Reporter* or in *Chippings*, the newsletter of Am-Arcs of Nevada. Thanks to the above organizations, these articles are reproduced together for the first time along with Peter's last address to the Nevada Archaeological Association, made March 21, 1977. Further details of Peter's many activities are given on page 1 of this issue. We are pleased to present this tribute to Peter, whose own modesty as an amateur archaeologist belied the significance of his written endeavors.

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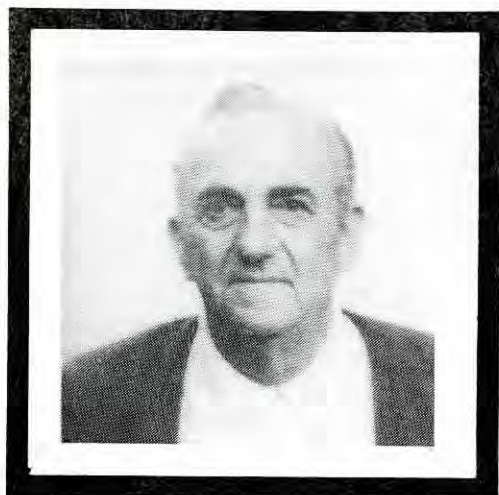
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by  
Donald R. Tuohy

Peter was born July 8, 1909, a native of Porterville, California. He lived in Reno for 28 years and was the owner and operator of Pied Piper Pest Control. He was a professional biologist with bachelor's and master's degrees from Stanford University. At various times in his career he was employed by the U.S. National Museum and the California Department of Agriculture as a specialist in entomology. He was voted into the American Men of Science at the age of 37 for his studies and publications on the microanatomy of invertebrates including insects. He was a member of various professional societies including several in archaeology, and was also a member of the Reno Rotary Club. He is survived by his wife, Willie Ting, his sons Dr. Erwin Ting of Diamond Bar, California and Peter Ting, Jr. of Verdi, and by a brother, two sisters, two stepchildren, and five grandchildren.



by  
Peter C. Ting, Sr.

- 1966 North American fishing sinkers. Western Collector IV(10):8-9. San Francisco.
- 1967a Publication plans. Nevada Archaeological Survey Reporter 1(4):8-9. Reno.
- 1967b A Pyramid Lake surface artifact assemblage located at or near the 3800 foot elevation. Nevada Archaeological Survey Reporter 1(8):4-12. Reno.
- 1968a Bone points from Pyramid Lake. Nevada Archaeological Survey Reporter 2 (3):4-13. Reno.
- 1968b How the amateur can contribute to the prehistory of Nevada. Chippings 2(2):3-4. Reno.
- 1968c A copper pendant from Pyramid Lake. Nevada Archaeological Survey Reporter 2(11,12):4-6. Reno.
- 1969a Note on the analysis of the Pyramid Lake metal pendant. Nevada Archaeological Survey Reporter 3(1):7. Reno.
- 1969b A decorated fishing sinker from Pyramid Lake. Chippings 3(2):1-3. Reno.
- 1969c Oldest obsidian point? Chippings 4(3,4):3-4. Reno.
- 1977 Pyramid Lake - artifacts and prehistory. Oral presentation to the Nevada Archaeological Association, March 21, 1977.

## NORTH AMERICAN INDIAN FISHING SINKERS

by  
Peter C. Ting

Quite often bottle collectors, while rummaging along stream beds, have picked up unusual shaped stones which have a hand-carved look about them, but thinking that they're only natural curiosities rather than evidence of man's handiwork, they have almost instantaneously been discarded so that the "serious" work of bottle collecting can go on. Yet these stones were carved by man, though many centuries ago. They are fish line and fish net sinkers which were widely used by the Indian tribes throughout the North American continent, and may still be collected in areas where fish were plentiful.

Though they can be found almost anywhere in areas lived in by the Indians, one notable exception is the vast territory lying between the Mississippi and the Rockies, where fish were almost entirely ignored in favor of larger game. Even in the dry, desert areas of the Southwest it comes as a surprise to find that fish was an important source of food. Proof of this lies in the stone sinkers and other fishing tools which may be found on the shores of desert lakes where they were lost by their Indian owners. Fish lines and fish nets have been excavated in Nevada in close proximity to the stone sinkers, while in other states they have actually been found attached to the fish nets themselves.

To be quite accurate, it should be said they many of the stone artifacts which are referred to in this article as fishing sinkers were also used for other purposes. For example, similarly shaped stones with circular grooves or notches were used for fetishes or charm stones, as small club heads, as pendants and for loom weights. Canoe anchor stones were used as end weights for the longer fish nets and for tepee anchors. It must be remembered that multiple use was a common attribute of many Indian artifacts, such as the many shaped sinker stones which were tied onto the ends of bolas ropes. Several of the anchor stones which have been found were actually well worn rubbing stones or manos with circu-

lar grooves added for attaching the line.

Along the shores of Pyramid Lake (Nevada) stone fishing sinkers are a common artifact. They were one of the more necessary tools used in a great and perhaps desperate effort to obtain food. In this case it was the huge Lahontan Cut-throat trout which could weigh over forty pounds. On a series of successful collecting trips all of the following have been found in one area: stone sinkers, canoe anchor stones, sage brush fiber line or anchor cordage, bi-jointed bone gorge hooks and the barbs of the multi-pointed bone fish hooks, obsidian arrow and dart points, slingshot or braining stones, obsidian and bone knives, and bone, harpoon-like points similar to the ones used by the California Indians, the Shoshoni of Idaho, and the tribes further north. However, the barbed bone points -- not true harpoons as no means of attaching the lanyard securely is present -- were exceedingly rare as evidenced by the fact that to the best of our knowledge only three have been found in Nevada. True harpoons were undoubtedly used in Nevada, but it would seem that none have been found intact.

Fishing sinkers varied in design from fantastic effigies through elongate or oval rocks with neatly carved grooves or drilled holes at one end to natural stones or pieces of bone known as eoliths. The latter are not recognized as collectible items unless they are found attached to lines or nets. Several Eskimo artifacts in the collection of Charles Miles are a combination sinker, fish effigy and fish hook. By present day standards these are no less than artificial fishing lures sold in sporting goods stores! Who could possibly belittle the ingenuity of the Pre-Columbian Indians? Apparently stone sinker effigies were uncommon in Nevada as only one sinker among the nearly three hundred I have collected is a true effigy which mimics a fish. Many were made from odd-shaped stones, perhaps considered by the Indians as artistic "good luck or charm sinkers," and some were the shape of arrowheads or "pyramids." Others were elongate stones with circular grooves around the middle for line attachment. Many sinkers were just simple, nondescript stones or pebbles with crude grooves or with two notches for attachment to the line or net.

Fishing sinkers were made from bone,

ivory, stone, and in the delta region of California where stones were difficult to find, clay was molded into stubby, spindle-shaped or grooved spool-like forms and baked hard. The baked clay objects were used on bolas strings as well as for fishing sinkers. Some of the more common types of stone used for sinkers in Nevada were limestone, dolomitic marble, basalt, shale, rhyolite tuff, latite tuff, quartzite, asperoid quartz, and aragonite. Stone sinkers in my collection vary from one to seven ounces, though Loud and Harrington in their publication on "Loveloek Cave" list one at three and eight-tenths pounds. The larger grooved or notched stones, which are considered to be net or canoe anchors, and which are in my collection, weigh from two to twelve and half pounds.

Collecting fishing sinkers can be an enjoyable family affair, but the most successful surface collecting generally means considerable eye strain and miles of walking along the shores of lakes and streams where Indians were known to fish. Windblown areas or "blows" near larger lakes and within the limits of older water lines are often most productive. Dry lake beds or playas are productive in the intermountain desert areas.

Organic material associated with several thousand stone sinkers found at Lamoka, New York, has been dated by the radiocarbon method as being about five thousand years old. Some lakes, such as Pyramid, are rapidly receding primarily due to the alteration of the feeding streams with little consideration for the preservation of nature. However, the receding water lines do open up new collecting grounds and it is the writer's belief that in some of the shallow bays of Pyramid Lake artifacts are plentiful in the sediment of the lake bottom for at least half a mile from the present water line.

Surface collecting of Indian artifacts is a never ending adventure as periodic erosion uncovers new areas and deeper, earlier levels never collected before. Go and explore the wind-blown open spaces where artifacts and ancient stones can conjure up for you the primitive atmosphere of the first Americans.



FIG. 1. Three types of stone sinkers. a, perforated type, possibly an effigy; b, grooved type; c, notched type with five notches.



FIG. 2. Ovate knobbed sinkers and a grooved sinker. a, globular knobbed sinker; b, grooved sinker; c-d, ovate knobbed sinkers; specimen illustrated in c has three knobs; specimen illustrated in d was made from a boat-stone, a California Middle horizon atlatl weight.

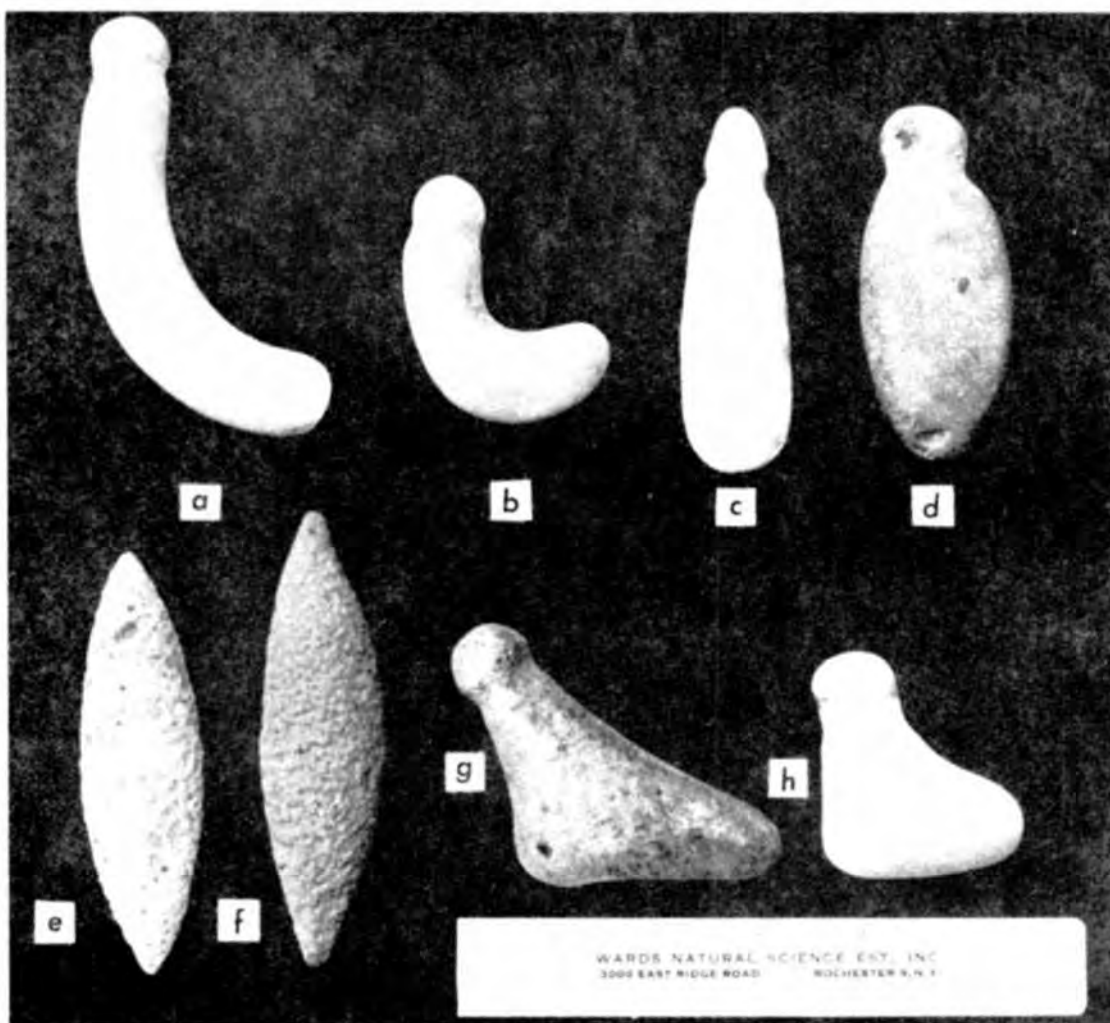


Fig. 3. Fishing sinkers from the Lower Truckee Basin of western Nevada. Hook-shaped forms, ovate and bipointed forms, and foot-shaped forms are common.



