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HISTORY AND PREHISTORY AT  
GRASS VALLEY, NEVADA

Editors:

C. William Clewlow, Jr.  
Helen Fairman Wells  
Richard D. Ambro

Monograph VII  
Institute of Archaeology  
University of California, Los Angeles

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AT GRASS VALLEY, NEVADA

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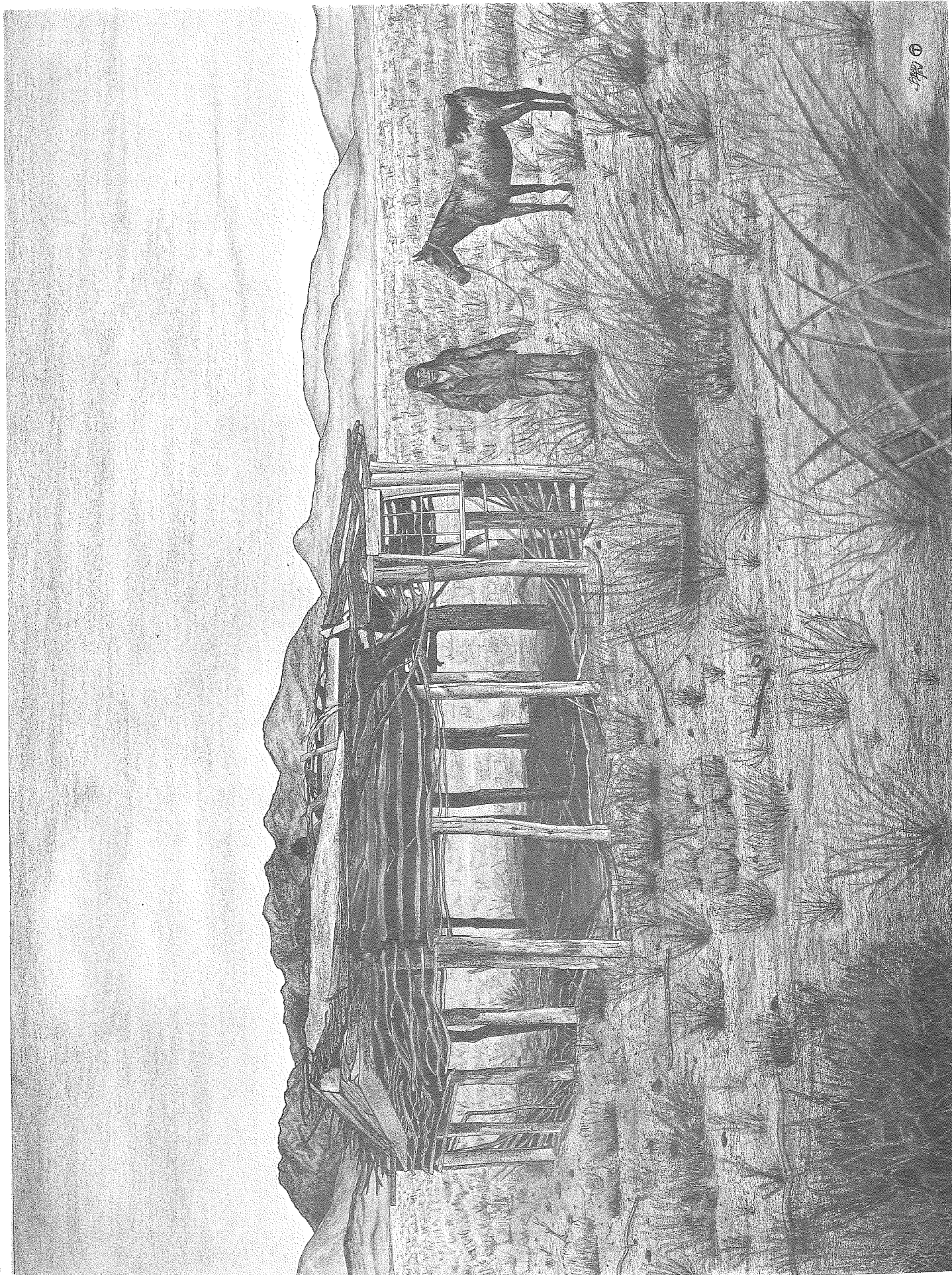
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## ACKNOWLEDGMENTS

Brad Tew drew the frontispiece and assisted in the production of other illustrations in this volume. Martin D. Rosen and Beth Padon prepared the maps. The manuscript was typed by Barbara Allen and Ellen McCann, both of whom, along with Carol Leyba, offered valuable editorial assistance. Evelyn Seelinger, who has been involved in the Grass Valley project since its inception, provided updated site designations for Grass Valley on behalf of the Nevada State Museum. We thank those persons who contributed directly to the production of this volume, as well as the dozens of others who have over the years participated in the Grass Valley Archaeological Project.

A particular debt is owed to Dr. Robert F. Heizer, who introduced one of the editors (Helen Fairman Wells) to the study of archaeology, and who introduced two of us (C. William Clewlow, Jr., and Richard D. Ambro) not only to the Great Basin as a field of study, but to Molly Knudtsen, one of its most sympathetic residents. Since meeting Molly while working with Bob on the talus slope in front of Lovelock Cave in the summer of 1965, our lives have been personally and professionally enriched through both friendships.

## FRONTISPIECE

Artist Brad Tew has rendered in ink and pencil a reconstruction, based on standing architectural evidence, of Grass Valley Tom's House in Grass Valley Tom's Village. The background is true to the present environment in Grass Valley when viewed from the vicinity of the modern day ranch house. Mr. Tew, after consultation with Great Basin scholars, has portrayed a Shoshoni from the Historic period in an "historic-ethnographic present" context. Artifacts shown are examples of those actually recovered from the site.



TABLE OF CONTENTS

<u>Title</u>	<u>Page</u>
HOUSEPITS TO HORSESHOES: PROCESS AND CHANGE IN CENTRAL NEVADA C. William Clewlow, Jr. . . . .	1
HISTORICAL ACCOUNTS OF GRASS VALLEY, 1863-1872 Helen Fairman Wells. . . . .	11
FAUNAL REMAINS AS INDICATORS OF ACCULTURATION IN THE GREAT BASIN Martin D. Rosen . . . . .	35
SMOOTHSHOD-ROUGHSHOD, An Analysis of the Farriery and Other Horse Equipment from Two Historic Shoshoni Village Sites in Grass Valley, Nevada Louis A. Payen . . . . .	83
A SECOND CLAY ANIMAL FIGURE FROM GRASS VALLEY, NEVADA: IMPLICATIONS FOR THE DISTRIBUTION AND INTERPRETATION OF GREAT BASIN FIGURINES Richard D. Ambro . . . . .	105
A THREE-SIDED STRUCTURE FROM GRASS VALLEY, LANDER COUNTY, NEVADA Kurt Wallof. . . . .	119
ANOTHER EARTHENWARE VESSEL FROM GRASS VALLEY, NEVADA Stephen Lee Deatrick. . . . .	135
AN EARLY BASALT SITE LOCATED IN AN HISTORIC SHOSHONI VILLAGE Susan M. Hector . . . . .	141
ETHNOARCHAEOLOGY AND ACCULTURATION IN GRASS VALLEY C. W. Clewlow, Jr. and Allen G. Pastron . . . . .	161

This volume is affectionately dedicated to Molly Flagg Knudtsen.

