

HUMPIES, AN UNUSUAL FLAKED-STONE TOOL TYPE FROM
THE TULARE LAKE BASIN

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ABSTRACT

Humpies are a distinctive flaked-stone tool class recovered from the surface of restricted localities within the Tulare Lake Basin. Humpies are apparently produced from blades made on high-quality, heat-treated cherts. Humpies date to Paleo-Indian times based upon evidence from the project area and from comparisons to other regions. Tool function analyses indicate that Tulare Lake humpies were used in light-duty woodworking tasks.

DISCUSSION

Humpies are a distinctive flaked-stone artifact found in significant numbers within certain localities of the Tulare Lake Basin of central California (Figure 1). Humpies are oblong shaped, plano-convex in cross-section, and exhibit pointed ends. The ends are acutely finished on most specimens, though some have more rounded ends. The dorsal surface of humpies are mostly steeply angled as a result of multiple episodes of unifacial retouch. Some specimens show minimal retouch, and thus have thinner bodies (or lower "humps"). Many specimens exhibit minimal pressure flaking at one end of the ventral or bulbar surface. This ventral retouch may have been performed to remove the bulb of force. All humpies have flat ventral surfaces; this obviously was an important attribute (Figures 2 and 3).

High-quality cherts represent the preferred raw material for the manufacture of humpies; a few are basalt. The cherts show evidence of purposeful heat treatment, based upon the unique, mottled colors of the material and their luster. Numerous studies have demonstrated that purposeful, controlled heat treatment appreciably improves the flaking quality of cherts (Crabtree and Butler 1964; Mandeville and Flenniken 1974:147; Rick 1978:62; and others).

Technological aspects of humpies presently remain ill-defined. It is likely, however, that humpies are manufactured from prepared cores via percussion. Thus, humpies may be viewed as the end product of a blade industry in the Tulare Lake Basin.