## PUBLICATION PLANS

by  
Peter C. Ting

(Mr. Peter Ting, President of the Am-Arcs of Nevada, is an enthusiastic amateur archeologist who has been most helpful in getting the new Society going and is, by training, an entomologist.)

Having published both technical and popular articles on various phases of biology, I have recently tried my hand at popular writing in the field of archeology. My present attempt is called "The Daily Bread of Nevada Indians." It is a nonfictional account of artifacts and methods used in the capture and preparation of food. The various sequences start with the decline of Lahontan Lake and the hunting of Ice Age mammals and advances in time through the various cultures predominant in hunting small game, seed gathering, fishing, and finally to the incipient stages of agriculture.

Even to mention the highlights of popular interest, over a period of 11,000 years, will necessitate a great deal of research with much personal communication, and with visits to museums and private collections. I anticipate considerable practice with the camera before completing a series of photographs covering not only pertinent artifacts, but such sidelights as hunting blinds, flint mines, effigy-type good luck pieces and highland summer camp sites.

With enough effort and through some form of shamanism, it is hoped that my results will give sufficient life to stones and prehistoric facts to be of interest to the general public.

## A PYRAMID LAKE SURFACE ARTIFACT ASSEMBLAGE LOCATED AT OR NEAR THE 3800 FOOT ELEVATION

by  
Peter C. Ting

Having been a research biologist, I am well aware of the fact that one should proceed with caution, if at all, in specialities other than his own. Nevertheless, as an amateur archeologist, I feel justified in reporting my observations made over a period of twelve years and wish to stress that I hope archeologists will investigate certain of my ideas which may reveal facts useful to an understanding of the prehistory of Pyramid Lake. I am also hopeful that parts of my discussion will serve as an example of what Dr. Robert L. Stephenson meant when he instigated our local society for amateur archeologists and said: "The society will be of mutual benefit to professionals and amateurs." I wish to express my appreciation to all who have aided in preparation of this report.

Before a discussion of the artifacts, lake levels, and other associations of significance is undertaken, the artifacts commonly found between the elevations of 3840 and 3785 feet will be listed. These include:

Manos and metates

Polishing stones

Flat, oval notched stones apparently for measuring

Completely grooved manos and other stones of various shapes notched or grooved that weigh from two to twelve pounds (used for net and/or balsa canoe anchors)

Stone fish line and net sinkers of many types

Stone plummet-shaped objects with ringed ridges and longitudinally grooved necks

Obsidian, jasper and "chert" dart points, spearheads and arrowheads

"Chert" and obsidian Desert Side-notched arrowheads

Obsidian and basalt knives and ceremonial (?) blades

Stone atlatl weights

Stone arrow and/or dart shaft  
abraders

Bone knives or slitters

Bone awls of many types

Barbed bone and antler spear, dart,  
and/or arrow points

barbed bone leister tynes

Bipointed bone gorge fish hooks

Bipointed bone spindle-shaped dart  
or arrow points

Various unidentifiable bone imple-  
ments occasionally with artistic  
engraving, carving or notching

Plant fiber (probably sagebrush)  
fish line and anchor line either two  
or three strand with rough measure-  
ments of one-eighth to three-eighths  
inches in diameter.

Artifacts only rarely found at the  
lowest levels (3805 to 3785) are:

Stone effigies

Stone crescents

Basalt dart and arrow points

Stone awls and drills

Bone parts of composite harpoons

Wooden parts of composite fish  
hooks

Large (7 by 4 inches) obsidian hand  
axes or choppers

When these artifacts are recorded,  
in relation to the lake level or exist-  
ing water level, they cease to be just  
"pretty things" from southern Washoe  
County. I will attempt to appraise the  
significance of a few specimens and  
their associations.

It has been suggested that the vast  
array of fishing sinkers, as well as  
many other artifacts collected at the  
3800 to 3850 foot levels, were lost in  
the water when Pyramid Lake was at ele-  
vations greater than 3800 feet. I dis-  
agree on the basis that this suggestion  
overlooks certain low prehistoric water  
levels of the lake during times of ab-  
original occupation and particularly  
that it does not take into account cer-  
tain of the Pyramid Lake surface arti-  
facts. Such artifacts as metates,

manos and bone awls have been found reg-  
ularly at elevations of 3820 to 3800  
feet. In fact, material found in the  
water (the level of which stood at  
3785.1 feet on March 6th of this year)  
indicates convincingly that camps, at  
least temporary ones, existed on dry  
land at these lake levels. Consequently,  
I believe many of the artifacts previ-  
ously mentioned (including some of the  
sinkers) were lost or left behind on dry  
land just as they were in caves and other  
places of habitation.

On the basis of pollen studies from  
material taken from Fishbone Cave, Sears  
and Roosma (1961) concluded that the  
period of greatest aridity in this area  
occurred about 6500 years Before Present  
and it is reasonable to believe that  
Pyramid Lake reached an extreme low  
level at that time. Antevs, in verbal  
communication with Claude Dukes, U.S.  
Watermaster in Reno, some thirty years  
ago, stated that he believed Pyramid  
Lake at one time receded to an area of  
60,000 acres whereas in recent years the  
lake surface has equaled 130,000 acres.  
Dukes has calculated from these data  
that the lake was once one hundred feet  
lower than it was in 1938, or approxi-  
mately at the level of 3716 feet. Bro-  
ecker and Kaufman (1965), through radio-  
carbon dating, have established the fol-  
lowing water levels, all of which are in  
the time range of aboriginal occupation:

1100 $\pm$ 200 yrs B.P., water elevation 3860'

1800 $\pm$ 200 yrs B.P., water elevation 3820'

2100 $\pm$ 200 yrs B.P., water elevation 3850'

3200 $\pm$ 250 yrs B.P., water elevation 3810'

8500 $\pm$ 200 yrs B.P., water elevation 3890'

In historic times it is interesting to  
note that the lake level again rose to  
3890 feet in 1871; in 1890 it was 3882  
feet; in 1950 it was 3801.43 feet; and in  
1959 it dropped for the first time in re-  
cent years to below the 3800 foot mark  
and reached 3799.92 feet.

Except for that of 8500 years B.P.,  
all these prehistoric water levels cor-  
related with the date before present  
(listed above) coincide with the known  
time-span of the Lovelock Culture. In  
addition, Roger Morrison (1965) deter-  
mined by geological methods that the  
lake receded to the 3800 foot level or  
lower about 1250 years B.P. and again

about 4000 years B.P. It then appears that many of the surface artifacts found at these lower levels are from this culture. Donald Tuohy, after examining some of my obsidian points from the 3800 foot level, is inclined to believe they are from the Early Lovelock Culture. Tuohy's opinion is based on knowledge gained from excavations of Pyramid Lake rock shelters and caves inhabited by Indians of this culture.

A wooden part from a composite fish hook (identified by Donald Tuohy) collected by Peter Ting, Jr., at the 3800 foot level may be from the Paiute Culture, as it seems difficult to believe that a carved piece of wood would be so perfectly preserved in wet sand, clay and water if it dated from the Early Lovelock Culture.

Assuming that most of the artifacts found between the levels of 3850 and 3785 feet are from the Lovelock Culture, it then becomes evident that these people developed a highly diversified "lake fishing efficiency." A refined and skilled bone-carving industry also existed and such controversial artifacts as the barbed, harpoonlike points resembling those made by the Eskimos and aboriginal Europeans were surely made locally and were not obtained by trading nor flown in by wounded water fowl. Nine of these barbed, bone and antler projectile points have been collected at the 3805 to 3785 foot elevation, the first found by Peter Ting, Jr., of Verdi, Nevada, in December of 1963. One of these collected by Clayton Phillips was described by Doris L. Rnedall in American Antiquity (1966). Ting, Jr., has also collected two small bone leister types (2 and 2½ inches) with numerous barbs along the concave side, so minute that I doubt if they could be duplicated with modern cutting instruments without the use of a dissecting microscope. True three-part composite type harpoons were used at Pyramid Lake, but none has been found intact. The bone parts forming a three piece head have been found minus the lanyard, lashing, and shaft and will be described and illustrated in a later issue of the Reporter. Bipointed-pin gorge bone fish hooks and the bone barbs from composite hooks probably used on trot or set lines often have line marks or ridges. Further investigation could determine if

these ridges and grooves were carved, worn by the tieline from prolonged use, or if the line and glue is fossilized. The bipointed pin gorge hooks are considered by Rostlund (1952) to be the most primitive and presumably the oldest of hook-and-line devices. They are found at both the 3830 and 3800 foot levels, but the bone barbs with beveled bases from composite fish hooks are found mainly in the 3805 to 3785 foot levels.

The great variety of stone fishing sinkers and even the typological differences within the various kinds associated with different elevations offer much opportunity for further research. The perforated sinkers are found from 3840 to 3800 feet. The elongated type with central circular grooves are found almost entirely at the 3820 to 3840 foot level; the knobbed and plummet-shaped ones with circular grooves at one end at the 3810 to 3785 foot levels; the small notched pebble type and the various nondescript ones with crude notches or grooves primarily at the 3800 foot level, but occasionally at higher levels; the larger notched or grooved anchor stones from 3860 to 3785 feet. The bipointed spindle-shaped ones made of rhyolite or latite tuff (stone identified by John Schilling, geologist, through the courtesy of Dr. Vernon Scheid) are only found at about the 3820 to 3840 foot level (exact level to be determined).

A few (seven or eight) obsidian dart points so far found only at the 3800 foot level are all of a nearly uniform style and probably approach or excel the chipping skill and resulting beauty of points made anywhere. One of these found by Henry Mosconi, Jr., of Verdi, Nevada, approximately four inches long, is probably the best made point found in Nevada. Another with similar chipping about two and one-eighth inches long, but of the Desert Side-notched type, found by Mrs. Inez Johnson of Reno, is one of the best made points in local collections. The author has found several small Desert Side-notched points made of jasper and chert-like stone at the 3810 foot level.

#### SUMMARY

In conclusion, it is obvious that many of the artifacts collected on dry land in the shallow bay areas of Pyramid Lake at about the 3800 foot level were under water as recently as 1959; many of

these were under water for two or three thousand years, and possibly some were under water sporadically for six thousand years. The receding water level of the lake has uncovered camp sites containing metates, manos and bone awls at the 3800 and 3785 foot levels.

The present water level of the lake should be referred to as 3785 feet as that was the level in March of 1967. It has been under 3800 feet since 1959. The precise water level for the lake is taken each month by the U.S. Geological Survey in Carson City, Nevada, and this current information may be obtained from them.

Pollen studies indicate that the period of greatest aridity in this area was 6500 years ago. This coincides roughly with the end of the altithermal period and it is entirely possible that Pyramid Lake reached an all time low at this time, providing there was not a time lag in evaporation and other critical factors. Based on data obtained in verbal communication with Antevs, Claude Dukes has calculated that the lake level was once 100 feet lower than it was in 1938 or approximately 3716 feet in elevation. It appears that both the Lovelock and Paiute aborigines lived at or near the 3800 foot level. Additional studies may reveal evidence of much earlier cultures at that level.

The near excellent state of preservation of many perishable artifacts found at levels recently uncovered by the receding water is amazing. It often is better than the state of similar artifacts excavated from Pyramid Lake dry caves. Plant fiber, anchor rope found by Stephen Tieber of Reno, Nevada, was in excellent condition and even contained two overhand knots. This condition is probably due to the water excluding much of the oxygen.