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HOUSEPITS TO HORSESHOES:  
PROCESS AND CHANGE IN CENTRAL NEVADA

C. William Clewlow, Jr.

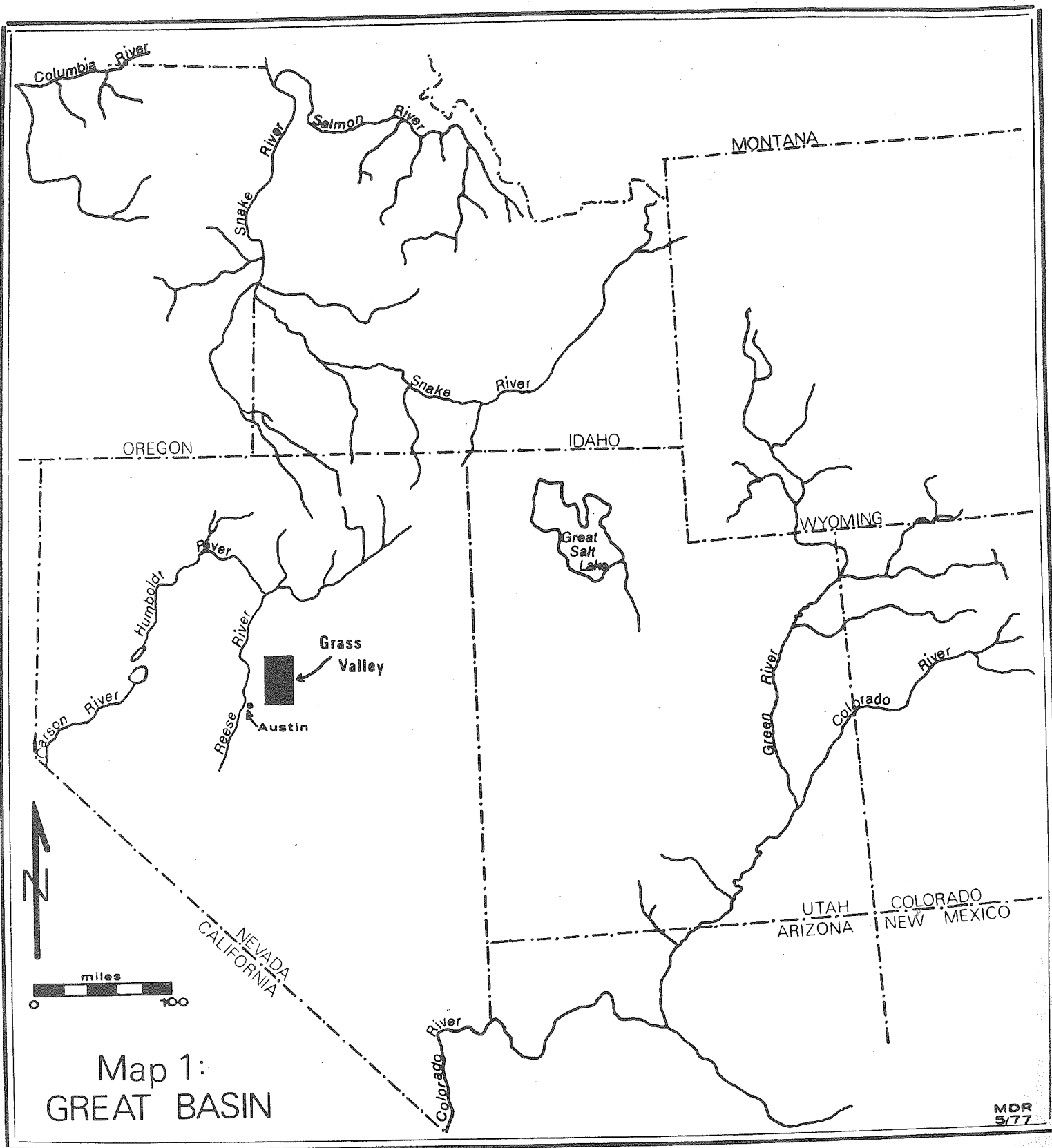
HOUSEPITS TO HORSESHOES:  
PROCESS AND CHANGE IN CENTRAL NEVADA

C. William Clewlow, Jr.

Grass Valley is located in the approximate center of the state of Nevada, roughly 200 miles east of Carson City, and 26 miles northeast of Austin (Map 1). The valley is typical of Great Basin ecological sub-units in that it trends north-south and is bounded on either side by steep, high mountain ranges, the Simpson Park Range on the east, and the Toiyabe Mountains on the west (see Map 2). At its north end, Grass Valley is closed off by the Cortez Mountains. Elevations vary from a high of 10,187 feet in the west on the summit of Mt. Callaghan, to a low of 4,772 feet in the north, where Cortez Canyon offers a passage out of the valley. At the south end, the valley floor averages between 5,800 and 6,000 feet in altitude, and it is here that Grass Valley ranch is located (Knuttsen 1975). The area is well watered, primarily by Grass Valley Creek, an annual stream fed by tributaries from surrounding mountains, which flows down the center of the valley until it sinks into an alkali flat at the large playa lake some 12 miles north of the ranch (Clewlow and Pastron 1972). Vegetation on the valley floor is typical Upper Sonoran cover of primarily sagebrush, rabbit brush and greasewood, sequential to the once flourishing native grasses which had dominated the area prior to its modern use. Pinyon and juniper are found five miles from the ranch on the slopes of the Toiyabe Mountains above 7,000 feet, probably a reduction in extent from aboriginal stands (cf. Thomas 1971).

The Grass Valley Project was initiated in 1969 and was at that time conceived as a long term, broad scale project centering on a man-land analysis through time. Early seasons of work gave weighted attention to the lengthy prehistoric period and were particularly oriented to study of the numerous housepits that were present singly and in clusters throughout the valley. These features were so abundant and in such an excellent state of preservation that considerable project energy was expended in their mapping and recording (see Clewlow and Pastron 1972; Clewlow, Ambro and Pastron 1972; Ambró and Wallof 1972; Wallof and Sylvan 1972). Theoretically, however, the project was mainly concerned with the prehistoric sequence. This predilection was dictated by the past experience of the researchers, who were tutored in the skills of prehistoric archaeology, and by the current state of Historic period archaeology for the Great Basin. As has been pointed out before (Heizer 1966; Clewlow and Pastron 1974) the Historic period had been sadly neglected as a chronological unit, and its main conceptual problem, the acculturation process, had not received overwhelming attention from social theorists (cf. Gould, Fowler and Fowler 1972; Harris 1940; Malouf 1966; Shimkin and Reid 1970). Moreover, we Grass Valley researchers had the good fortune to be working in an adjacent valley to another large scale regional study, the Reese River Valley Ecological Project (Thomas





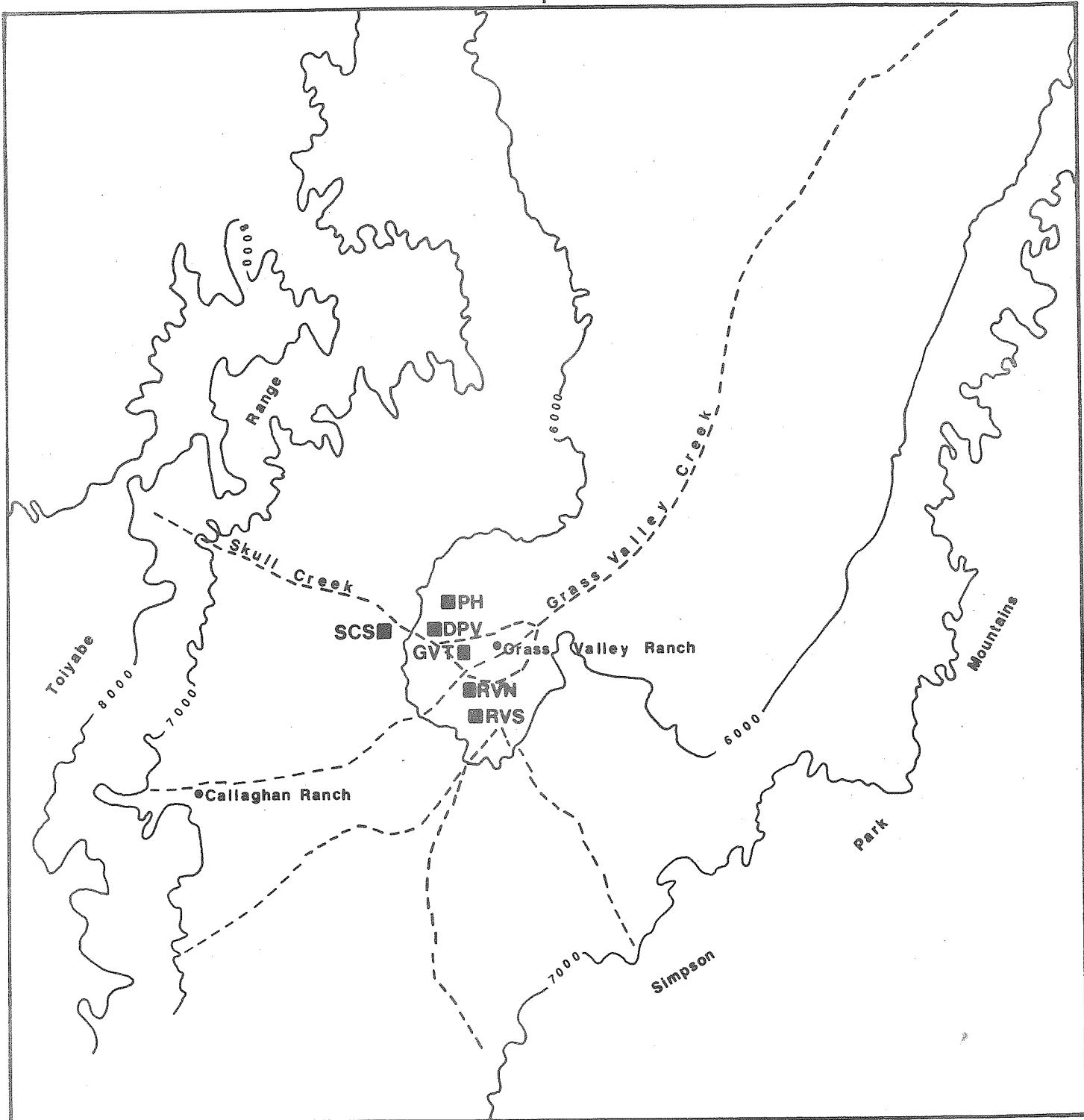
1971, 1973; Thomas and Bettinger 1976). Thomas's research concentrated on the pre-historic period, and Grass Valley students took advantage of the situation to delve into comparable problems on their side of the Toiyabes. Thus, although the Grass Valley Project did (and still does) have many ramifying threads, its principal early thrust was in the direction of broad prehistoric problem-solving (cf. Clewlow and Rusco 1972).

The Historic period, when dealt with in the 1969, 1971 and 1972 field seasons, was also treated in a series of broad generalizations, most of which were too facile, superficial, or simplistic to be of real merit in later studies. With the 1973 season, following the intellectual lead of Ambro (1972; see also Ambro and Wallof 1972), a shift in emphasis came about, and project energy shifted to the Historic period. The results were a period of difficulty for all project members. Little source material was available. Methodological guidelines were lacking. Funding sources turned up their noses. Museum curators actually declined to accession "all that junk." Colleagues laughed at our field collections, and not a few whispers were heard to the effect that the dominant social motivators of the late 1960's and early 1970's (drugs, booze, sex and treason) had left the Grass Valley Project with a permanently dysfunctional level of consciousness.