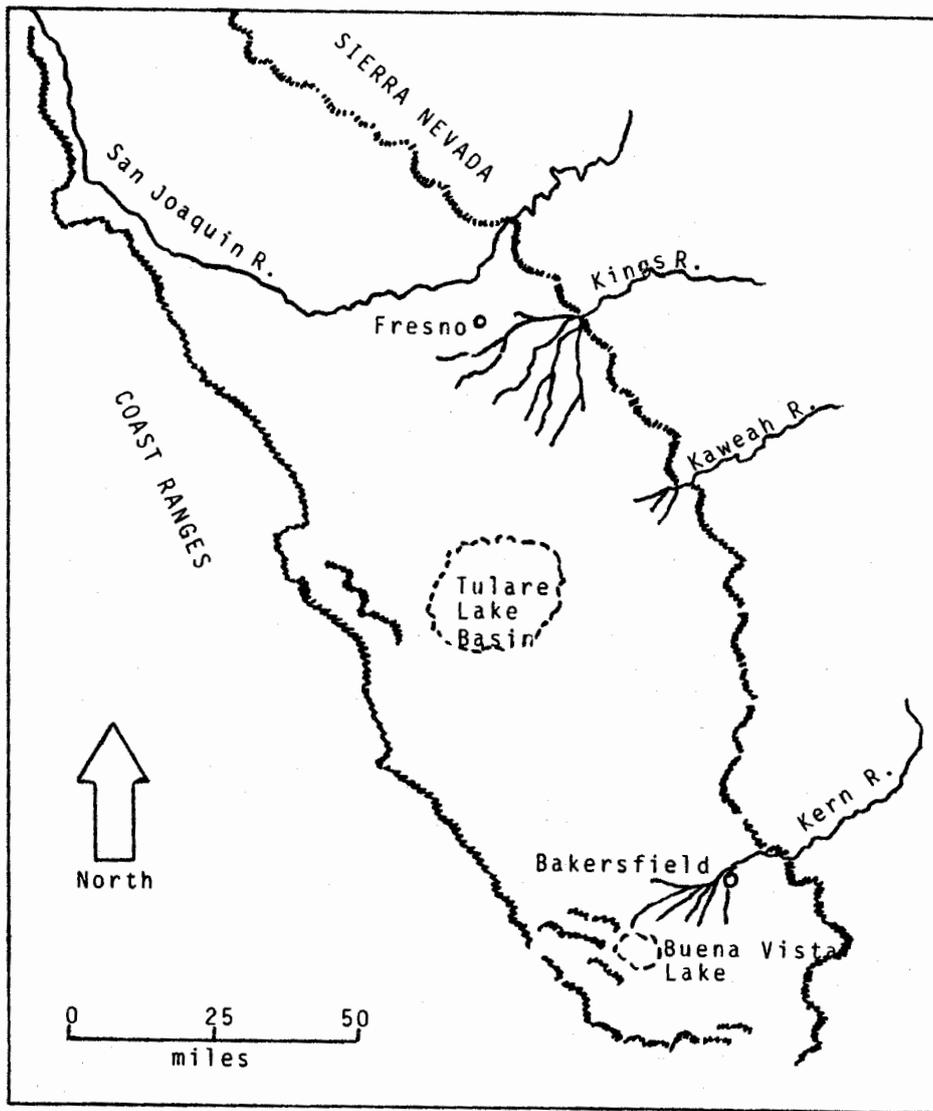


Figure 1. Location of Tulare Lake Basin.

Cores and debitage, the tell-tale evidence of flaked-stone technology, are underrepresented in the Tulare Lake collections. A more comprehensive data-recovery program on the Paleo-Indian sites in the Tulare Lake Basin could yield the necessary definitive evidence. A blade tool industry should be expected to occur within the study area. Richard Gramly (personal communication, 1990), who has made a study of Clovis sites throughout North America, states that "There are strong blade industries in Clovis sites."

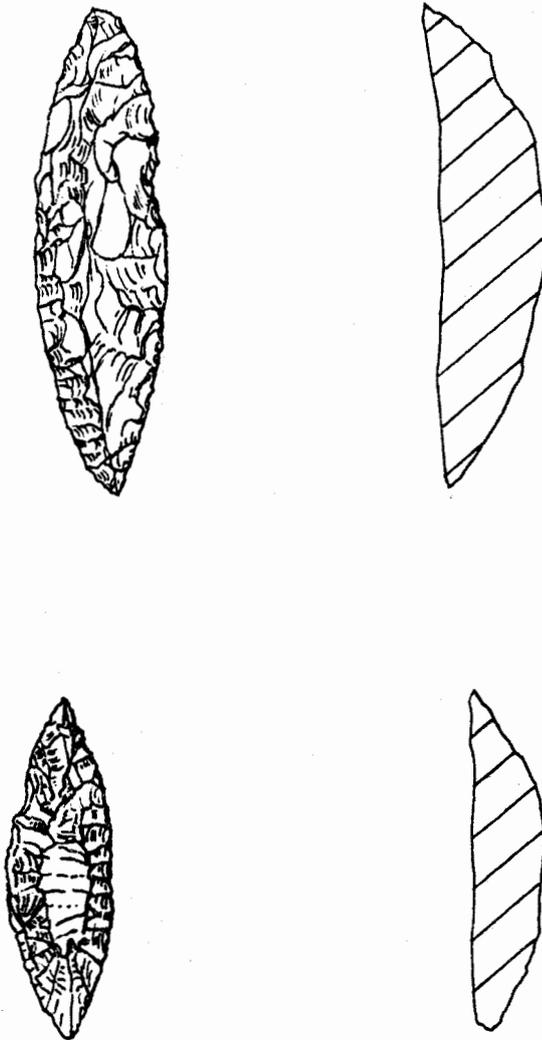
Tulare Lake Basin researchers agree that humpies represent an important component of Paleo-Indian contexts in the study area. Indeed, humpies can probably be considered diagnostic of the Paleo-Indian period. Their apparent association with fluted points in the study area and association of humpie-like artifacts with Paleo-Indian contexts in other sites in North America lend support to this hypothesis.