Fishing and the carving of bone implements were highly developed industries among the aborigines who lived at these low lake levels. The most spectacular bone artifacts are the beautifully carved, barbed, projectile points. Some of the obsidian dart points are also extremely well made. Further research on the Desert Side-notched points may date their use in this area much earlier than generally believed. Further studies may solve the enigma of the bi-pointed spindle-shaped sinkers being

found only at the 3818 to 3832 foot level.<sup>1</sup>

Carbon dating of the fiber rope and hydration tests of the obsidian will certainly correct or verify many of the above statements and may add new facts to the archeology and prehistory of Pyramid Lake. Three core samples of the old native black willows growing at the 3860 to 3875 foot levels would verify or alter the level data.

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#### NOTE

1. Norman Beesley determined the lowest and highest elevations where these sinkers were actually found by the author. Beesley used surveyor's instruments and the known water level of the lake as a reference point. As the water level obtained from the U.S. Geological Survey was taken two weeks previous to our surveying, an error of .5 feet is given. These elevations are 3818.50±.5 and 3832.94±.5 feet.

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Fig. 1. Three barbed bone and antler projectile points on right collected by Peter Ting, Jr.; two on the left collected by the author. Photograph by John Moore, Staff Photographer, through the courtesy of Donald Tuohy and the Nevada State Museum.

# BONE POINTS FROM PYRAMID LAKE

by  
Peter C. Ting

## INTRODUCTION

The bone points discussed here have been collected since 1959 on shore elevations recently exposed by the receding water of Pyramid Lake. During this short time, the water level has steadily dropped, with fluctuations due to spring run-off, from 3800 to 3785 feet. In several shallow bar areas, this vertical drop of 15 feet has exposed 600 feet of new beach, and in one particularly shallow area of Fox Bay, over 2000 feet of new beach is exposed. All of the bone and antler artifacts have been found on the surface, most of them in an excellent state of preservation.

I wish to acknowledge the assistance I have received from both Dr. Robert L. Stephenson and Donald R. Tuohy in the preparation of this study. They generously offered the use of their personal libraries and have taken time to discuss my approach to the subject. I wish to thank Don L. McCaughey for the photographs and for his meticulous orientation of the smaller artifacts in the illustration. Acknowledgments of specimen loans are given below.

At present, it is impossible to accurately assign these points to any certain culture, as geologists have shown that the Pyramid Lake-Lake Lahontan waters have fluctuated with a gradual downward trend during the last 9000 years and reached the 3800 foot level or lower several times (see discussions and references cited by Ting, Tuohy, and Wheeler in 1967 publications). During these periods of extreme low water, the people inhabiting the area moved their fishing and waterfowl activities close to the water line and even established camp sites there, as evidenced by manos, metates, and bone awls being found at these low elevations (Ting 1967). However, due to facts learned from Pyramid Lake excavations conducted by Donald Tuohy of the Nevada State Museum, it appears that many of the artifacts found at these lower elevations are from the Lovelock Culture (2000 B.C. to 1500 A.D.). That earlier cultures inhabited these same elevations is indicated by very recent obsidian hydra-

tion tests on some of the author's artifacts by the University of California at Davis. The thicknesses of the hydration bands were 5.40 and 5.49 microns on two dart points submitted from the 3800 foot elevation. Transposed into age, when temperature scale E of Friedman and Smith (1960) is followed, these readings indicate the points were made 6340 and 6500 years ago. When temperature scale D is followed, the indicated age is 4500 and 4660 years ago. These ages must be regarded as tentative, as a hydration reference scale for Washoe County obsidian points has not been established. It does appear, though, that one of the above temperature scales, perhaps with some minor modification, will be applicable. Although Friedman and Smith state that high humidity does not increase the rate of moisture absorption by obsidian, there remains the question of what submergence in water would do during a period of a thousand years or more.

Bone and antler points of the type to be described were used primarily in spearing and shooting fish by aborigines in many parts of the world. Similar, but larger points were used in spearing sea mammals, and often the bone points were detachable and retrievable by an attached line which designates them as harpoon heads. The leister type (multi-tined spear, dart, or arrow points) were used on both birds and fish, and very occasionally on larger animals. The unilaterally barbed points were also occasionally used against land animals, especially by the Eskimos and northwest coast Indians.

When bone and antler points are found on the surface at Pyramid Lake, they are generally associated with other artifacts of the fishing industry and often are near the remains of prehistoric fish and birds. The author has found one bipointed spear or arrow point with the skeleton of a Lahontan cutthroat trout and on seven occasions has found bipointed bone gorge fishhooks associated with the skeletons of the same species. Some of these are probably intrusions, but surely not all. It is believed by many authorities that most fish were speared after being corralled in or near net enclosures on weirs, but it is assumed at Pyramid Lake that many were speared in the open shallow water of the

lake and smaller feeder streams, such as Mullen and Big Canyon Creeks, or near and at the mouth of the Truckee River during spawning season.

The following are the seven types of bone and antler points so far found at Pyramid Lake.

#### Unilaterally Barbed; Tang with One Surface Beveled

Description: General shape as in Fig. 1a; the nine points at hand vary in length from 122 mm to 266.6 mm (approximately 4-3/4 to 10-1/2 inches); maximum width including barbs 18.5 mm; thickness 6 to 9 mm; cross section ovoid to plano-convex; number of barbs vary from 3 to 14 and are generally carved at about a 45 degree angle to the longitudinal axis, two points have the barbs at about 30 degree angles. Several points have the barbs carved from bases to apices in a tapering manner so that the apices are keeled. The point illustrated deviates from the others by having a longitudinally carved groove extending along the bases of the barbs. Polishing in varying degrees is from none (only rough abrading) to one side only, to completely polished. The apex of the points is subacute, some with a carved keel in the same plane as the keels on the barbs. The tang is usually beveled on just one side, a few points have a very short bevel on the opposite side near the base of the tang. No ornamentation, such as etching, has been observed. Some points have the beveled surface of the tang traversed with shallow grooves and have roughened areas on the margins of the tang to help in hafting, similar to certain Fuegian fixed barbed spear points (Mason 1902, plate 2 opposite page 212) and certain Magdalenian barbed bone or antler points (Oakley 1950, page 85, Fig. 39c). One point has a groove-like sulcus in the basal half and a foramen near the apex which are inherent morphological structures of the bone.

Discussion: Similar or identical points are illustrated and discussed by Nelson (1899), Mason (1902), Clark (1936), Hadlock (1943), Oakley (1950), Griffin (1952), Giddings (1952), Miles (1963), Rendall (1966), and Ting (1967). The author agrees with Mason (1902 and Rendall (1966) that basically these are fixed barbed spear points and not harpoon

heads. It should be pointed out, however, that these barbed points may have been, in some cases, fixed to a detachable and retrievable foreshaft which would classify them, in those instances, as harpoons. Giddings (1952, plate 28, Fig. 7 and 8) illustrates barbed antler points eight and nine inches long from the Alaskan Arctic zone which are identical except for more tapering tangs. He speaks of these as a "large fish spear or leister" which indicates that these barbed points were also hafted in groups to function as a leister.

In various parts of North and South America, these points, when hafted, were propelled by the atlatl, the bow, or were thrust or thrown by hand. The known aboriginal distribution is Europe during Upper Magdalenian times. Alaska through British Columbia down the west coast into Oregon and Nevada, but apparently not California, the northeastern coast of the United States, and in South America near the Strait of Magellan. They surely occurred in Asia, but no definite reference to this was found in the literature available.

The barbed points examined are in the collection of the Nevada State Museum, Clayton Phillips, Stephen Tieber, Peter Ting, Jr., Amanda Ting, and the author. Five are made apparently from antler, and four of bone. The one illustrated (Tieber's) is probably not completely carved, as it shows no polishing; it was found at a slightly higher elevation and, particularly, because the groove at the bases of the barbs, previously mentioned, extends beyond the last barb and the lateral edge is shaved thin in this region, indicating another barb was to be carved. Giddings (1952, plate 36, Fig. 19) illustrates a similar groove which he calls "guide grooves", but gives no further suggestion for their use. Perhaps certain craftsmen needed a guideline in order to keep the barbs in perfect alignment as they were carved.

#### Leister Type; Unilaterally Barbed; Tang Knobbed

Description: General shape as in Fig. 1b; the two points at hand are 43.5 mm and 54 mm long; width 4 mm to 5 mm; thickness 2 mm to 2.3 mm; cross section elliptical; 10 barbs on one, 8 on the other; completely polished; apex of

points acute; tang carved on all sides, thinner than rest of point; extreme base knobbed with a short linear bevel on inner side (side of barbs) to facilitate hafting.

Discussion: Similar or identical points are discussed and/or illustrated by Nelson (1899), Schenck and Dawson (1929), Bennyhoff (1950), Rostlund (1952), Giddings (1952), Driver and Massey (1957), Miles (1963), and Ting (1967). Leister tines, when hafted, were propelled with the atlatl, the bow, or were thrust or thrown by hand. Often leister tines were hafted to a dart or arrow at about the middle of the shaft, which was also armed at its apex with other leister tines or with a conventional point (Nelson 1899, Plate LIX and Miles 1963, p. 14). This increased the chances of a hit on a bird, fish, or sea mammal (Nelson 1899, Plate LIII). Generally, three leister tines were hafted to the apex of a shaft, but the number varied from two to six (Nelson 1899; Driver and Massey 1957).

Leisters have been reported from Europe, Asia, South America, and from North America in the west, from the Arctic and Alaska south through Oregon, and in the east around the Great Lakes, Maine, and southeastern Canada. This, and the author's previous report (Ting 1967) in the Nevada Archeological Survey Reporter, are believed to be the first records of leisters being used in Nevada. Schenck and Dawson (1929) and Bennyhoff (1950) do not state that leisters occurred in California, but simply call the two-pronged spear heads found there "fish spears." The only way the California fish spears do not fulfill the definition of a leister is that the prongs are not considered flexible, perhaps mainly due to the long inner linear bevel of the bases. Rostlund (1952, p. 105) states, "I think it should be noted that a trident is not necessarily a leister; in a leister the function of the side prongs, which are somewhat flexible and provided with infacing barbs, is to grasp the fish from the sides in a manner resembling that of ice tongs". Determining whether archeological leister prongs were flexible or not when hafted seems rather impossible. Furthermore, the aboriginal intent of leisters propelled by atlatls or bows at birds or

smaller sea mammals (Nelson 1899, Plate LIII) surely was not that the flexible outer prongs would grasp these targets by the sides - it appears that these many pronged "heads" were designed to inflict multiple wounds and to increase the chances of hitting the target.

The only points of this type known from Pyramid Lake are in the collection of Peter Ting, Jr.

#### Multipointed Type; Barbless

Description: General shapes as in Fig. 1c and 1d; the eight points at hand vary in length from 74 mm to 113 mm; maximum diameter from 3 mm to 5.5 mm; cross section round except near base; attenuated from near base to apex; bases constructed to articulate together forming a 3-tined point or head; basal section with an elongate fossa on one side which is open on posterior end, or beveled on one side to 45 degrees or tapered slightly on all sides; line ridges prominent on one tine (not illustrated) just forward of maximum diameter.

Discussion: Nothing has been found in the literature that resembles these points, but it is assumed that they are component parts of a multi-tined or composite fish arrow or spear. They seem too large for local composite fishhook barbs; however, this is a good second choice as Heizer and Krieger (1956) do illustrate a bilaterally barbed fishhook from Humboldt Cave with a barb length of 77 mm and a shank length of 89 mm. A third possibility is that they were necklace ornaments or some other type of amulets.

Giddings (1952, p. 36) speaks of "8 small barbless prongs of antler, two apparently side-hafted and the others center-hafted, are perhaps designed for some form of leister or fish arrow", but it is unlikely that these are even similar to the Pyramid Lake points.

The only points known of this type are in the collections of Peter Ting, Jr. and the author.