In actuality, we were bogged down in developing methodological and theoretical tools to cope with the sudden turn of our interests to the Historic period. A long period of trial and error set in. Earlier generalizations were discarded. New concepts were operationalized. Many of these did not work on the Grass Valley material. The rubrics of ideotechnic, sociotechnic, and technomic, for example, fell resoundingly short, in direct application, of dealing with the whiskey bottles, wagon wheels, harmonica blades and bird cages which were found in Historic house structures along with pinyon husks and stone tools. Graduate students came to the project, only to leave for social anthropology. Campfires ceased to host political discussions, and instead, were the scenes of late night debates on the value of historical archaeology. In the field, the day after Nixon's resignation, Grass Valley Project members were more concerned with the validity of acculturation theory for archaeology than with the fate of the nation. And on it continued. Old ideas were thrown out, new ones were tried and also thrown out. Gradually, the scope of studies narrowed. More grandiose notions were set on low heat to simmer a few seasons longer. Attention turned to basics: faunal remains, single pots and houses, individual artifact categories such as horseshoes. Data from other disciplines were brought in: historical sources, ethnography, ethnoarchaeology. Hattori (1975) has made admirable use of ethnohistorical and archaeological data to deal with similar material from western Nevada.

The present volume, then, characterizes the Grass Valley Project in transition. Evident is a turning away from the prehistoric, a series of approaches for dealing with Historic period material, a back-to-basics approach. At first glance, it may appear discontinuous: several papers dealing with various aspects of a none-too-evident whole. It represents, however, a general focus on the Historic period and acculturation. While a long record of occupation with different periods represented is explicit in this volume, it will be noted that the early basalt site discussed by Hector (this volume), was a preferred living spot in the Historic period, as it is today, and the late prehistoric pottery locale (Deatrick, this volume) may be best explicated through ethnographic data.

Map 2



**GRASS VALLEY, NEVADA**

Site Name	Nevada State Site Nos.
PH Pottery Hill	26 La1107
DPV Dead Pile Village	26 La1105
SCS Skull Creek Site	26 La1109
GVT Grass Valley Tom's	26 La1106
RVN Ridge Village North	26 La1103
RVS Ridge Village South	26 La1104





Continuity, while a bit spotty, will still appear to the sympathetic reader.

This volume contains works on projects in progress. It represents attempts to control data well before jumping to conclusions. We are aware that the traditional analysis of historical artifacts by category is regarded by some as methodologically old-fashioned. We are interested in spatial relationships, as well as process. We recognize that sophisticated questions have been posed and must be approached slowly and carefully in order to avoid the more common "new-arch" pitfalls. A perusal of our table of contents (one pot, one house, one figurine and a bunch of horseshoes) may at first seem overly particularistic and even trivial but is offered in the context of numerous little studies that will someday make a whole. The first Grass Valley volume (Clewlow and Rusco 1972), by contrast, took a broader view and made a lot of generalizations. Our perspective now is the specific, working back to holistic views.

Even with a micro-topical approach, certain continuities appear in the data. Payen, for example, notes that horseshoes at two sites portray the Shoshoni as owners of worn-out nags, possibly cavalry discards, perhaps purveyed through treachery. Faunal remains (Rosen notes minute horse remains from two sites), as well as the ethnographic record (Wells notes horses perhaps stolen and killed for food) complicate the picture when we consider the problem: were the Indians victimized with poor horses as a result of their low place in the trade cycle, or as with game animals, did the lame and old beasts present the easiest prey and the least punishable offense? Deatrick, Wallof, and Ambro each take a solitary data bit and demonstrate how wide inferences can be even when made from limited evidence. The isolated cache of a ceramic vessel has obvious implications for eventual population studies for the late prehistoric period. Modern ethnoarchaeological studies on ceramic life spans among hunters and gatherers will certainly be useful in calibrating prehistoric demography in Grass Valley. Ambro touches on the idea of play, a concept rarely viewed from an archaeological perspective. Wallof's atypical house poses a question of style. Do round houses precede rectangular ones in many of the areas of the world as Flannery (1973) has suggested? More on such problems will appear in later Grass Valley volumes, as our project perspective on acculturation solidifies. The locations of the major sites which are discussed in papers in the present volume are shown on Map 2.

Lastly, it is appropriate to touch on a practical and personal consideration. Long term projects are only possible if long term access to data is available. In this respect, the continued consideration offered by Molly and Bill Knudtsen of Grass Valley Ranch has made the ongoing interest on our part possible. Through interest and indifference, good and bad, the Knudtsens' commitment to our studies has served as fuel and inspiration. Nine years have passed since we began what we anticipated would be a two or three year effort in central Nevada. Six field seasons, countless laboratory hours, numerous graduate students, assorted freak-outs and breakdowns, over ten notable liaisons and at least three seemingly stable couples have resulted from an initial interest in the Horse Pasture Villages. For the impositions, trials and discourtesies our research has caused, we apologize. For the unwavering understanding and encouragement we are incalculably and undeservingly grateful. By this and future volumes, may our gratitude be expressed and our debts repaid.

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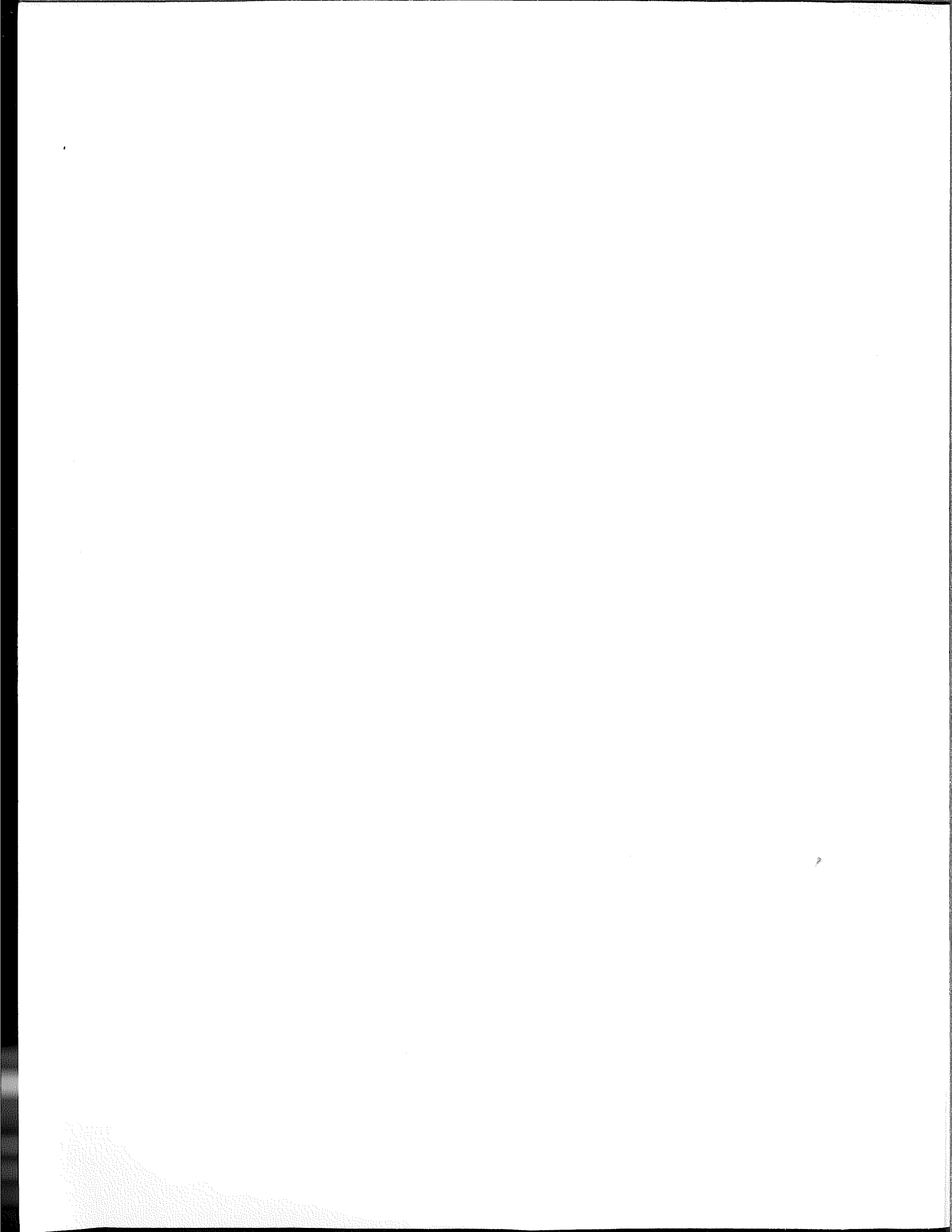
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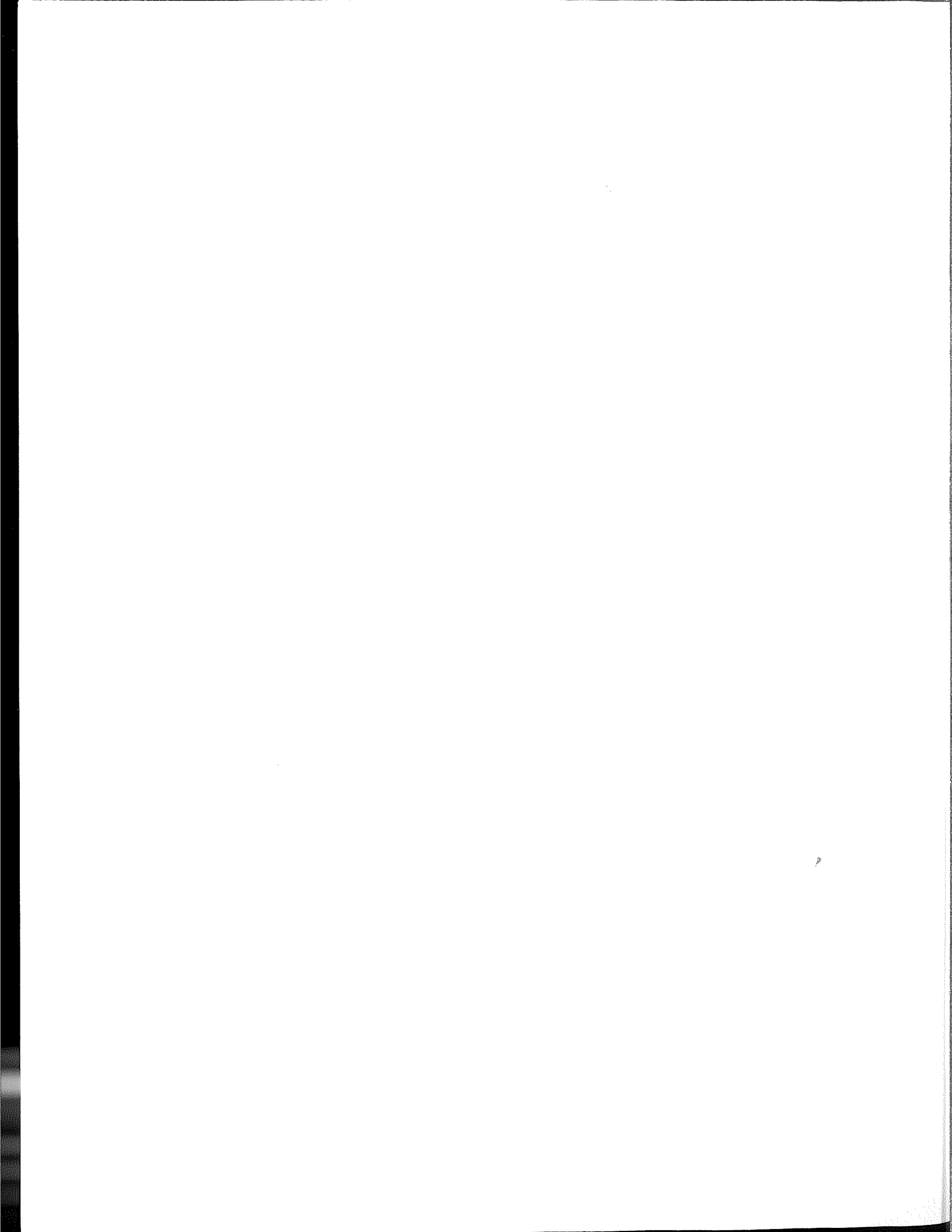
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HISTORICAL ACCOUNTS OF GRASS VALLEY, 1863-1872