The present study sample of humpies numbers 56 specimens. I also studied 22 additional unifacial flaked-stone artifacts from the same site localities. Numerous other flaked-stone artifacts from the Tulare Lake Basin were studied in earlier efforts. Jerry Hopkins and the late Red Van den Enden, who have spent years studying the project area, collected the specimens used in the present study. Jerry Hopkins (personal communication, 1990) has noted that the humpies discussed herein were collected from the same site localities that yielded fluted points. Both types of artifacts occur in the central section of the Tulare Lake shoreline, at the 192-foot elevation. Later period artifacts do not occur at these spots. Jerry Hopkins (personal communication, 1990) further noted that the fluted points and the humpies are made from the same kinds of chert. These cherts are not used in other areas of the lakeshore.

The predecessors to the practitioners of the fluted-point traditions in North America came from northeastern Asia in Late Pleistocene times. Certain sites in Japan which date from 18,000 years BP to 9,000 years BP show blade tools which closely resemble humpies. Most are described as scrapers (Aikens and Higuchi 1982:46-51,53-58,86, Fig. 2.29). A site in eastern Siberia which is argued to be an antecedent to Clovis by some researchers has humpie-like artifacts (G. Fenenga, personal communication, 1990).

Humpie-like artifacts occur in at least six well documented Paleo-Indian sites in the Northeast United States. Richard Gramly (personal communication, 1990) has stated that humpie-like artifacts (i.e., unifacially flaked, pointed tools) are commonly found on Paleo-Indian sites in the Northeast.

The Shoop Site, a Paleo-Indian site in eastern Pennsylvania reported by Witthoft (1952), has humpie-like artifacts. Witthoft termed them "side scrapers." Some of the specimens illustrated



CS'90

Figure 2. Humpies from the Tulare Lake Basin.
(scale = 1:1)



Figure 3. Humpies from the Tulare Lake Basin.
(scale = 1:1)

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by Witthoft (1952:Plate 2) are broken in half, similar to many Tulare Lake specimens. Witthoft argued that these humpie-like specimens were scraping and gouging tools which were made from blades.

The Debert Site in Nova Scotia (MacDonald 1968), with average dates of 10,600 years BP, yielded humpie-like artifacts. These include a unifacial, bipointed artifact described as a "stone awl" and a certain class of "side scrapers" which were made on blade-like flakes (MacDonald 1968:Fig. 21,90-98). These latter artifacts are steeply retouched on both margins and exhibit a size range similar to the present study sample.

Bull Brook is a Paleo-Indian site in Massachusetts first described by Douglas Byers (1954). Byers (1954:Fig. 92) shows a few specimens that are similar to Tulare Lake humpies.

In a 1985 study, Grimes and Grimes conducted a detailed analysis of certain elongate, oblong, unifacially flaked tools from the Bull Brook Site. Their study sample was 41 complete specimens and 109 fragmentary artifacts, termed "flakeshavers". Grimes and Grimes (1985:40-41) hypothesize the Bull Brook "flakeshavers" to be hafted whittling or shaving implements used on bone, antler, ivory, or wood. The size range for "flakeshavers" is similar to that of the present study sample.

The Vail Site (Gramly 1982), a Paleo-Indian site in northwest Maine with dates of 10,600 years BP and 11,300 years BP, has yielded numerous humpie-like tools. Gramly (1982:37-40) calls them "limaces." Gramly argues that limaces were socketed in a haft and used to shave or gouge hard materials--similar to the findings of Grimes and Grimes (1985) for the Bull Brook assemblage. Gramly says limaces do not occur in subsequent time periods in the Northeast. Thus, limaces represent good "type fossils" for the Paleo-Indian period (Gramly 1982:40). Limaces from the Vail Site show a size range similar to Tulare Lake Basin humpies.

According to Richard Gramly (personal communication, 1990), the Adkins Site in Maine and the Potts Site in New York have yielded limaces. Both are Paleo-Indian period occupation sites.