#### Simple Cylindrical: Tang Beveled, Same Width as Base of Point

Description: General shape as in Fig. 1e; the three points available vary in length from 61 mm to 174 mm; width 8 mm to 10 mm; thickness 5 mm to 9 mm;



cross section demidiate to subrectangular; polished; slightly attenuated from near base to tip; apex abruptly tapered to a sharp point; tangs 33 mm to 40 mm long, identical to those on barbed points, Fig. 1a, beveled at a 45 degree angle on one side; very little carving exists except at apex, tang and a slight tapering or attenuation of the point in the anterior section; cross section shape generally due to inherent shape of the bone, which has a groove-like sulcus on one side. The smallest point, however, does have the convex side, opposite the natural groove, carved flat.

Discussion: Points nearly identical are illustrated and discussed by Strong, Schenck and Steward (1930, Plate 7,o) and Collier, Hudson and Ford (1942, Plate VIII, A to C and D to L). The one illustrated by Strong, Schenck and Steward is called a "harpoon or lance point", but it is practically identical to the larger example from Pyramid Lake. Collier, Hudson and Ford speak of their points as "arrow points" when they are one to four inches in length, and as "spear points" when they are four to five and one-half inches long.

The known distribution is along the Columbia River system and Pyramid Lake, but they surely were made and used in many other areas. It is assumed that they were propelled with the atlatl, bow, and/or thrown or thrust by hand. The three points described are in the collections of Peter Ting, Jr. and the author.

Simple Willow Leaf-Shaped; Tang Carved on all Sides, Narrower than Base of Point

Description: General shape as in Fig. 1f; the single point available is 86 mm long, 8.5 mm wide, and 2.7 mm thick; cross section elliptical; entire point polished; point carved from a bone splinter; apex evenly tapered and sharp; tang 17 mm long, tapered on all sides, thinner than apex of point.

Discussion: Willoughby (1935, p. 219, Fig. 122,K), Martin Quimby and Collier (1947 p. 448, Fig. 107E), and Griffin (1952, Fig. 14A) illustrate bone arrow or spear points very similar to the Pyramid Lake point. The known distribution is eastern United States and Pyramid Lake, Nevada. It is assumed to

be a projectile point, but how it was propelled is not known.

The only known point of this type from Pyramid Lake is in the collection of Peter Ting, Jr.

Bipointed

Description: General shape as in Fig. 1g; the eight points at hand vary in length from 99 mm to 120 mm; diameter from 5.5 mm to 7.5 mm; cross section nearly round to demidiate; all points polished; taper of apices from 20 mm to 25 mm in length; complete point carved except for one or two narrow linear flat areas on most points, which may be natural surfaces of the bone; these flat areas account for the cross section being demidiate on some specimens; one apex of each specimen carved so that it bends away from the longitudinal axis by about 10 degrees.

Discussion: Miles (1963, p. 21, Fig. 1.24) illustrates and discusses an identical point. Collier, Hudson and Ford (1942, P. 152, Plate PX,D) illustrate a bone point which is very similar, if not identical, to the bipointed ones discussed here. The known distribution is the Columbia River and Pyramid Lake. Miles (1963) states "does not appear to be a North American arrow, but pictured to show how this mode of pointing could have been used with bone "pins" found in North America."

These points were lashed to the side of a shaft so that one end protruded as a piercing structure, and the posterior end, which is characteristically curved away from the long axis, formed a single barb.

Kroeber and Barrett (1960, p. 71, Fig. 3) illustrate and discuss similar bipointed bone artifacts which were lashed to a stick at a much greater angle and used as a gaff hook primarily for lampreys.

The points, available for study, are in the collections of Peter Ting, Jr. and the author.

Composite Harpoon

Description: General shape when assembled for lashing together and "hafting" as in Fig. 1h; spurs or barbs 96 mm and 97 mm long; maximum width 9 mm to 12.5 mm; thickness 2.3 mm to 3.5 mm; what is assumed to be the center piercing point is 89 mm long, 7.5 mm wide, and

3.8 mm thick; side view of spurs elliptical in shape, apices more pointed than bases; each spur is constructed by carving and/or warping so that the outer edge and surface is concave in linear outline. When the apices are lashed to the center point, the posterior ends then form flaring barbs characteristic of toggle-type harpoons; all parts appear to be polished; one spur is channeled on the inner surface allowing a more precise and compact assembling of the three parts.

Discussion: Although not identical to the Pyramid Lake harpoons, the composite toggle-type is illustrated and discussed by numerous authors. A few selected references to the toggle-type harpoon which the Pyramid Lake one resembles are as follows: Mason (1902), Bennyhoff (1950), Rostlund (1952), Miles (1963), and Elsasser and Heizer (1966).

As the Pyramid Lake "harpoon" is not identical to any known type of composite harpoon, the author will be the first to admit that his interpretation may be wrong. Stewart (1941) refers to a harpoon from Pyramid Lake, Steward (1941) discusses a three piece bone harpoon from the Humboldt River, and Kelly (1932) mentions bone points used as harpoons in Surprise Valley, but all these accounts are based on information obtained from informants. Mr. Fred Crosby, who has lived at Pyramid Lake most of his life, told the author that he observed the Paiute Indians using both bone and metal harpoons near the mouth of the Truckee River around 1902. The metal harpoon head was only of two parts lashed together in the shape of a "V" about one and one-half inches long. The wooden shaft had a metal foreshaft which was not detachable. The retrieving line ran from the metal harpoon head directly to the wooden shaft.

Assuming that one or all of these informants are correct, the author has selected the particular bone parts described from over 500 Pyramid Lake bone artifacts available for study. The two parts believed to be a pair of spurs from a composite toggle-type harpoon were found together by Peter Ting, Jr. The center piercing point was found about ten feet from the spurs. A third single spur

was found several hundred yards away, but in the same bay which yields many artifacts used in fishing.

The Pyramid Lake artifacts considered to be parts of a composite harpoon deviate in structure from the known composite toggle-type by having the spurs pointed at the apices instead of being truncate or bifurcated. Elsasser and Heizer (1966, p. 122, Plate 11 m-n) illustrate the shapes of spurs from California toggle harpoons.

It appears from the literature that the composite toggle-type harpoon was only thrown or thrust by hand.

According to Rostlund (1952) and Driver and Massey (1957), the distribution was restricted to the west coast and extended from central California to the Tlingit country in the north, and inland through Surprise Valley as far as the Snake River Shoshone and possibly, though not certainly, to the Flathead. Presumably, most of the Fraser River tribes also come within the limits of the distribution. With the exceptions of the Flathead and Surprise Valley Paiute, the distribution coincides with that of the Pacific coast salmon species. It is interesting to note that the Lahontan cutthroat was the largest of all native trout and regularly reached salmon size and weighed over forty pounds.

#### SUMMARY

The carving of bone artifacts used in fishing and hunting was a highly developed industry among the aborigines who lived at the lower elevations around Pyramid Lake. As the receding water of the lake exposes new beach areas, these artifacts are found on the surface in a fine state of preservation and often in association with the remains of Lahontan cutthroat trout.

Apparently, bone artifacts from two or more cultures may be found at these low elevations. Geologists have shown that the water of Lake Lahontan-Pyramid Lake has fluctuated with a gradual downward trend during the last 9000 years and reached the 3800 foot level, or lower, several times. The lake level is known to have receded to the 3800 foot level, or very near to it, twice during the occupational span of the Lovelock Culture (2000 B.C. to 1500 A.D.) and many of the

bone artifacts are believed to have been made by these people. Obsidian hydration dating, although tentative at present for this area, indicates dart points found at the 3800 foot elevation were probably made by an earlier culture, 4600 and 6500 years ago.

The actual points discussed have been collected since 1959 between the elevations of 3805 and 3785 feet. The seven types of bone and antler points, presumably projectile points, so far found at Pyramid Lake are:

- fixed barbed points;
- leister points;
- multipointed barbless type;
- cylindrical-shaped arrow and spear points;
- a willow leaf-shaped arrow point;
- bipointed and composite harpoons.

None except for the fixed barbed points and leister points have been previously reported from Pyramid Lake. A previous report of a harpoon was based on information from an informant (Stewart 1941).

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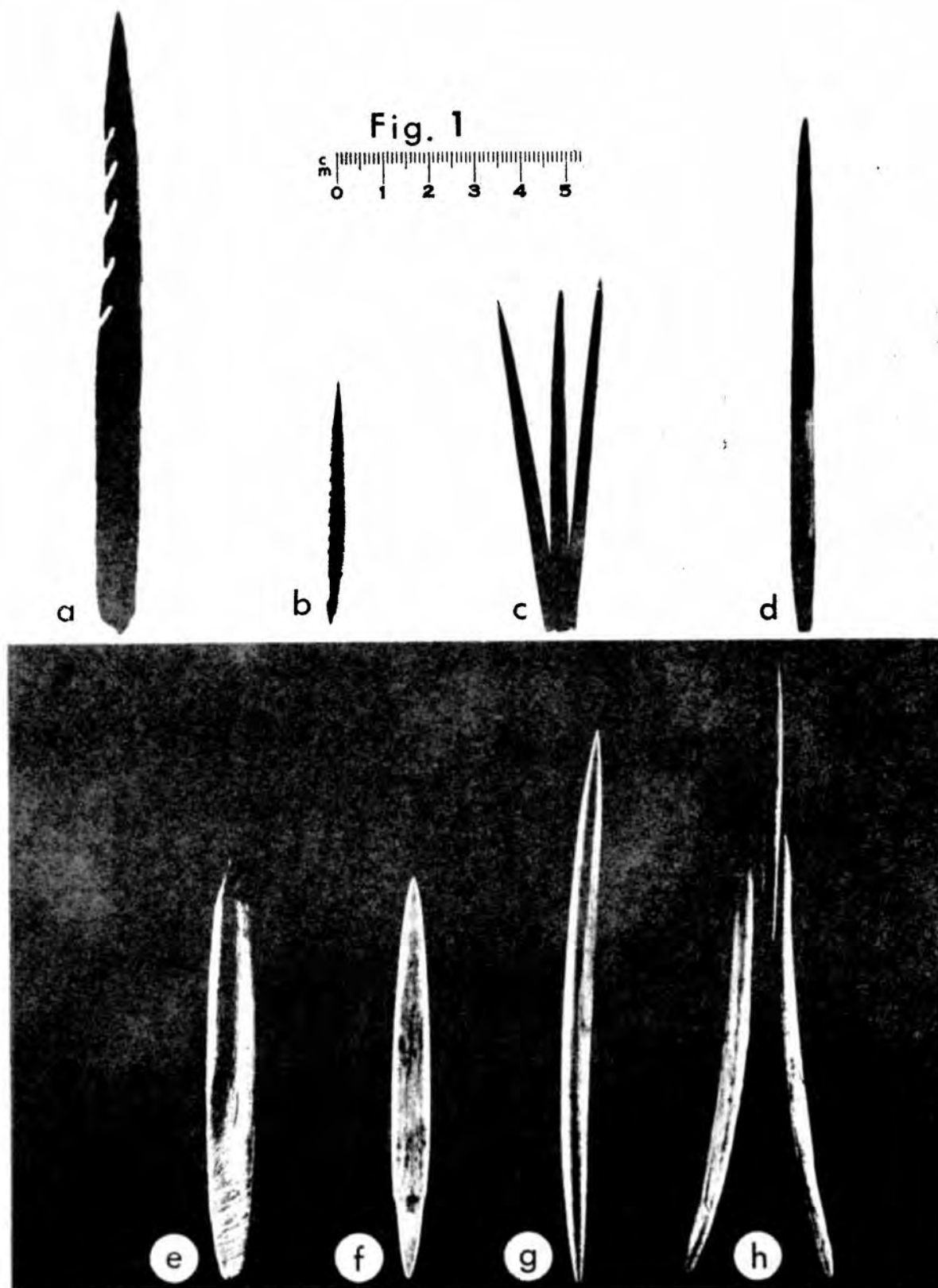


Figure 1. Three barbed bone and antler projectile points on right collected by Peter Ting, Jr.; two on the left collected by the author. Photograph by John Moore, Staff Photographer, through the courtesy of Donald Tuohy and the Nevada State Museum.