Helen Fairman Wells





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Helen Fairman Wells

## INTRODUCTION

One of the objectives of the Grass Valley Project has been the investigation of the Historic period, an unusually complex manifestation which began about 1860 with the introduction of Caucasian trade goods, and ended between 1910 and 1920 when the last group of Shoshonis left the valley (Knudtsen 1975:108; cf. Clewlow and Ambro 1972; Clewlow 1973). During the 1860's, considerable disruption of the Indians' hunting and gathering economy took place all over central Nevada (Thomas 1971; Thomas and Bettinger 1976:313-327), and at Grass Valley, ongoing research attempts to combine archaeological data with historical and ethnographic evidence on the acculturation situation (Ambro 1972). One source of historical data is the Reese River Reveille, a local newspaper published in Austin, 26 miles southwest of Grass Valley. The Reveille, which served as the major newspaper in central Nevada during the early period of white contact, contains few specific references to the Grass Valley Shoshonis but provides much information about the Indians of Austin and the surrounding area, as well as newsy items on the ranching and farming activities which were taking place at the time. According to a census by the local Indian agent, Levi Gheen, there were 60 Shoshonis living in Grass Valley in 1873 (Reese River Reveille, 4-22-1873); along with the Shoshonis of neighboring valleys and towns, they comprised a sufficiently large group to get considerable press. The data presented below may also prove useful to scholars interested in acculturation processes in other areas of the Great Basin.

1863

In the first month of its publication, the Reveille describes ranching activities in Grass Valley: "There are seventeen surveyed ranches of 160 acres each, all tillable or meadow lands. Grass is more than knee high at this time--consisting of bluejoint, clover and red-top" (6-13-1863). "Altogether this valley will produce some fifteen hundred tons of hay" (8-22-1863). Other crops included potatoes, beets, onions, tomatoes, cucumbers, water and musk melons, parsnips, beans, peas, corn, and sorghum (8-22-1863), radishes and wheat (7-4-1863). Opportunities other than farming appeared: "...several large and promising ledges of quartz having been located west and north of Skull Creek and called the Grass Valley mines. No work has yet been done on any of these claims, and there probably will not be this year" (8-22-1863). A type of rock described as "very porous, lightish grey rock of the pumice stone variety...which is said to stand fire indefinitely" was also discovered

in Grass Valley. "The ranchers in that vicinity are building an extensive house of it which they intend to use both for residence and as a fort, in case the Indians should become troublesome to them" (5-23-1863).

An account of a trip to Grass Valley mentions "trusting our horses to a faithful Shoshone" at "Robison, Talcott & Co.'s fine stone mansion, over twenty miles from Austin" (8-22-1863). This is the approximate location of the Grass Valley Ranch today. Although this is the only mention of Indians at work in Grass Valley, there is some information about their employment in the town of Austin and the surrounding area: "The opportunity of earning a livelihood which is extended the natives by the large emigration of white men to this region, is not wholly neglected. We sometimes see them engaged in chopping wood, and frequently see them walking in with a load of it strapped to their back, or dragging a log after them. Some of them also engage in the equally lucrative business of cutting mountain bunch grass and selling it for hay" (9-28-1863). "A great many of them are engaged in grading lots, making adobes, and packing stone for building purposes" (9-24-1863). "Only last week some thirty-odd head of stock belonging to the Overland Mail Company were stampeded and had gone out of the usual ranges of stock. Tortora ["chief" of the Shoshonis] was called upon, and, sending out his men in different directions, soon had the lost stock en route for their corral" (5-23-1863).

Gambling was a recreation of the Shoshonis in aboriginal times. A possible hand game marker was found in Grass Valley (Richard Ambro, personal communication). As a result of contact with white men, the Indians began to play cards for money and goods. The first of many references appears in 1863: "The females among the Shoshones seem to be as inveterate gamblers as the males. Nearly every day parties of them can be seen squatted in the streets or on some hillside, playing cards for a few half dollars piled up before them" (12-19-1863).

1864

In 1864, ranching operations continued in Grass Valley. The previous year's crops had been a financial success, so some ranchers were planning to plant ten to fifteen acres of vegetables each. Grass Valley boasted the "finest dairy ranch in the Territory.... There are about forty bachelors in the valley at present, and one lady, Mrs. Alfred Haws, with three children" (4-5-1864). Game was still plentiful in 1864: "A gentleman from Grass Valley informs us that at present, wild ducks, geese, and jack rabbits are very abundant in that region. A fine chance for sport is here offered" (12-18-1864). However, the activities of the white settlers continued to disturb the Indians' habitat: "A large number of horses and work cattle that had been turned out on Reese River Valley, for the winter, have been driven off." Owners were advised to look for them near Grass Valley, because "a large band of horses, probably one hundred in number, were in the mountains north of Grass Valley; also a large band

of cattle" (4-5-1864). "We have learned that within the last few weeks, some rich discoveries [mines] have been made on Skull Creek near Grass Valley" (3-6-1864). Mines in the Cortez District to the north were "reached easily by heavily freighted teams, by passing through this place and by Grass Valley, with several fine ranches, water and grass on the road" (4-7-1864).

The Reveille describes the Shoshoni in his aboriginal state as "so far below the digger that they scarcely have energy sufficient to dig the few roots that grow in their country, depending principally for sustenance upon the piñon tree for its annual supply of nuts, which, with the rats, lizards, and an occasional fish, make up their natural food. Before the occupation of the Territory by permanent settlers, the horses and cattle stolen from the emigrants or those dying along the road furnished them an occasional feast. The many bones lying in the numerous canyons where there are springs show the amount of their depredations in former years" (6-17-1864). The Indians found a new use for their "natural food." "Pine nuts are certainly a new thing to the American people, and most an excellent thing they are, too...The Indians do a good business here in selling them" (4-5-1864). It would be interesting to know whether they sold pine nuts only when they had a large surplus. Pine nut shells appear in the hearths from Historic period villages in Grass Valley, but we do not know to what extent they remained an important part of the Shoshonis' diet.

According to the Austin newspaper, the local pine nut crop failed the Indians in the winter of 1864: "A number of Shoshones of the female persuasion were busily engaged yesterday in gathering sage brush seeds on the side of the mountains, in the upper portion of the city. Pine nuts are very scarce with them, and it behooves [sic] them to seek and secure a substitute for them. They can by close application gather about a gallon each, a day" (11-22-1864). "...the Indians east of Cortez are in a suffering condition, owing to the entire failure this year of their staple articles of food, and the severe storms. They are dispersing in small squads and locating near the cabins of ranchers" (12-15-1864). In Italian Canon, ten miles northeast of Austin, "A ranchman having missed one of his milk cows tracked it some distance and came upon a party of Indians who had slaughtered the cow and were cutting it up. The man attempted to drive the marauders off, whereupon one of them covered him with his gun and prepared to fire. The white man instantly drew a revolver and the Indians decamped, leaving their prey" (12-17-1864).