The Lehner mammoth kill site (Haury et al. 1959) produced six unifacial "scrapers," as well as Clovis points. One type of "scraper" is described as "pointed and keeled tools, steeply chipped along both edges" (Haury et al. 1959:15). The two artifacts of this type are similar to humpies; both were broken. Haury et al. (1959:15) argued that this distinctive unifacial tool type "may prove to be one of the diagnostics of the Llano Complex." At the Lehner Site, these tools apparently were used in butchering the mammoths.

The China Lake research efforts of Emma Lou Davis and

associates yielded some unifacial, keeled, pointed tools which were termed "slug scrapers" (Davis and Panlaqui 1978:50-52). According to Davis and Panlaqui, "slug scrapers" are part of the tool kit for the so-called western "Classic Clovis." The size range of "slug scrapers" is close to that of Tulare Lake humpies.

The stone-tool use of Australian Aborigines has been well documented by various authors, in particular Richard Gould (1966), Gould et al. (1971), and Hayden (1977). Unifacial tools are a common element in Australian prehistoric sites and among indigenous peoples observed in modern times. Pirris are a distinctive flaked-stone implement characterized by extensive unifacial retouch and tapered ends (Gould 1966:6-9), and thus they resemble humpies. Pirris may have functioned as "engravers" or drills (Gould 1966:8-9), or served as spearpoints (Brown 1978:147,149-150). Tula adze blades, another unifacial artifact type, served as woodworking tools (Gould 1966:2-3; Gould et al. 1971:152). Tula adzes, when "exhausted" or worn from use and resharpening, become too narrow to be functional. Exhausted tula adze blades are similar in morphology to humpies (cf., Gould 1966:Fig. 2; Gould et al. 1971:153, Fig. 4).

Riddell and Olsen (1969:126-127), in presenting collections from the Witt Site, first described Tulare Lake humpies and referred to them as "plano-convex bipointed blades." Riddell and Olsen (1969:127,130) argued that these humpies appeared to be contemporaneous with the Clovis-like points found there. The Witt Site collections originated from a restricted locality in the basin which yielded only early-period material.

Besides outlining the geographic context of humpies, defining the function of these distinctive artifacts represents a key element of the present study. Previous research on humpie-like artifacts (discussed above) hypothesize that they served as scraping implements. The work of Grimes and Grimes (1985) on the Bull Brook assemblage is the most detailed study of function to date. Their conclusion was, as noted, that the humpie-like tools recovered at Bull Brook served as whittling and shaving implements.

During the present analysis of Tulare Lake humpies, I have relied upon observations of damage patterns made under the microscope to aid in determining function. Using binocular microscopes, I examined the Tulare Lake specimens at magnifications ranging from 10x up to 70x; a few were studied up to 100x magnification.

The literature on use-wear analysis and tool use among modern-day hunter-gatherer groups provides good observations on damage to stone tool edges produced by various tasks. Studies by Gould (1966), Gould et al. (1971), Hayden (1977, 1979), and Siegel (1984) have described in detail use-wear of scrapers collected by 19th and early 20th century ethnographers and by

themselves. The precise use of these scrapers is known. Characteristic damage was observed at low-power magnifications under a microscope by the above cited authors. Such studies served as excellent guides on types of damage associated with specific tasks, including woodworking, hide scraping, and bone working. My own extensive experiments in butchering with replicated stone tools served as a guide on damage from cutting tasks (Sampson 1982). Personal experiments in flintknapping provided insight on damage created by that process.

The most pronounced damage on the margins of the Tulare Lake humpies is a series of step fractures associated with the stone-tool manufacturing process. The damage created by knapping can be easily defined at 10x and 20x magnifications. The step fractures associated with knapping will occur at the point of origin for the flake scar (proximal end) along the artifact margin.