# HOW THE AMATEUR CAN CONTRIBUTE TO THE PREHISTORY OF NEVADA

by  
Peter C. Ting

The present trend "to the outdoors" is producing an ever-increasing number of artifact collectors. These outdoor enthusiasts can either help preserve the archeological prehistory of Nevada or, in varying degrees, destroy it. The importance of this situation suggests it is timely to discuss how the collector, explorer, and amateur archeologist can contribute to the archeology of our state.

If archeological specimens of any kind are collected they should be shown to the Archeological Survey or to the Nevada State Museum along with site information. It is important to include the following information about your artifacts: the exact location found (carry a 15' quadrangle map with you in the field); a description of the surrounding area; and if location appears to be a camp site, hunting site, workshop or quarry; and any other associated facts (see site survey sheet attached). Collectors may be assured that after the specimens are examined, photographed, and officially recorded, they will be returned. In a recent article in the "Territorial Enterprise" vol. 115, nos. 5, 6, 7 written by Dr. Robert L. Stephenson, Coordinator of the Nevada Archeological Survey, entitled "You and Your Arrowheads" he states, "Bring your collections to us here. Let us see them, photograph them, and study them. Leave them with us awhile, if you will. We will guarantee their safekeeping and SAFE RETURN." Except for unusual finds that warrant immediate investigation, it is suggested that you bring your collections in for examination once a year. Pick up a few site recording sheets so you can record the desired information while it is fresh in your mind. Never include any artifacts that you have purchased. They may turn out to be fakes and you will become the innocent victim of a practice that is opposed by all truly scientific-minded people.

If you have collected no artifacts during the year but know the locations of

petroglyphs, Indian trails, bedrock mortars or other Indian sites report these to the Survey, Museum or to Mrs. Jean Myles, Chariman of the AM-ARCS site recording committee. Photographs are always desirable.

Do your best to prevent people from destroying petroglyphs, pictographs, stone circles, and other aboriginal structures. Prevent unauthorized people from excavating Indian caves, rock shelters and open camp sites.

Become a member of an amateur society, such as AM-ARCS of Nevada in Reno or the Archeo-Nevada society in Las Vegas. The meetings, training projects, and field work of these two societies advised by professional archeologists will increase your knowledge of archeology. Even this small degree of professional knowledge will give more meaning to your hobby. You will be better qualified to cooperate with archeologists and to contribute to the prehistory of Nevada.

Amateur archeologists with the ability should write popular articles. Such contributions when properly worded can help indoctrinate the public and possibly prevent the destruction of many aboriginal sites. Individuals with sufficient background are urged to publish more technical articles.

If you have the opportunity, talk along the lines of this discussion to the people you meet in the outdoors. Perhaps you can convince some of them and enlist their help in preserving and recording the archeological sites necessary to the complete understanding of our prehistory.

## A COPPER PENDANT FROM PYRAMID LAKE

by  
Peter C. Ting

Among the more uncommon artifacts found at Pyramid Lake is a decorated copper pendant. When found, it was thought to be part of a modern fishing lure and neither the exact location nor the shore elevation was recorded. At a later date when it was examined more carefully, the lateral margins were found to be incised with short, minute grooves and the general shape did not match the blade of any known fishing spinner. In fact, it is an aboriginal copper pendant, the use or manufacture of which has heretofore been unknown by the Indians of northern Nevada. Incising the margins of artifacts was a common practice of Nevada Indians, not only when carving ornaments, but when making utilitarian implements out of bone and stone. The transference of this decorative practice from stone and bone to metal ornaments is a logical sequence.

Determining the origin of the pendant presents several possibilities. If it were made from native copper, the process was by annealing and hammering, as no other metallurgical procedures such as smelting or casting were practiced by the American Indians north of Mexico (Shroeder and Ruhl 1968). The pendant is too thin and much too uniform in thickness to have been made in this manner. It could be a finished trade item from the Columbia River Indians made from sheet copper, or it could have been made by our local Indians from sheet copper obtained from the Columbia River basin. In the late 1790s and early 1800s, explorers and fur traders exchanged sheet copper with the Columbia River Indians for furs and salmon. Captain Robert Gray, who discovered the Columbia River in 1792, had 3495 pounds of copper aboard his ship (Strong 1960). The other likely possibility of the pendant's origin is that it was made or modified from a copper fishing spinner blade by simply squaring off the rounded end. Art Champagne, of Reno, Nevada, who has been associated with fishing and sporting goods most of his life, told me that spinner blades are always rounded or

leaf-shaped at the ends.

The pendant is triangular shaped with the lateral edges slightly reflexed so that one face is somewhat concave. The etching appears along the edges on both faces, but is more pronounced on the concave side. The grooves or scratches are not evenly spaced. Some of the scratches are not parallel and form letter V patterns. The eye is either broken, or it was made by notching the end and drawing out one edge to a thin projection, which was then bent back to form the round rim of the hole. Measurements are as follows: length, two and one-quarter inches; greatest width, one and one-eighth inches; thickness, less than one millimeter.

If the pendant is a trade item from the Columbia River basin, it is at most 160 to 170 years old. If it were made from a modern fishing spinner obtained at Pyramid Lake, its age is probably less than 100 years.

Dr. Arthur Baker III, of the Department of Mining, University of Nevada, believes, from visual examination, that the pendant is basically copper and is plated with either gold or brass and that some of the copper has worked through the plating while being exposed to the elements at Pyramid Lake. After being cleaned, the pendant has a gold appearance with a few copper colored areas on the surface. Dr. Baker is attempting to analyze the metal through more technical ways, possibly by specific gravity tests, and the results will be published in the REPORTER.

At any rate, the Paiute Indian who wore this beautiful ornament carried great prestige. Copper was considered as valuable as gold.

Donald Tuohy, of the Nevada State Museum, has examined the pendant described above and agrees with the author and Peter Ting, Jr., who first detected the incising, that it is an aboriginal artifact.

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#### NOTE ON THE ANALYSIS OF THE PYRAMID LAKE METAL PENDANT

by  
Peter C. Ting

The metal pendant from Pyramid Lake, described in the last issue of the REPORTER (Vol. II, Nos. 11, 12), was subjected to an X-ray diffraction test, through the courtesy of Dr. Arthur Baker, III, of the Nevada Bureau of Mines. Technicians determined that the pendant is copper with a copper oxide coating.

In a conversation with the technicians, it was learned that X-ray diffraction analysis of very thin "laminated" material is extremely difficult. The overall thickness of the pendant is only 0.6 mm and the brass or gold plating that appeared to the naked eye to be present, is probably only a few microns in thickness!



#### A DECORATED FISHING SINKER FROM PYRAMID LAKE

by  
Peter C. Ting

One of the most unusual stone sinkers known from Pyramid Lake was recently found by Noble Crew, the current president of Am-Arcs of Nevada. This sinker made of dolomitic marble is the only one among approximately 600 examined from Pyramid Lake that is decorated with drilled pits and, indeed, is an uncommon artifact from this area. It appears that this type of art was seldom practiced by the Pyramid Lake aborigines. The sinker was found at the 3800 foot elevation and probably is from the Lovelock Culture (2500 B.C. to 1500 A.D.).

Following Mr. Tuohy's classification in the American Antiquity (1968:Vol. 33, No. 2, pp. 211-15) of "Stone Sinkers from Western Nevada", the decorated specimen is a modified Ovate Knobbed sinker. The modification is an additional pecked groove near the base and is not present on any other knobbed sinker examined. Due to its artistic design the artifact may have been first a charm stone and then modified and used later as a sinker or vice versa. The sinker is 89 millimeters (3½ inches) long and the greatest width is 34.5 millimeters. It weighs 88 grams or just under 3 ounces. The sinker is fractured along one side in the basal half (Fig. 3) so that the weight, greatest width and thickness cannot be accurately determined. The unique decoration (Fig. 1) consists of 14 pits, each about 1 millimeter in diameter, in the form of an elongate wedge, produced by rotating a pointed object. Only one side of the artifact is decorated. Aborigines in Europe were known to use a bow-drill to produce these decorative pits.

I wish to thank George Phelps, vice president of Am-Arcs, for his excellent illustrations of the stone sinker.



## OLDEST OBSIDIAN POINT?

by  
Peter C. Ting

An obsidian Lake Mohave type projectile point recently collected by the writer and submitted to the University of California at Davis Obsidian Hydration Laboratory, was found to have a hydration layer 16.2 microns in thickness. This is the thickest hydration layer found to date on any Nevada point. Following our local criterion for transposing microns of moisture layer into age, the test indicates the point was made 16,200 years ago.

The rate at which fractured obsidian forms an outer hydration layer in northwestern Nevada was determined by Donald R. Tuohy of the Nevada State Museum. He submitted for dating, the parts of a complete atlatl dart excavated in this immediate area. The results of a radio-carbon test on the wooden shaft, and a hydration test of the attached obsidian point, were correlated and it was found that one micron of moisture layer is formed in one thousand years. The accuracy of these ages and the correlation depend on the dart point being fashioned from raw or fractured obsidian at the same time the wood "died" and was made into a dart shaft. Also as high temperature is the main factor that speeds up the formation of the hydration layer, it must be remembered that soil temperature in a cave is lower in the summer time than on the exposed surface of a desert pavement area. Knowing the average temperature throughout the year of soil in caves at various depths as compared to that on the surface of desert areas would help determine the exact age of the point in question. Many other sources of error exist in obsidian dating, both archeologically and in the technique of the dating process itself. On the whole, however, obsidian hydration results agree with the chronological expectations. The point in question falls into an old complex of artifacts similar to that called the San Diequito.

The point (illustrated below) was found on the surface, in a partially exposed position at an unnamed site on a Lake Lahontan beach terrace in the Carson

Sink area. Most of the site is in desert pavement, with the mosaic-like stones and many artifacts exhibiting "desert varnish". Except for the absence of rock cairns, rock alignments and crescents, the artifacts are similar to those found at the Sadmat Site located near Hazen, Nevada. A fragment of a Lake Mohave point collected at this unnamed site by Stephen Tieber, was also dated by the obsidian hydration test and exhibited 15.2 microns of hydration banding. Most of the obsidian points collected by us did not lend themselves to dating because of their weathered condition.

Although the Lake Mohave point -- with 16.2 microns of hydration -- may not be actually 16,200 years old, it is a projectile point of the type used by ancient, aboriginal, big game hunters. Ever increasing evidence documents the fact that these large spear or dart points were used in Nevada by one or more cultures of early people who successfully hunted and killed the now extinct Ice Age Mammals.

I wish to thank George Phelps for the fine illustration. Note the section removed by the laboratory for hydration dating.



Fig. 1. Photograph of the point which yielded the 16.2 micron reading.

PYRAMID LAKE -  
ARTIFACTS AND PREHISTORY

by  
Peter C. Ting

Tonopah, Nevada talk to Nevada  
Archaeological Association

Dear Madam Chairman, Distinguished  
Visitors and Archaeologists:

My mind is puzzled as to just how to present a topic like mine to a group including professional archaeologists. I wonder if professionals have the same feeling when they talk to amateurs or a mixed group?

Nevertheless, I will attempt to discuss the surface artifacts of Pyramid Lake together with many other related features of the lake as well as most of the prehistoric traditions and phases that these first Americans are placed in by different authorities.

One of the first officially recognized amateur archaeological societies in Nevada was instigated in Reno in March 1967, by Dr. Robert Stephenson. At that time Dr. Stephenson said "Am-Arcs and the professionals will be of mutual benefit to each other."

Almost immediately his prophecy came true as the amateurs produced artifacts never before seen by the professionals and professionals started giving training courses and encouragement to the amateurs.