The Reveille does not hesitate to express its views on the Indians' plight this year. "[The Shoshonis] are so low in the scale of humanity that they have never provided a shelter from the storms, although living in quite a severe climate. We see them now shivering behind rocks, partly sheltered from the storm, or hovering over a sickly, smoky fire" (6-17-1864). "The defence raised for the Indian is that his acts of murder and robbery are retaliatory and that his country is occupied, and means of subsistence destroyed by the white. This in general and in this locality in particular is erroneous. The occupancy of the country directly benefits the Indian even without cost to the white. The cast off clothing and waste provisions, that he as a scavenger appropriates are

greater luxuries than he ever before enjoyed, and in such a winter as this when their usual reliance fails them, are the means that save them from starvation" (12-19-1864). The Shoshoni lacked "forethought to provide food in advance of the day of its use" (12-24-1864). However, the Indians deserve credit, as they are "very willing to work, and in unskilled labor are quite useful, and although their great staff of life, the pine nut, failed them this year, their fat condition shows they have not been starved in consequence, and their abundant clothing of cast-off garments prove conclusively that the white man's presence has added much to the natives' welfare and comfort" (12-24-1864). Evidence of the Shoshonis' use of cast-off clothing remains in the villages of Grass Valley in the form of buttons, cloth, shoe leather, pants and a shirt. Buckets were used to bring food from the ranch kitchen (Ambro 1972:92). The Reveille advises its readers: "Those that will work should be employed and receive a compensation suited to their wants, and those who bring in wood and game for sale should find ready and liberal customers" (12-24-1864).

1865

In 1865, the Grass Valley ranches continued producing hay: "We understand that some seven hundred tons will be cut in Grass Valley" (8-17-1865). They also supplied the Austin market with vegetables; "Mrs. Day [of Grass Valley] milks fourteen cows, and sends forty-four pounds of fresh butter to Austin a week and ten dozen of eggs...S. P. Stormer...has also sixteen fine milk cows, and sends weekly to the Austin market a fine lot of first quality butter and cheese" (6-16-1865). That year a company was formed for the purpose of working the salt bed in northeastern Grass Valley (1-14-1865). However, not all the news was good; the ranchers were having some trouble with the Indians: "A gentleman from Grass Valley informs us that the ranchers in that vicinity have suffered heavily during the present winter by the Indians, who are in the habit of running off and butchering their cattle" (2-7-1865). "We to-day saw a wild and untamed son of the sage brush drawn into town in a wagon, with a bullet through his legs. He had been shot by a rancher for stealing cattle" (5-16-1865).

Meanwhile, in the town itself, "The work of grading our principal avenue-- Main street--is progressing rapidly. The contractor has an effective force of laborers picking and digging, and a well-drilled wheel-barrow corps of Shoshones" (10-28-1865). An Indian was reported killed in a cave-in: "The Indian had been employed in removing the dirt excavated in a wheelbarrow" (6-20-1865). The pine nut was still an article of commerce on the streets of Austin (11-10-1865). "Our Shoshone friends... seem to take great delight in cultivating a taste for pine nuts in their pale-faced brethren" (9-29-1865). This was done in spite of the fact that the Indians did not have a large supply of their staple that winter. In November, a gathering of Shoshonis took place near Washington: "The 'untutored savage' has not been successful in collecting this season his usual and necessary store of pine nuts, and the object of the gathering is to organize a committee of 'ways and means'" (11-30-1865).

In 1865, the Reveille pauses to describe some of the Indians' "abundant clothing. We have noticed some Shoshones wearing quite neat hats, and upon examination and inquiry found them to be of their own manufacture. They appear to be made of fine twigs of willow woven with cotton thread, which entirely covers the wood. The Shoshone hats are high crowned and with a broad brim..." (6-7-1865). "We noticed today a queen of the mountains--a young, buxom Shoshone squaw--walking leisurely along Main street with a piece of canvas--evidently the remains of an old sign--tied around her waist, and reaching to her knees, upon which was painted in flaming capitals, 'For Sale'" (9-26-1865).

Some Shoshonis also owned horses, and were sometimes described riding through town (9-29-1865). "There was quite a lively scene in front of Trumbo's auction house this morning. A party of Indians were bargaining for some dilapidated specimens of horse flesh, for which they seemed willing to pay as high as \$20 to \$30--in our opinion dear meat... By the way it must be a novel and refreshing delight to an Indian to buy a horse. He has been so used to stealing them that he has come to regard his right to them as imprescriptable" (6-27-1865). Evidence of horses from the Grass Valley villages consists of horse shoes, three of which, from Ridge Village North and Pottery Hill, were made to cavalry specifications (Payen, this volume). Whether the Shoshonis rode former cavalry horses or merely found the shoes remains to be determined.

In the spring of 1865, relations between the white citizens and the local Indians were strained. "Hardly a day passes in which we fail to hear of neighboring ranchers being robbed and their lives jeopardized, if not taken by these lawless, thankless devils" (5-4-1865). There was concern about reported movements of Indians from the Humboldt area toward the Smoky Mountains. "The friendly Indians--if there are such beings--are coming in in great numbers, to avoid the roving bands. The hills in the vicinity of our city are covered by their camp-fires, and our streets are filled with the vagabonds" (5-8-1865). A number of articles discuss preparations to defend the town and nearby ranches against Indian attack (5-5-1865, 5-6-1865, 5-20-1865, 5-25-1865). A general Indian war was predicted for the area, and a fear of all Indians pervaded the town (6-2-1865). A detachment of soldiers arrived from Fort Ruby accompanied by ten Shoshoni scouts, who "called at Jesse Beane's Drug Store to-day and bought all the pure vermillion in the shop. They are fixing up pretty for the avowed purpose of taking Bannock scalps" (5-25-1865). Governor Balsdel and Colonel McDermit arrived in Austin to investigate the situation and the following day the Reveille dismissed the threatened war as rumors started by "friendly" Paiutes. The real danger was confined to the area between Austin and the Humboldt. "We have never felt in the least danger in this place" (6-3-1865).

The Governor's visit was the occasion for a "pow-wow" with the friendly Shoshonis of the area. "Nearly three hundred of the tribe, accompanied by their squaws and papooses, attended" (6-7-1865).

Although there is little news of the Grass Valley ranches this year, there are some general statements: "From all sections of the region we hear uniform reports of good crops" (8-2-1866). A report on increased lumber production in the Austin area mentions that "we are no longer confined to the nut pine, which is excellent for fuel but wholly unfitted for lumber" (1-8-1866). The cutting of trees had probably already affected the Indians' pine nut supply, because Austin and the surrounding area consumed a large quantity of wood for various purposes.

By 1866, Indian labor was an institution in Austin:

A few buckets of water, or arms full of wood will procure [the Shoshoni] and his young barbarians their daily bread and his husky helpmeet cheerfully bears the burden of the toil... The Shoshone man is sensible, and prefers a little occasional labor to much and general starvation. They supply probably 300 persons daily with wood. To those living on the several hills, and in the ravines, off the roads--and there are hundreds--the Shoshone wood-carrier is an invaluable institution. The wood is obtained chiefly from the stumps left by the white wood choppers, and is generally dry and pitchy, and makes excellent fuel, and is packed from two to four miles. From six o'clock in the morning to mid-day, trains of squaws, children and 'bucks' may be seen winding along the hills entering the town from the north, south, east, and west, bearing loads of wood that would test the muscle of a mule. They sell an ordinary load at the rate of two bits, which will answer all the purposes of cooking and heating in the cabin of a workman... Most of the same persons are supplied with water by the Indians, at a daily cost of a handful of cold victuals. From their various jobs, but principally from the sale of wood, the Shoshones receive daily from \$75 to \$100, which furnishes them not only an abundance of bread and beef, but leaves them a little spare change for gambling. (3-12-1866)

In contrast, the Reveille describes:

the various ways and means adopted by the aborigines remote from the settlements, in procuring the sustenance that maintains their miserable lives. Rats, lizards, crickets, grasshoppers, and diminutive roots of various kinds, form their principal diet at this season of the year [June] to obtain a sufficient quantity of which to satisfy their rapacious appetites, keeps them from morning until night constantly on the alert. The melting snow upon the mountain ranges just now causes the water in all the little rivulets that run into the valleys to flow far beyond the usual limits, affording to [the] poor [Indian] an important weapon in the capture of the larger game that help supply his larder. Little ditches are dug from the



streams to the burrows of the unfortunate animals, and the water turned in upon them, forcing them to the surface, when they are captured by the Indian and his dog, thrown upon a fire, slightly singed, and then devoured, without particular regard to cleanliness, almost at a gulp. The pursuit of this nobler game seems to be mainly confined to the lords of the tribe, while the squaws and papooses, with remorseless energy, beat the tall grass and green bushes in eager pursuit of the fleeing "clicket," and with sharpened stick delve for half-grown bulbs. (6-20-1866)

One Shoshoni "pow-wow" is reported in 1866, attended by "400 or 500 Shoshones" who gathered in a ravine near the town (4-21-1866).

### 1867

In 1867, a description of Grass Valley ranching activities mentions that "Nearly the whole of the grass and grain land lies on the western side of the valley, which is well watered by delightful springs of pure water. . . . Probably not over five hundred tons of hay will be cut this season, owing to its low price and the general supply." Wheat, barley, oats, and potatoes were other principal crops that year (6-27-1867).