Use-wear found along the humpie margins is more subtle, and requires study at magnifications of 10x up to 70x. The damage I interpreted as use-wear is best defined at 40x to 70x magnifications. Use-wear terminology follows Ahler (1979). The use-wear manifestations observed on all used humpies included the following: (1) a series of crescentic and expanding step flake scars (ranging from 1 mm to 1.5 mm long) and (2) crushing at the margin which ranges in length from 1 mm to 1.5 mm. The small flake scars and crushing always cut across the retouch flake scars and, therefore, are assumed to have occurred after retouching. This use-wear was always found on the dorsal surface. Manifestations of use-wear are minimal on the flat ventral surface of the humpies. Ventral surface use-wear is represented by a few tiny feathered and stepped flake scars. The latter use-wear always occurs opposite use damage on the dorsal surface of humpies. The ventral surface use-wear parallels that described by Gould et al. (1971:159-160) for woodworking adze flakes used by Australian Aborigines.

The dorsal surface use-wear is consistent with the damage described for woodworking and bone scraping tools in the study of ethnographic scrapers by Siegel (1984:41,44,47,48). Damage produced by hide scraping as defined by Hayden (1979:214-217) and Siegel (1984:41,44,48) from ethnographic scrapers is appreciably different from that found on the humpies.

I found evidence for natural weathering on some specimens, which could be expected from surface finds of considerable antiquity. This natural weathering may have obscured some use-wear manifestations. Resharpening, too, will obliterate previous traces of use-wear. Therefore, the use-wear seen in this study represents the last use of the humpies prior to abandonment or loss. In cases where no use-wear was detected, the humpie may not have been employed long enough to produce appreciable evidence of use. Use-wear would also be absent if, after

resharpening, the aboriginal tool user found the edges too steeply angled to be functional. Hayden (1979:207) made similar conclusions based upon his work with ethnographic tools.

Hayden (1977:182) found, in his study of tool use among Western Desert Australian Aborigines, that "nearly all retouched stone tools were used in woodworking activities." Hayden further states that in other ethnographic situations worldwide, retouched tools are primarily used in woodworking. The Australian Aborigines studied by Hayden (1977:180,182) and those studied by Gould et al. (1971:157) used unifacial retouch only.

Only one humpie in the present sample exhibited apparent evidence of hafting; a couple of others have possible evidence. The hafting evidence occurs along the two lateral margins for half the tool length as well as at one end. Many humpies are broken at the midsection, which suggests hafting. A few humpies exhibit use-wear along one lateral margin, while the opposite margin exhibited damage caused by grinding. Such grinding would dull the edge to facilitate tool prehension, i.e., so-called tool "backing". The prehension of Tulare Lake humpies remains equivocal, given this small amount of hafting evidence.

The present study indicates a more detailed picture of morphology, age, geographic context, and function of Tulare Lake Basin humpies. The so-called "classic" humpies will exhibit a distinctive morphology, including acutely formed ends, an oblong shape, plano-convex cross-section, extensive unifacial retouch which creates steep-angled edges, and flat ventral surfaces with little or no flaking. The steep-angled specimens likely represent tools at the end of their use-life. Some humpies have less acutely pointed ends and lower edge angles. These forms may be considered humpies; they were merely found archaeologically in an earlier stage of use-life.

The context of humpies within the Tulare Lake Basin indicates they are associated with fluted points and other evidence of early occupation. Other researchers of Paleo-Indian sites in North America argue that humpie-like tools are probably diagnostic of this early cultural tradition.

The present study of use-wear on humpies finds manifestations consistent with ethnographic woodworking and bone working tools. Humpies do not show use-wear manifestations associated with hide scraping or cutting tasks. It is, therefore, hypothesized that humpies were employed in some form of light-duty woodworking or bone working tasks. The light or subtle nature of the use-wear on humpies suggests they were not used in heavy chopping tasks. Humpie-like artifacts in other Paleo-Indian sites are hypothesized to have been used similarly.

NOTES

This paper was presented in a symposium summarizing our present knowledge of Tulare Lake Basin prehistory at the invitation of Francis Riddell and William Wallace, directors of the Tulare Lake Archaeological Research Group. Jerry Hopkins made this study possible with a generous loan of artifacts. Richard Gramly (Buffalo Museum of Science) kindly provided much information on sites in the Northeast and elsewhere. The production of this paper benefited greatly from conversations with Gerrit Fenenga and Francis Riddell. Christina Savitski illustrated the artifacts.

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