Consequently, I believe Nevada amateur archaeologists are some of the best in the world. Now my talk may not be the best but I think it will at least be next best, . . . which reminds me of the super salesman who sold kotex. He finally obtained an appointment with one of the largest chain stores in North America and while he was giving his pitch to the president and Board of Directors he said, "I sell the best kotex in the world, the price is right, etc., etc. Finally being the super salesman that he was, he realized that he had the account sold so he thought I'll just tone this pitch down a little, so he said, "Actually I may not sell the best kotex, but it is certainly used next to the best."

I started collecting at Pyramid Lake in 1959 when the lake level was approach-

ing its all time historic low. Fortunately, I collected mainly at the lower levels near or about 3800 feet elevation, and for some reason I specialized on stone fishing sinkers of various types. In 1966 I published a popular article in a national magazine on stone fishing sinkers and soon after its publication I heard from Donald Tuohy by letter. He started by saying, "I see you have a feeling for the American Indians" and implied I had written a good article, then his tone changed and he wrote, "Do you know that you have broken both the Federal and State antiquity law. You needed a permit from the Tribal Council and, furthermore, you told people all over the country with your photographs just where to collect these artifacts."

Since that time Donald and I have become very close friends and he and Dr. Stephenson have been my guiding lights in the study of archaeology.

Before getting into the main body of my remarks, I have two criticisms to make, however, one of amateurs and one of professionals. I would like to say there is "good news and bad news", but its all bad. Very few amateurs keep proper records. There are a few exceptions: Harry Swanson and his wife Irene do, Noble and Taffy Crew, Loretta and Louis Sabini, Harvey Rose and Kitty and a few others do. There are not enough amateurs with the ability to write articles. I believe that well written, accurate amateur articles are the best liaison with the public. Now on to the professionals! Very few of you are bold enough to come out in print and state that Early Man inhabited North American 50,000 years ago when there is so much convincing evidence that this is true. Actually our whole time clock is considered wrong by two oceanographers who took cores of the ocean floor and proved convincingly, substantiated by Potassium-Argon tests, that our last glacial period started 115,000 years ago instead of the usual accepted time of 70,000 years ago. There are some possibilities of error, for example, the amount of potassium present in those days on earth, the same applies to carbon-14 tests.

Actually I admire our professional archaeologists and I couldn't care less if Early Man was here 50,000 years ago or 10,000 years ago, but being a scientist myself and the father of one (Dr. Irwin

Ting), I'd prefer an accurate temporal estimate.

Now down to the artifacts that all we amateurs enjoy so much. As I stated before, I started collecting at or near the 3800 foot level at Pyramid Lake in 1959. After each hike I would walk back to my truck actually with all my pockets and both my hands full of beautiful artifacts. In 1967, when the lake level reached its all time historic low of 3783.9 feet, I was not satisfied just to collect on the shore, I even collected in the water and found many stone sinkers and bone implements.

At this time near the water line I was collecting in areas never before seen exposed by white men (except for a few fishermen and a few other collectors), camp sites were uncovered as evidenced by metates and manos. It was at this extreme low level that most of my better artifacts were found, such as the beautiful obsidian points approaching the chipping technique of the Magdalenians of Europe and the Egyptians of Africa, the barbed bone spear points and various other unidentified bone implements. I had several obsidian points from the lowest elevations dated by the obsidian hydration test at U.C. Davis and they came out 4600 to 6500 years old at the 1000 years per micron rate. There was always a question in my mind about the results and wondered if being submerged in water for several thousands of years wouldn't contribute to the thickness of the water-layer absorbed. I believe now after various correlations that Don Tuohy has developed that this is true and that they are approximately only 4500 years old. So they apparently did absorb some moisture during the time that they were submerged in wet sand or water. This places them in the early Lovelock Tradition or early Pyramid Lake phase. We'll go more into the traditions and phases of Pyramid near the end of my remarks -- if you're still awake. The last prehistoric time that the lake level was close to this low level was 2380±180 years ago when it reached a level of 3788 feet or lower. At the elevation of 3788 feet Tuohy excavated a burial and had associated sagebrush wood carbon-14 dated. Other artifacts of special note and of interest to professional archaeologists were the sev-

eral desert side-notched points that were found near the 3800 foot level. This may date the use of them well before the accepted time.

At this point I felt I had collected enough stone fishing sinkers (well over 300), and I probably left that many more in place. I told my friend Noble Crew and a few others the best collecting areas. Noble immediately found the only decorated sinker known from Pyramid Lake. It was decorated with drilled pits on one side in the shape of an elongate V. You'll see an account of it and an illustration by George Phelps in "Chippings" published by Am-Arcs. Art Champagne and his wife Dorothy found the largest barbed bone point and Karen Wells found the only stone sinker still attached to a fiber line, although Jane Rowden found gorge hooks attached to fiber line. I looked at hundreds of feet of this exposed fiber line looking for sinkers but all I could find was knots, perhaps, where sinkers had been tied on. Peter Ting, Jr. actually found the first barbed bone spear point and Clayton Phillips found the second. Virginia Phillips, his wife, found one of the most uncommon artifacts, a stubby-shaped stone implement shaped like the beautifully made elongate plumb-bobbed shaped artifacts found at Stillwater and Humboldt sink. Their use is unidentified to this day (I'll show them to you now, but I won't pass them around because I promised that when I borrowed them from Kyle Swanson, Harry Swanson's son, and Virginia Phillips).

During my eight or nine years of concentrated collecting at Pyramid Lake I collected the complete perimeter except opposite the eastern cliff area, such as Hell's Gap and found artifacts throughout the whole expanse of the beach. It is interesting and perhaps of special significance to professional archaeologists that there were many areas of concentration of barbed bone spear points, bone fishhook barbs, stone fishing sinkers and fiber line along the west side of the lake starting just south of Sutcliffe's and increasing as one approached the Needles to the north. Atlatl weights were found only near the Needles on both the west and east side which may indicate desert sheep and antelope hunting in this area. The bipointed or spindle shaped stone sinkers were concentrated at the southwest corner of the lake and as you

CULTURAL SEQUENCE IN THE LOWER TRUCKEE BASIN\*

<u>Date</u>	<u>Pyramid Lake</u>	<u>Winnemucca Lake</u>
A.D. 1900	Reservation Phase	Reservation Phase
A.D. 1800	Tybo Phase (Historic Paiute)	Tybo Phase
A.D. 1500	Kuyui Phase (Protohistoric Paiute)	Kuyui Phase
A.D. 1000	Late Pyramid Phase (Late Lovelock Culture)	Late Pyramid
A.D. 500		
A.D. 1	Middle Pyramid Phase (Trans. Lovelock Culture)	Middle Pyramid
500 B.C.		
1000 B.C.	Early Pyramid Phase (Early Lovelock Culture)	Early Pyramid
2000 B.C.		Kramer Phase (Little Lake Culture)
3000 B.C.	Blazing Star Phase (Pinto Tradition)	
4000 B.C.	?	
6000 B.C.	?	Nickolarceny Phase
9000 B.C.	?	Coleman Phase (Western Pluvial Lakes Tradition)
10,000 B.C.	. . . . Fluted Point Tradition . . . .	

\*This cultural sequence was originally outlined in "Cultural Resources Overviews of Five Proposed Wilderness Areas in Northern Nevada," Nevada State Museum Archaeological Services Report, October, 1979 by Evelyn Seelinger, Bonita Brown, and Mary K. Rusco.

approach the Pyramid itself from Winnemucca Lake. I believe in these two areas there are quarries of volcanic tuff -- either latite tuff or rhyolite tuff. Other sizeable quarries that exist at Pyramid are one of basalt and another of bog agate which is being analyzed by the University of Nevada, Reno and will probably turn out to be a type of chert (the last is from Don Tuohy's unpublished comprehensive paper on the 80 excavations done in this area). Another concentration of bone artifacts was the finding of many early gorge or bipointed fish hooks about 1½ miles south of the Needles. At least seven were found associated with prehistoric Lahontan cutthroat skeletons. Other uncommon bone artifacts found near the Needles were several leister tynes.

Before going into the traditions and phases of early people living at or near Pyramid Lake, I should mention a few observations I have made of the artifacts found at Pyramid and Winnemucca Lakes. To me, at least, two differences are: the fact that (to my knowledge) no bipointed volcanic ash or tuff sinkers have been found at Winnemucca Lake; and also many of the petroglyphs at Winnemucca Lake are chisled or carved much deeper in the tufa coating of rock piles than at Pyramid Lake.

Several facts for any of you who are specially interested in Pyramid Lake and Lahontan Lake system are: namely, the population of prehistoric people at Pyramid Lake during the Kuyui or Paiute phase has been estimated to be 38.51 people per 100 square kilometers. In bad winters the Shoshone migrated to Pyramid to exist and the population increased; the present water elevation at Pyramid Lake is 3795.8 feet; the all time historic low in February 1967 was 3783.9 foot; the highest elevation of the lake in prehistoric times was 4383 feet; the lake has been under 4000 feet during the last 10,000 years.

As to the "traditions", "phases" and other designations and classifications that various authorities place on western American Indians in, I would caution you please not to publish any of these categories called phases because many are unpublished terms originated by Donald Tuohy. The simplest division for me is Early Man and the Archaic. Next

most comprehensive for me, I believe, is the pre-fluted tradition, the fluted tradition, and the Great Basin Archaic tradition.

A more specific and more exacting classification of the Lahontan Lake System people and Pyramid Lake is as follows. The most interesting to me and I believe the most descriptive designation is one called the Western Pluvial Lakes Tradition which applies to early man and includes phases like the San DeQuito, Lake Mohave, Fallon, Lind Coulee, Sadmat and Coleman. The WPLT runs from 10,000 B.C. (or earlier) to about 6000 B.C. Going up the scale and progressing in more recent time is the early Lovelock Tradition, Transitional Lovelock, Late Lovelock, Proto-historic and Historic. The phases applying especially to Pyramid Lake and nearby Lake Lahontan lake beds are Sadmat starting at 8000 B.C. Coleman, Kramer, Early Pyramid and Late Pyramid, Kuyui and Tybo. I have a chart here that will explain more about the dates and time span of these categories by reading it to you.

# AMATEUR ARCHAEOLOGISTS SPEAK . . .

## The First "Big" Game Hunters:

### A Preliminary Report

by

Raoul M. Dixon

The "Llano" or Clovis mammoth hunters and their famous "fluted" lance/spear projectile points have been assigned a "niche" in time. According to professionals, the dating has been made possible by the association of organic and lithic materials in a temporal phase between 11,200 and 11,700 years before present. The radiocarbon 14 method was used. The average dating was derived from six mammoth "kill," "camp" or "quarry" sites in North America. Quarry/camp sites pertaining to these specialized hunters/gatherers are scarce to say the least. The question is where did the "fluting"/"channeling" technique originate? Europe, Asia, Eurasia, Siberia, or here in the Western Hemisphere? From what tradition was it derived? These questions have never been answered in their entirety.<sup>1</sup>

In this report, I would like to present a number of observations and aspects I have recognized pertaining to two quarry/camp sites. I would like to place them into one "complex"--a whole made up of complicated or inter-related parts, or a group of culture attributes or traits relating to a single activity, such as hunting, and the processing and use of flint.

The hills in the vicinity of these two sites are made up of dolomite, through which are found "bedding" planes containing nodules of chert. Apparently, this chert material was preferred above obsidian, agate, chalcedony or jasper by the forefathers of Clovis hunters. This chert apparently was not utilized by any of the latter-day hunter/gatherers occupying the margins of the playa beds.

The "Knob Hills" site, the first site to be discussed, is strung out along tributaries emptying into an overflow channel between two extinct Pleistocene lakes. The elevation is approximately 3,000 feet above sea level. The "Lookout" site, the second

site, is situated north of and composing part of a solitary hill. A limestone "massif" separates the two sites and the elevation is approximately 2,800 to 3,000 feet above sea level. The highest lake or playa shoreline is 2,800 feet according to a survey map. On both sites, the lithics have co-mingled due to erosion and "settling." The bedding planes along the hillsides, however, have retained their stone artifacts due to their presumed geological stability. Implements that have become "mixed" due to settling have made it possible (in some cases) to recover both segments of broken or discarded artifacts. Apparently hunting was carried out above the maximum shoreline, the game probably being browsers such as mammoth, horse, camel, etc.