The Shoshonis held a "pow-wow" near Austin in February. "The Agent informs us that their commissariat is running low just now, and the especial object of their gathering is to present a relief bill to their Great Father A. Johnson. Would it not be well for our citizens to give the poor wretches a few sacks of flour and a collection of shinbones that they may enjoy the luxury of a good square feed?" (2-16-1867). "Shinbones" probably were a luxury to the Indian. Most of the beef bones found in the Grass Valley villages are from the feet, probably scavenged from the ranch kitchens. The Shoshonis' physical appearance at the pow-wow is depicted in typical Reveille style: "The men are gorgeous in paint, filth, and cast-off clothes, and the belles add many foreign airs to their native graces, among which hoops and scant dresses are the most conspicuous" (2-16-1867).

In May 1867, there was an outbreak of smallpox in Austin. "The Shoshones in the neighborhood of Austin appear to be badly frightened at the appearance of smallpox." Their chief called on one of the town doctors and requested vaccinations for all his people. "Nearly sixty of them were vaccinated" (5-21-1867). The next day Dr. Chamblin vaccinated about fifty Indians, mostly Paiutes (5-22-1867). Despite these precautions, two months later, "the Indians--Shoshones and Piutes--have almost entirely disappeared from our midst. The former have gone to Grass valley and the latter to Walker lake. The immediate reason for their sudden departure is a rooted dread of the smallpox, which they believe would be particularly fatal to them" (7-22-1867). It would be interesting to find some archaeological evidence of a sudden increase in population in Grass Valley.

1868

Wheat, barley, potatoes, and other vegetables were important crops in Grass Valley in 1868 (7-30-1868). Game was still available: "Two of our sportsmen yesterday rode to Grass Valley and returned in the evening, bringing with them forty ducks, one hare and one snipe" (10-2-1868). The Grass Valley salt marsh was producing "from 12 to 15 tons of salt daily....A considerable portion of the labor of collecting salt is performed by Indians" (8-26-1868). Since the newspaper gives a detailed description of the location of the salt marsh, it would be worthwhile looking there for evidence of the Indian workers.

Observing the outward signs of the acculturation of the Indians, the Reveille remarks: "It is very noticeable that the Shoshone Indians have come to appreciate the necessity of taking to cover during the rigorous winter in these mountains, and families may be observed in canvas tents on the hillsides as well as in tunnels and other excavations....While they are adding to the catalogue of their vices by contact with the 'superior race' they are also increasing the sum of their comforts. The men, women, and children are generally comfortably clad, and their obese condition indicates plentiful and good feeding" (1-7-1868). Although no tents have been found in Grass Valley, grommets, possibly from tents, have been found in the villages (Richard Ambro, personal communication).

One way in which the Indian increased his comfort was through the use of horses as pack animals. The horse took the place of the woman as a carrier of wood. "The number of Shoshone Indians that may be seen with horses, and many of them good animals, is very noticeable. The Indian affects the horse, which, next to his squaw, is his highest pride....It is not uncommon to see now of a morning twenty or thirty horses packed with wood and led into the city by Indians....We pity the horse that is owned by an Indian, who never shows compassion to the beast. He is either cruel or insensible" (5-26-1868). Examination of the horseshoes from Grass Valley sites reveals that the horses dragged their feet, wearing the shoes almost until they wore off (Payen, this volume).

In 1868, the Shoshonis participated in the Fourth of July celebration in Austin and feasted on bread and beef contributed by the town (7-6-1868).

1869

In 1869, the Reveille comments as usual on the successful crops in Grass Valley (4-24-1869). Another article about Grass Valley concerns the Shoshonis themselves: "Indians who came into this city yesterday from a point in Grass valley about 30 miles north of Austin, reported that the small-pox was among their people. There were seven cases, two of which--a boy and a girl--had died. The disease was brought

from the Humboldt on the line of the railroad" (3-20-1869). The reaction to this news in Austin was an order from Mayor Frost for all Indians to leave the town "during the prevalence of the small-pox. The disease is not among the Indians, and they fail to see how their presence would increase it. One of them remarked that if the white men wished the Indians to leave the city, they should furnish them the means of subsisting their families" (3-22-1869). The Indians were at this time still employed to pack wood in the town (2-20-1869, 5-14-1869). They also peddled pine nuts, which were "sought after avidly by the white settlers" (10-25-1869).

The Reveille does not tell us whether or not the Indians obeyed the mayor's order, but it reports two months later that "the number of Indians in this city has been largely increased lately by the seasonable visit of the Piutes, who come to cozen the simple Shoshones out of their accumulated plunder, especially their young maidens and horses" (5-17-1869). Much of this was accomplished in the course of poker games (5-11-1869, 5-17-1869).

The Shoshonis and their horses began to attract more attention: "About 8 o'clock this morning ten squaws rode through this city in 'spread-eagle' style. We do not allude so much to their manner of taking the saddle, as to their festive actions, for the Shoshone belles were evidently stretching matters and enjoying the largest liberty" (5-8-1869). "Latterly the Indians have been in the habit of riding furiously through Main street, to the great danger of children and women and of citizens who may be 'half seas over.' They dash through the streets in pairs and dozens, unmolested by the officers" (5-18-1869). "Two frolicksome Shoshones, desirous of showing the speed and endurance of their steeds, as well as their own equestrian prowess, started at a full gallop up Main street, to-day, in utter contempt of city ordinance.... Deputy Marshal Long put a sudden stop to their sportive tendencies" (5-19-1869). Two cases are reported of the Indians' alleged cruelty to their horses: one is attributed to a Paiute and one to a Shoshoni (8-14-1869, 11-5-1869).

After taking part in the annual procession of the Austin Fourth of July celebration, both Shoshonis and Paiutes held a "grand Indian Fandango." The two groups displayed their dancing skill in turn. "The tribes were then separated, the Pahutes dancing about one fire and the Shoshones the other" (7-10-1869).

## 1870

In 1870, the Reveille reports a fire at the Hawes ranch in Grass Valley, which destroyed "three large stacks of hay, besides a small amount baled, which contained between 400 and 500 tons; this, together with the stable and a barn, a large amount of barley, two sets of harness tools and implements, and a valuable Sonoma haypress" (2-11-1870).

New information concerning the Indians' relations with the town people appears in 1870. A Mr. Riotte was employing Indians as trappers: "We were shown to-day by Mr. E. N. Riotte a collection of pelts of foxes, coyotes, and wild cats, which had been trapped and brought in by Indians. The trap used was the Newhouse, which the Indians are soon taught to employ skillfully and with advantage" (1-15-1870). This and other articles about the trapping of predatory animals suggest another way in which white settlers were interfering with the local ecology.

One item the town Indians spent their wages on was bread. In an article on a burglary at the Union Bakery on Main Street, we learn that "Pitzer sells his bread chiefly to Indians, and he is in doubt whether the burglary was committed by one of his customers or a white man." The presence of baking powder cans in the Grass Valley villages suggests that the Indians there did some of their own baking, although it is possible that these and other cans were acquired when empty and used as containers for something else. That bread or "biscuit" was a part of the Shoshonis' diet in the 1860's and 1870's is indicated by many references, particularly in accounts of pow-wows and fandangos.

By 1870, the participation of the local Indians in the Austin Fourth of July celebration had become a tradition. The town welcomed the arrival of Captain Breckinridge and a group of Paiutes from Virginia City, who would again take part in the ceremonies (6-9-1870).

The year ended on a cheerful note: "The Shoshone Indians in the vicinity of Austin were made supremely happy by a distribution of blankets which Levi Gheen, in the name of the United States, made impartially to every member of the tribe in our vicinity" (12-6-1870).

## 1871

Because of a drought in the summer of 1871, ranches and farms in the valleys around Austin did not have successful crops that year. Some of the Grass Valley ranchers, however, did not suffer as much as those in other areas. This was because of their "abundant supply of water," particularly on the ranches near the head of Skull Creek (10-10-1871). Early in 1871, the Reveille reports that "Last year Mr. Riotte and others, brought to Grass valley from Reese river a lot of the trout common in that stream and placed them in Skull Creek, near the ranch of Mr. Callaghan. They have been left undisturbed till now, and Mr. C. informs us that very fair fishing can be had in the creek at present" (2-10-1871). Apparently, no fish were present there before. So far, we have no evidence of fish or fishing from the archaeological remains. Three pairs of California quail were also liberated on Callaghan's ranch (2-6-1871). The same experiment had been tried the previous year, but hunters had shot most of them (11-29-1871). As 12 sage-hens were reported shot by a hunter near Willow Creek, Grass Valley, in August of 1871, we

can assume that this game at least was plentiful. It still is today.

Expressing concern about the Nevada Indians in general, the Reveille predicts: "A certain number can make a living in the towns by doing chores, but the great number who have heretofore lived on game and pine nuts will in a very few years more find themselves reduced to roots" (7-29-1871). "As it is they must live in the white settlements or starve, for the wild food of the country is pretty nearly exhausted" (8-28-1871).

Commenting on the theft of timbers from a mine, the Reveille complains: "Every neglected mine, hoisting works and house in the district has been scoured of all moveable articles by purloiners. Timbers, lumber, tools, doors, windows, oil cups from engines, in fact whole houses and works are liable to be illegally appropriated if not watched." Although nothing is said about Indians, this may have been one of their means of acquiring material goods. In an earlier article, the Reveille reported that Indians near Geneva had completely stripped the house of a dead white man, declaring it to be their right.

Threats of trouble between the Shoshonis and the Paiutes fill the pages of Austin newspapers throughout the month of August 1871. Apparently, the dispute concerned the boundary between their territories. According to one article, the Shoshonis "stand in mortal dread of their Piute brethren who have always imposed upon and tyrannized over them--taking their territory, stealing their squaws and horses, killing their game, and pillaging their pine-nut groves" (8-28-1871). The dispute was finally settled by a series of conferences between their respective "chiefs" (8-28-1871). Following this, the Shoshonis held a fandango near Big Creek, and the Paiutes gathered at Mammoth (9-6-1871).

1872

The Grass Valley quail were flourishing in 1872. The original flock of six had increased to 17 and was still in the same area on Callaghan's ranch on the west side of Grass Valley (1-11-1872). They were not hunted.

One young Shoshoni accidentally killed himself with a shotgun while hunting rabbits between Austin and Grass Valley (4-26-1872). The fact that the Indians were using guns is indicated by the presence of shells in the Historic villages. Some of the Indians preyed upon the ranchers' cattle: "About two weeks ago some Shoshones killed a calf belonging to Mr. P. P. Budd which was in a band of cattle ranging in the foothills on the west side of Grass Valley" (2-17-1872). Caught in the act, the Indians offered to pay fifty dollars for the calf. "Mr. Budd has lost several cattle, which he is confident have been killed by the Grass Valley Shoshones, and he proposes giving them a good scare, in hopes that it will put an effectual stop to their thieving operations" (2-17-1872). It does not seem likely that a crime of this sort

was committed by Indians living in villages attached to the ranches.

In January most of the Paiutes from the Austin area had gathered with others at Walker River Reservation, and the Shoshonis had left "in the direction of the Humboldt" (1-23-1872). Large scale movements of Indians always made the citizens of Austin, as well as other whites living on isolated ranches, very nervous. "We are inclined to the opinion that hunger is at the bottom of all the trouble. Those staple articles of Indian food, pine nuts and grass seed, were a total failure last year and some provision should be made to supply their necessities until another crop comes in. Furthermore we can perceive no reason why the Piutes and Shoshones cannot be made to support themselves upon reservations, as they are generally willing to work and possess a natural aptitude for farming pursuits, as we are informed by ranchers who have employed them in the capacity of farm laborers" (1-23-1872).

In 1872, Indians were paid by the city to do various jobs. In the minutes of a meeting of the Common Council, we find, "The following bills were ordered to be paid:... M. M. Egan, for paying Indians for sawing wood, \$1.50, M. M. Egan, paying Indians for work on streets, \$6.00." (12-18-1872).

The year ended with the "Grand International Fandango of the Piutes and Shoshones." Originally planned for Washington, it was moved closer to Austin "inasmuch as the equine quadrupeds of the tribe are in a sadly demoralized condition." The fandango was attended by some white men who distributed liquor. "A general fight ensued" (11-23-1872).

1873

"Dan Callaghan, Esq., the 'Grass Valley poet,' paid us a call today. He said the crops in the valley are looking well and will be fully up to the average" (8-2-1873). In 1873, Callaghan grew potatoes (1-14-1873) and redtop and timothy grass. "Mr. C. informs us that he has 20 acres under cultivation in these grasses, and that the yield is two tons to the acres" (8-16-1873). George Lammerhart, another Skull Creek farmer, also grew potatoes (8-23-1873). The quail that had been imported two years earlier were reported near Unionville (5-20-1873).

Although there is no news of the Grass Valley Shoshonis, the paper gives a lengthy account of those who were working on the ranches in neighboring Reese River Valley:

Nearly all the hired work on the ranches is performed by Indians of both sexes. These are all Shoshones, natives of the valley, who acknowledge old Toi-Toi as their chief. The emoluments of the latter as King of the Valley Indians are not heavy, nor does there appear to be much chance of his securing any back pay or increase of salary, for his subjects have no



idea of paying either taxes or tithing. "Root, hog, or die" appears to be their motto, and so the old fellow has to work for his "blishkit" just as hard as the humblest Shoshone, and a good worker he is said to be too. The chase after jack rabbits, except when snow is on the ground, has been pretty nearly abandoned by the Indians, for they can get no ammunition, and though game of all sorts is more abundant now than in the olden time, it is much wilder and very hard to kill with bows and arrows. So, the Indians, old Toi-Toi included, must go to work. They are very useful to the people; indeed they could hardly get along without them. As a general thing they are much more reliable than the rascally Piutes of Austin and not so exacting. Many ranchers have had the same Indians working for them for years at about one-half the wages demanded by our Austin Indians. (8-27-1873)

Whether or not the situation was the same in Grass Valley we do not know. This description may fit Grass Valley better in later years. Other articles on Indian subsistence activities are concerned mainly with the pine nut crop. In August the Paiutes left Austin for Mammoth, where the crop was reported to be plentiful (8-13-1873). "A large proportion of our aboriginal population has emigrated. The hills south of town, which a short time ago were covered with wickiups are now bare of that adornment, although there are still enough Indians left to set up a respectable pow-wow on Koenigshoter's corner" (8-18-1873). On August 20, the Reveille reports, "The first pine nuts of the season made their appearance to-day." "There is a corner in pine-nuts, one aboriginal merchant having corralled the entire crop. He is as independent as a hog on ice and refuses to accept two dimes in payment for a two-bit cupfull. This red monopolist should be looked after" (9-3-1873). "The Indians who have been out in the hills gathering the pine-nut harvest have returned to the flesh pots of Austin. The patronage of the Indian restaurant and the slaughterhouse will increase accordingly, and decayed fruit and cast-off clothing will be at a premium" (9-11-1873). A few days later, the paper reports, "There is great complaint among our citizens that, owing to the bountiful crop of pine nuts, it is almost impossible to hire an Indian to do any kind of work. When one does condescend to perform any labor he demands the privilege of making his own terms" (9-17-1873). Thus, the pine nut crop was still an important part of the Indians' economy. Kinds of work mentioned in 1873 are street-cleaning (8-9-1873, 8-20-1873) and dishwashing (3-17-1873). Indians also begged at the slaughterhouse and the restaurants (5-5-1873).

"...It is a notable fact that there has been more drunkenness among the Shoshones and Piutes in this city within the last year than during the entire period since the country was settled by the whites" (5-20-1873). Drunkenness among the Indians was mentioned previously as a rare incident. Beginning in 1873, it became a common occurrence, and readers were warned against selling liquor to Indians (5-12-1873, 5-20-1873, 9-17-1873). Many whiskey bottles have been found in the Grass Valley villages, but there is no way to determine whether or not they were full when the Indians obtained them.

The Shoshonis held a fandango near Austin in March and invited both whites and Paiutes (3-17-1873). However, the Shoshonis continued to have problems with their neighbors. A dispute between a Paiute and a Shoshoni over a woman "came very near culminating in a general row between the two tribes" (7-17-1873). The same month, the paper reports a scarcity of Shoshonis in the town. According to the Reveille, the Paiutes had driven them off by trying to steal Shoshoni squaws (7-12-1873), but the newspaper's explanations of events in the Indian camps are not always reliable.

Some new categories of information become important after 1873. Accounts of the Indian children's games and toys help us understand possible uses of some of the artifacts in the Grass Valley villages. Among the artifacts in Molly Knudtsen's collection are several marbles.

The natives hereabouts--particularly the rising generation--are an imitative set. Anything they see the white children do they at once follow suit. Many of the boys can discount the white boys playing marbles and they are not to be laughed at as ball players. The little girls, noticing that white girls have dolls, make rag dolls, which they strap in a miniature basket such as constitutes an Indian baby's cradle, and promenade through the streets looking as happy and proud as any little white girl with a doll with real hair. We have no doubt but that they play house, in their own language, just the same as their more favored sisters (8-20-1873).

1874

The winter of 1873-1874 was a severe one, causing considerable losses of stock (4-7-1874, 4-10-1874). Heavy snow isolated Grass Valley from the town (2-25-1874, 3-28-1874). P. P. Budd may have been prevented from his weekly drive from his ranch in the valley to church in Austin (3-23-1874). "Daniel Callahan, the 'Grass Valley poet,' who has been undergoing an enforced seclusion on his ranch in Grass Valley for several months past, honored our sanctum with a visit this morning. He says there has been no perceptible suffering among the sheep in his neighborhood and that, at present, 'there is dust on the roads; snow on the mountain; and bloom on the sagebrush, and that the graceful form of the beautiful squaw moves in native majesty along the sagebrush plain cracking pinenuts and looking forward with happy anticipation to the advent of the toothsome grasshopper'"(4-7-1874). This is the first observed mention of sheep-raising in Grass Valley. Sheep-raising began extensively in the valley about 1910. It has been hypothesized that unfamiliarity with sheep herding was one reason for the departure of the Shoshonis at this time (Ambro 1972:95). Throughout 1874, there are references to sheep in the Reese River Valley and surrounding area. A description of a trip to Grass Valley in May includes the following: "The sheep-shearers from California had just arrived and Mr. Callahan was making his preparations to commence shearing to-day. He estimates his loss during the past winter at about eight percent, but the yield per sheep will be large..." Callahan was also growing clover, timothy,

and redtop, barley, wheat, and potatoes. The stocked creek still yielded fish (6-22-1874). The following month, "P. P. Budd, the Grass Valley rancher, came into town today. He informs us that the grass in the valley is excellent and plentiful this year, and that haying will commence next week" (7-14-1874). The Reveille quotes an Indian on labor conditions in the valley: "Being asked to do some work about a residence in town and take his pay in victuals, he remarked: 'Austin heap no good; allee time talk blekfast; no talk money. You savvy Callahan, Grass Wally? Callahan heap good man; heap pay Injun money...' " (3-2-1874). This is a typical example of the journal's version of "Injun English."