Patina or desert varnish on the upper or exposed surfaces is black in color. On the bottom or protected surfaces the color is yellowish to a dark brown. Segments of artifacts (broken) fitting together, in most cases, are differently colored, one usually darker than the other, possibly because one was underground or protected longer than the other.

This chert material seems to have the hardness of about 7 on the Moh scale, and heating would not help in the "flaking" procedure, although being "green" or "moist" probably would.

"Cores," the parent body of all tools/projectiles/implements, consist of "bifacial" (amorphous), "pyramidal," "tortoise" and "siberian"/"globular" types.<sup>2</sup> Striking platforms are either naturally faceted or ground. Seemingly the most numerous bifaces consists of globular shapes, where the flake/blade is detached according to the position of the converging "arrises." The flake/blades when removed from this type of globular core are fairly straight, a bit wider than the blades from the pyramidal cores and I would term the detachment "free/feathered" or "Levallois/Mousterian" where the finished product was perceived before flake removal.<sup>3</sup>

Now I will turn to the highest shoreline of the playa where the patina/varnish build-up is heaviest on the lithic materials. Long, flat bifacially-flaked blades/knives, usually bipointed or semi-bipointed, are the most heavily patinated. One tip, the distal tip,



usually is the sharpest and the proximal (in some cases) is comparable. These projectile/knives were irregularly flaked by percussion, usually having a "backed" area for the index or forefinger to rest upon when being used as a knife. Retouching was "nil." This type blade/knife I consider the most "primitive" until I am overruled by more evidence such as stratigraphy, etc. As I surveyed at a slightly lower elevation several blades/knives which had been basally thinned were recovered. Two or three flakes had been removed upward, but they were not "flutes." These blade/knives were similar to the bipoints having the same attributes, and they even had the "backed" area for the forefinger. Next a number of flake/blades, laurel-leaf in outline, plano-convex (dorsal/ventral) in cross section were recovered. The bases were fairly straight having been detached from the parent core by a free/feathered, Levallois/Mousterian technique. A notched channel or flute had been punched or pressured into or between an "arri" or "arrises" before removal from the core. No retouching was noted along the lateral edges nor was grinding present in the basal area. The converging arrises were left intact and served as a "median" ridge to strengthen the long-axis of the flake. From the remnants of the positive cone or bulb of percussion, apparently (in most cases) the core was set at approximately a 45 degree angle and the whole flake/blade was detached by indirect percussion, the point of impact being immediately behind the previously removed flute. In this paper I am illustrating one flake/blade as not having been fluted and one as having been fluted or channeled, these in the Levallois/Mousterian manner (Figure 4a, b, c, d). These flake/blades are also equipped, some natural and some trimmed, with "backed" area for the index finger to rest upon. From patina/varnish present, I would conclude that these afore-described projectiles/blades are the proto-Clovis types in their formative phase.

Also recovered within the camping area were a number of bifacially flaked, plano-convex in cross section artifacts similar in outline to the Lauricocha II

types recovered in South America, but having the short notch or flute into the convex/dorsal basal area. These artifacts are "laurel-leaf" in outline. Flaking is irregular and by percussion, and retouching is "nil." A number of other "fluted" broken, convex-based basal segments were recovered. Apparently this type of base also was fluted and in use at the site. I can well theorize how the convex base could be fluted while still on the parent core and then further shaped after removal.

Later several semi-classic type Clovis projectiles were recovered. These were lanceolate in outline, lenticular in cross section, concave based, and ground along the lateral edges about a quarter of their length from the base upward. These were made by irregular percussion flaking, collateral in execution. They are much smaller than the previously described flake/blades. The attribute of the backed area had disappeared. Apparently the formative period was over, at least for the Llano Phase.

Now we will turn to tools or implements and their evolution. I base my interpretation of these "mixed" industries upon the gradual disappearance of attributes, beginning with the heavily patinated bipoints, to the proto-Clovis tool types. All seem to indicate great age, but the massiveness of the more primitive types point to a greater age. Hunters and gatherers during glacial times have been categorized by their lithic industries, in Europe and in Asia (which we are interested in), such as Acheulean/Mousterian/Aurignacian/Perigordian/Solutrean and Magdalenian. I place my lithic attributes from the "Knob Hills"/"Lookout" sites within the scope of these industries. In this article I illustrate a number of implements from these sites recovered "first" hand. Their massiveness to me indicates an age of middle-upper Paleolithic. Roughly 98% of all artifacts were derived from source material obtained on these sites. The technology is identical, patination/varnish "in-bulk" is similar. I recognize and interpret a "mixing" of industries due to "settling" and "erosion" plus the "stability" of the debris being held in the bedding planes on the hill-sides. To summarize this, I recognize a "mixing" of "La Quina" Mousterian,

"denticulate" Mousterian, "foliate" Mousterian, and "Mousterian" of Acheulean tradition. My description includes (La Quina), convex tools/implements, (denticulate), incurved/notched, (foliate), bifacially flaked, and Acheulean, heart-shaped hand-axes, pointed tools/implements. There are also attributes pointing toward the Aurignacian/Periogordian industries with their side and end scrapers (carinated). The reverse retouching, reminiscent of the Solutrean people who resided in Central and Western Europe, could not be just a coincidence and all of the attributes on the Knob Hills and Lookout artifacts will be hard to disprove. The only significant negative fact that needs explanation is the great distance between these two sites and those in Asia and Europe.<sup>4</sup>

Several of the artifacts recovered seem to be reminiscent to the San Diequito I named by Malcom Rogers as part of his "Central Aspect." However, "backed" knives are very numerous in his collections and "fluting" in its early stages was not mentioned in his book Ancient Hunters of the Far West. The reverse retouching on the Solutrean type blades/knives is also out of context. I would like to impress upon the reader not to overlook the Levallois/Mousterian (free-feathered) technique of shaping or utilizing the contour of the parent core before removing the flake/blade in its entirety. This method may direct a different light upon the "fluting" technique. In parting, I would like to theorize that the earliest hunters/gatherers, here in the Great Basin country, were armed with the "bipoint" before the fluting technique emerged. They never discarded the bipoints use during winter months due to it being usable on both ends, so these I have named the "snow" blade. Apparently these bipoints were in use for many thousands of years and were made by many different industries. I would place the Lake Mohave knife, the Lerma, the Cascade and the Haskett, all in the same category, and derived from the same tradition. The artifacts I have illustrated in the photos have not been prepared in any way. I used a Zenza Bronica E.C. 40 mm wide angle lens 2½ x 2½ S.L.R., panatomic X black and white film.

1. There have been hundreds of researchers pursuing answers to these questions, however, and a recent example of the same is contained in "Peopling of the New World" Ballena Press Publications in Anthropology No. 23 published in 1982 by Jonathan E. Ericson, R. E. Taylor, and Rainer Berger.
2. The terminology used in classifying "cores" apparently is that of the author.
3. The late "Acheulo-Levalloiso-Mousteroid" industries of the Old World date perhaps as early as 100,000 years to 50,000 years ago. This was the time of the first phase of the last great glaciation, and it was also the time that the main group of Neanderthal men was living in Europe (Braidwood, Robert, Prehistoric Men, published in 1950 by Chicago Natural History Museum, Popular Series, No. 37). Very few New World archaeologists accept the presence of technologically comparable industries dating to the same time levels in the New World.
4. The consensus of most New World pre-historians is that the earliest New World artifacts should connect with early Chopper-Chopping complexes of southeastern Asia, rather than with western European complexes such as the "Acheulo-Levalloiso-Mousteroid" industries.

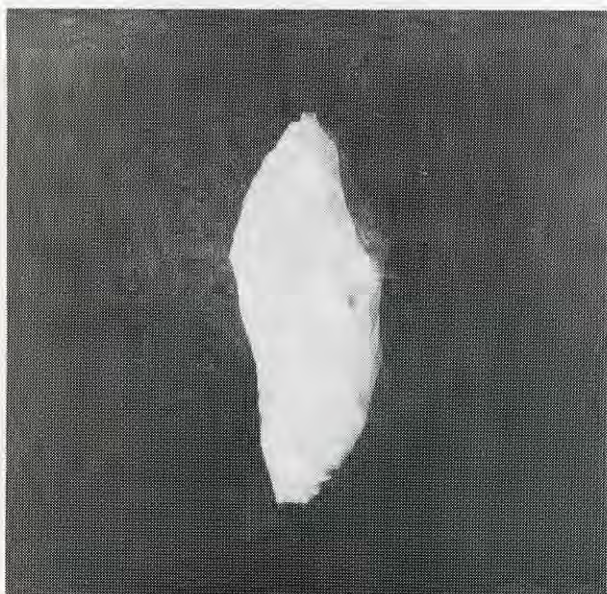




a.



b.



c.



d.

Fig. 1. Bifaces from the site. a, b. A basally thinned point/knife; c, d. A "backed, alternate lateral edges" knife, retouched only on the "cutting" edge. Both are core tools.





a.



b.



c.



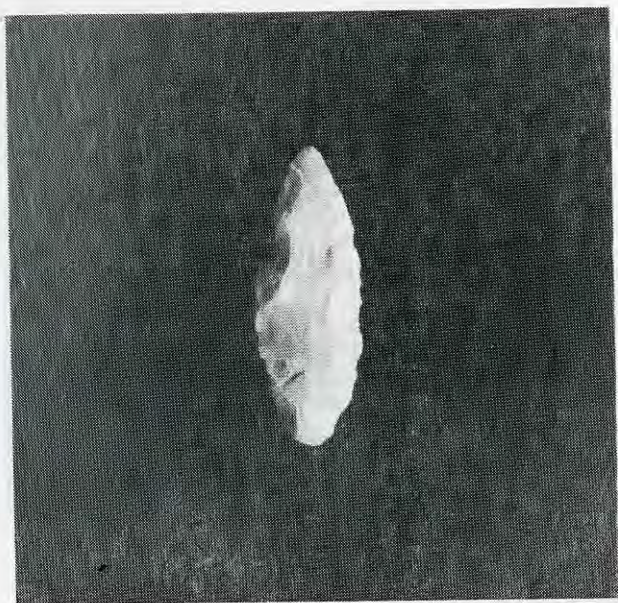
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Fig. 2. a, b. A "backed" point/knife; c, d. A biface point/knife which resembles the European Solutrean type. Both are core tools.





a.



b.



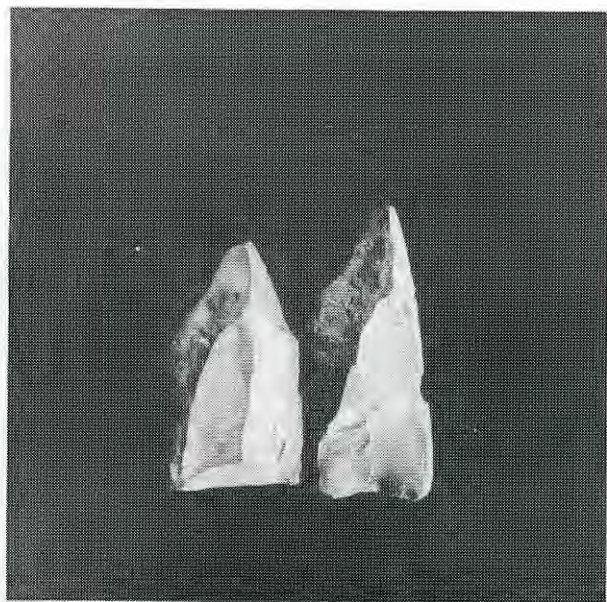
c.



d.

Fig. 3. a. A "backed" point/knife; b. A classic bipoint, a "snow" blade; c. A bifacially flaked point with a thinned base; d. Bifacially flaked, plano-convex point/knives with thinned bases. All specimens are bifaces.

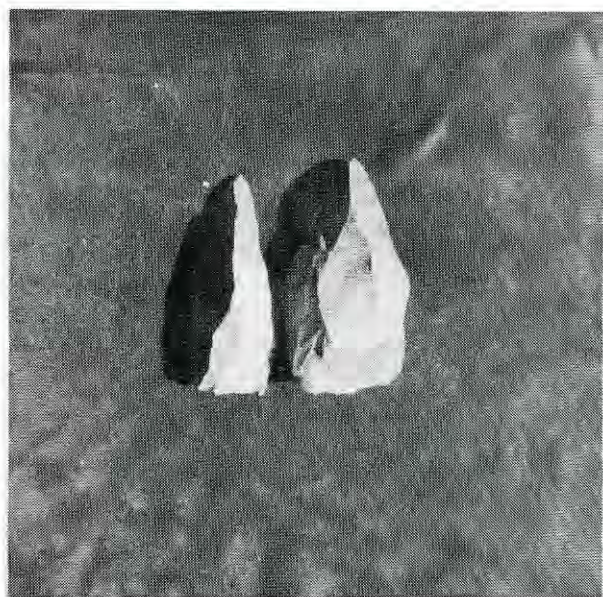




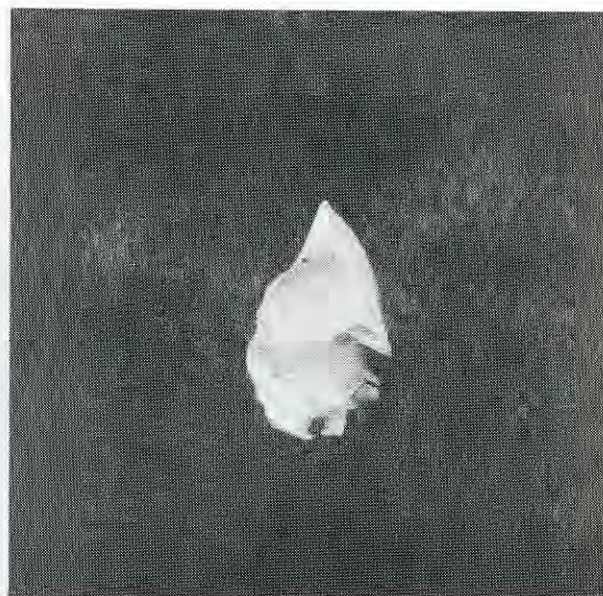
a.



b.



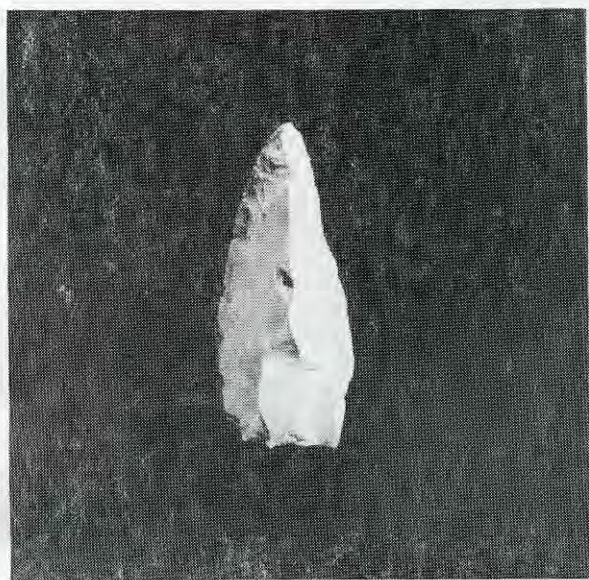
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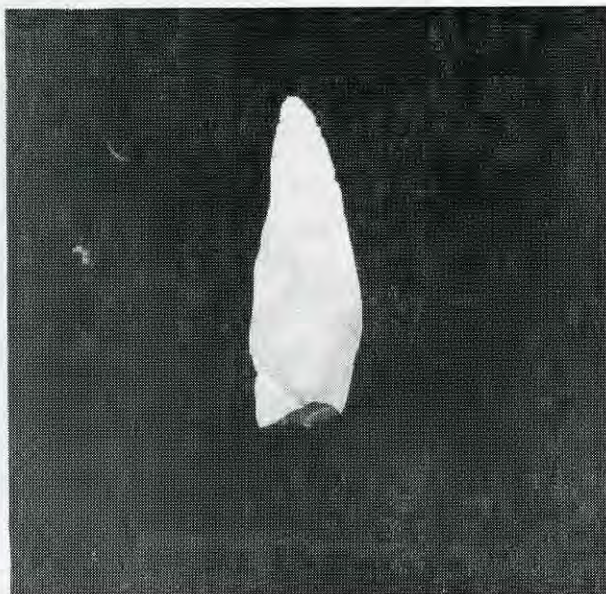
d.

Fig. 4. Flake tools from the site. a, b. Levallois-Mousterian-like type of flake blade and flake point; c. Levallois-Mousterian-like fluted flake blades; d. Aurignacian-like beaked burin.

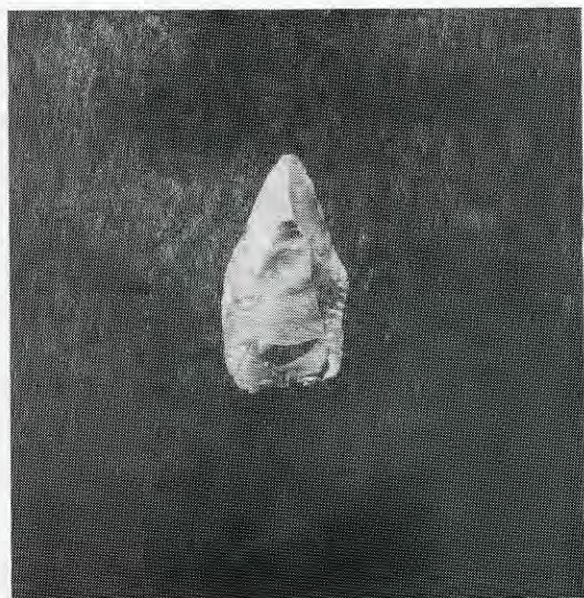




a.



b.



c.



d.

Fig. 5. Flake tools from the site. a, b. Two views of a Levallois-Mousterian-like flake blade; c. Another flake/blade of the same type; d. An end scraper and burin made on a tabular flake.



# Medicinal Uses of Plants by Indian Tribes of Nevada

Percy Train  
James R. Henrichs  
W. Andrew Archer

## *Medicinal Uses of Plants by Indian Tribes of Nevada*



This work is a facsimile reproduction of the revised edition of 1957 which included a summary of pharmacological research by W. Andrew Archer and published as *Contributions Towards a Flora of Nevada* No. 45.

This small volume of 139 pages is hardbound in library buckram and has contents which include a partial vocabulary of Indian names and terms, Medical uses of Plants, Index of Medicines and remedies and a short abstract of pharmacological research. This volume is the first in Quarterman's series entitled *Bioactive Plants*.

\$25.00 Postpaid

Quarterman Publications, Inc.  
5 South Union Street  
Lawrence, Massachusetts 01843

## THE NEVADA ARCHAEOLOGICAL ASSOCIATION

The Nevada Archaeological Association was organized in 1972 to provide a bond of communication between professionals in the field of archaeology and its allied sciences, members of various amateur organizations, and the people of Nevada towards the furtherance of public education and involvement in responsible preservation of Nevada's finite archaeological and historical resources.

The need for recording these cultural resources of the past for the enlightenment of future generations grows more pressing with each day of development and progress. The goals of the Nevada Archaeological Association are: to provide a focal point for general information and study of non-renewable cultural resources; to provide a central point for recording artifact collections from Nevada and the Great Basin and the verbal knowledge of provenience and associations accompanying these collections; to correlate this knowledge with that information already professionally recorded for the mutual benefit of the amateurs and professionals with research interests; to provide assistance with education towards responsible public participation in archaeology; to assist in the preservation of sites by the establishment and maintenance of a registry of available, capable, and technically skilled amateurs in Nevada who would be able to work with professionals in accordance with the Code of Ethics and Standards of Research Performance as advocated by the Society of Professional Archaeologists, particularly in the immediacy of salvage archaeology; and to provide a bond of communication between professionals, amateurs, and the general public by publishing a journal, *Nevada Archaeologist*.

To these ends the Nevada Archaeological Association was incorporated in 1972, in the State of Nevada, with its organizational and editorial offices as listed on the inside cover, and with designated conference and meeting center located in Tonopah, Nevada. Membership is open to all those interested in the archaeology, ethnology, and history of the human inhabitants and their natural habitats in Nevada, the Great Basin, and adjacent environs.

### ARCHAEOLOGICAL SOCIETIES IN NEVADA

#### *In Las Vegas:* THE ARCHAEO-NEVADA SOCIETY

*President:* John Kepper, Sr.

*Treasurer:* Ida Russell

*Secretary:* Sarah H. Black

P.O. Box 3487

Las Vegas, Nevada 89103

*Telephone:* (702) 649-3527

#### *In Reno:* AM-ARCS OF NEVADA

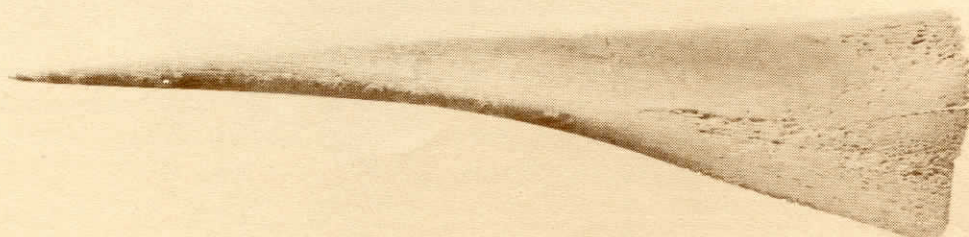
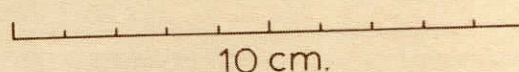
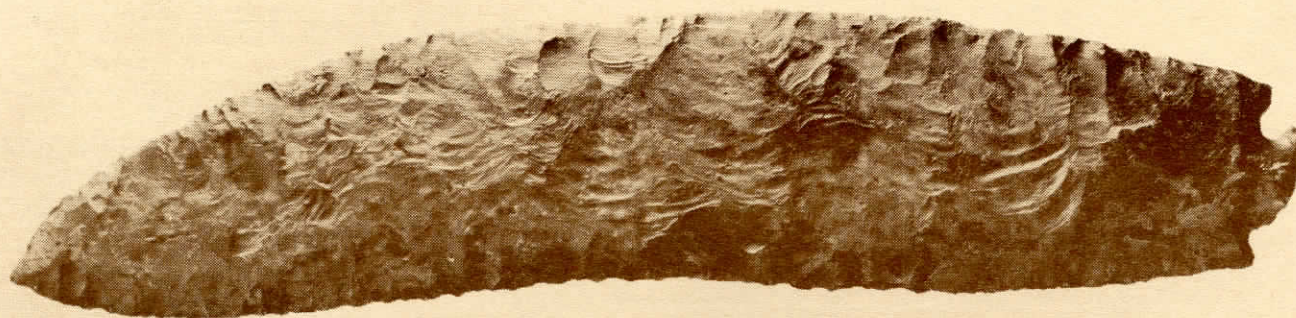
*President:* Mary Louise Cusick

*Treasurer:* Nadine Neugebauer

*Secretary:* Corry Geier

*Telephone:* (702) 322-6178

Residents of all other Nevada communities are asked to join the Nevada Archaeological Association until such time as there are sufficient numbers of people willing to form local chapters of either of the above organizations. Information on the Constitutions and By-laws of the above organizations may be obtained at cost from the secretaries of the above organizations.



A large knife and a bone awl from the Helen and Tom Derby collection from the Humboldt Sink.

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