In July, 1874, the Reveille comments on an article in the Virginia Enterprise, proposing that the Nevada Indians be confined to reservations: "Speaking for the Indians of this section, we assert that there is no need whatever of reservations. They are an industrious class, and while residing in the hills in which their eyes first beheld the light, they earn a livelihood by their labor on the ranches--a labor indispensable to the farmer" (7-9-1874).

The year 1874 found the town Indians branching out as merchants. In addition to pine nuts, they were selling mushrooms, wildflowers and wild birds. The paper warns: "Persons who are unable to distinguish between toadstools and mushrooms should be cautious about purchasing fungi from squaws" (5-16-1874). "Frequently an Indian will capture a nest of young birds, which he will bring into town and sell for a bit, and many of the birds develop into fine singers"(6-3-1874). "The Indians are peddling bouquets of wild flowers about town, which are very tastefully arranged, and constitute a pretty and cheerful mantel ornament" (5-26-1874).

Indian women did laundry and other kinds of housework (6-28-1874). At spring cleaning time, "painters, white-washers and Indian char-women are in active demand" (3-27-1874).

There are four references to the Indians' fondness for linen dusters, with which they replaced their blankets in warm weather (4-18-1874, 4-30-1874, 5-13-1874, 6-26-1874). According to the Reveille, they bought these new with their wages, rather than obtaining cast-offs (6-26-1874). The Shoshoni women made themselves calico dresses (3-18-1874), and painted their faces blue, red, green, yellow and black. Some of this was in preparation for the spring fandango (3-23-1874).

An increasingly important source of goods was the Indian agent, whose activities are reported frequently in 1874. Major Ingalls planned a special distribution for members of Toi-Toi's band who were missed on his previous trip (1-8-1874). When residents of Pioche demanded the removal of Ingalls from his office, the Reveille defended him: "The Indians are better satisfied than ever before. White men who are asked to witness the distribution of annuity goods all speak in praise of the faithful manner in which Ingalls performs his duty. The Indians, if they could vote on the proposition, would be unanimous for Ingalls" (2-9-1874). He sent to Toi-Toi himself a suit of clothes from Salt Lake City. "The suit consists of coat, pants, vest, biled

shirt and plug hat" (3-16-1874). "Plug hats" were very popular with the Shoshonis. "There were also distributed to other Indians 60 shirts and three pieces of ticking" (3-26-1874). The distribution was made to the Reese River Valley Shoshonis, who came into town for the event (3-27-1874). Grass Valley Shoshonis are not mentioned and were probably not included.

A small-pox scare in May, 1874, is reminiscent of the one that occurred in the same month in 1867: "The Indians who make their headquarters in this city were needlessly stampeded by the small-pox scare....In consequence of the exodus many housewives are mourning the loss of their Indian servant-girls, and many a husband and father has a crick in his back from chopping the stove wood to get breakfast this morning" (6-5-1874). Three days later, "The Indians who were scared out of town by the prevalence of small-pox are returning to their flesh-pots at the back doors of restaurants" (6-8-1874). Rumors started again: "A delegation of Indians headed by Captain Steve [a Paiute] visited the Reveille office today, and stated that they had been informed by a white man that small-pox had broken out among the Indians at Palisade, Eureka, Winnemucca, and Battle Mountain, and that one Indian had died at Winnemucca." Reassured by the editor and by Judge Logan, the Indians resolved not to leave (6-17-1874). Numerous items in the 1870's mention the Indians going to the newspaper office for all kinds of information.

Shoshnois and Paiutes still played poker for goods and money (1-9-1874, 6-26-1874, 7-29-1874). The children's amusements were similar to those of the white children. Marbles are mentioned again: "We noticed several groups of juveniles--white boys and Indian boys--engaged in the pastime on Main street last evening" (4-23-1874). Sledding had always been a popular winter sport in Austin: "That necessity is the mother of invention is shown by the sleds improvised by the Indian boys. They like to coast like the white boys, but having no means of obtaining sleds, so they seize on anything which will slide, and utilize it. We noticed one dusky genius, last evening, sliding down Virginia street on a large sized fruit can; and a barrel stave affords as much happiness to the majority of them as does the most gaudily painted sled to a white boy" (2-14-1874). Thus, the numerous fruit cans from the villages may be associated with something other than subsistence activities, and the barrel staves served a purpose after the barrels were broken. Pieces of three broken china dolls were also found in the Grass Valley villages. Now we see them in use:

Human nature is the same the world over, and an Indian child takes as much pleasure in a doll as does a white one. We were amused this afternoon by observing a little Indian girl, apparently about three years old, who had found the head of a china doll, probably cast away by some white child, which she was fondling and nursing and talking to after the manner of ordinary doll-mothers. Frequently, we see on the street little mites of Indian girls with miniature baskets, containing rag papooses, on their backs, which answer the same purpose to them as the most expensive and elaborately gotten-up doll does to a white child (7-16-1874).

1875, 1876, 1877

Volumes of the Reveille for these years were unavailable to the author at the time of writing.

1878

There is not much news of Grass Valley in 1878, except for two references to good fishing in Callaghan's stocked creek (7-10-1878, 7-27-1878), and one to an invasion of grasshoppers between the Hot Springs and Guthrie's ranch. The Reveille rarely mentions the northern part of the valley; this item was reprinted from the Unionville Silver State, a possible additional source of information for this project (7-15-1878). Sheep-raising continued in the Austin area (2-23-1878). The paper prints an "Indian Grievance:" "Nearly all the ranchers in this section have fenced, or are fencing their land with barbed-wire fences. In some localities this shuts off the ponies belonging to the Indians from grass; in others from water; and in still others, from both" (6-8-1878). Presumably, it also shut off the Indian from wild plant foods, which he traditionally gathered and ate, and generally restricted his movement in the valleys.

During a temporary ban on the sale of ammunition to Indians, complaints were issued through Captain Breckinridge, the Paiute "chief": "The Captain claims that he is in receipt of letters from the Indians living in and around Austin, saying that they have been refused ammunition, and in consequence of which they suffer great inconvenience there from as they are deprived of the means of killing game, which is their only show of support at this season of the year" (8-1-1878). The type of ammunition generally purchased by the Indians was "small quantities of powder and small shot" (6-17-1878). This would be useful for hunting small game.

By the end of August, the pine nut crop was ready. Sam, the Paiute street cleaner, lost his job due to a flood. "Owing to his street cleaning duties in previous years Sam has been unable to attend the festivities of the pine-nut harvest but this year he can join the throng of Indians to the mountains and 'heap catch um pine-nut'" (8-28-1878). The Indians brought pine nuts to town to be sold at Sower & Weiler's store. "The nuts are fat, plump and of excellent quality" (8-30-1878). In previous years, the Indians had peddled pine nuts themselves. This is the first mention of a store in connection with this activity.

Shoshonis came into Austin from the country to sell some items before the fandango: "Many ragged, wild-eyed, shock headed Shoshones are in town, having come in from their camps in the surrounding valleys. Some of them are about town offering for sale wicker baskets and fur pelts.... There is as much difference between a town and a country Indian as between a town and a country dog. Jim and Sally from the rural

precincts walk the streets with a frightened air, as if afraid that somebody was going to pounce down on them and steal their rabbit-skin robe" (4-2-1878).

Games and toys are again a frequent subject. "The sight is such a common one in Austin as to never excite a remark, yet it must seem odd in the eyes of a stranger to see a big overgrown Indian knuckling down to a game of marbles 'for keeps' with a ten-year-old white boy." This account is headed, "The Childlike Indian." (2-20-1878). Another refers to "numerous groups of boys and Indians" playing marbles on Main Street (3-6-1878). Adult Indians are reported playing "football" at Clifton (4-8-1878). As always, sledding was a prominent activity, in which Indian children participated: "They take great delight in coasting, but to them to even wish for a sled is to launch out in the direction of the unattainable.... Their coasting apparatus consists simply of a barrel stave and a piece of rope or stout cord, passed and fastened through a hole in one end of the stave. They stand with the right foot on this stave, facing the string, which they hold in their hands and by its means guide their craft; and giving themselves a start by pushing the left foot on the ground, go scooting down the steep track in the position taken by a boy skating on one stake" (2-8-1878).

Drunkenness was still a problem and often led to fights among the Indians. Although the authorities devoted considerable effort to finding out the suppliers of liquor, they had little success (3-13-1878, 3-23-1878, 3-30-1878, 6-6-1878, 6-7-1878, 7-12-1878). It had become a common practice for the Indians to call upon the marshal to settle disputes among themselves and to make complaints to him (3-13-1878, 3-7-1878, 3-23-1878). The Indian agent was also expected to solve certain problems. In 1872, an old woman abandoned by her people had been left to the charity of the Austin ladies, but in 1878, a similar case was referred to the agent (5-25-1878).

Austin had a large Chinese population, mention of which appears in the Reveille with about the same frequency as that of Indians in the 1860's and 1870's. However, the first observed mention of Indian-Chinese relations does not appear until 1878. By this time, there was considerable animosity between the Chinese and the whites.

Even the Indians have their grievances against the Chinese. Captain Thompson, the Piute oracle, came into the Reveille office this morning and inquired if it was the intention of the white to drive the Chinamen out of town. It was explained to him that the white people desired to get rid of the celestials, but by peaceable means. This did not seem to suit Thompson, and he indignantly exclaimed: "No good! Why no white heap kill dam Chinaman? Chinaman heap all same bad." When asked in what particular the Asiatics were so bad, he said: "Him Chinaman too dam schmart (smart) -- all time heap cheat 'em Injin play poker." (3-5-1878).

Paiute-Shoshoni relations continued as usual. Although the two groups held a joint fandango in April, the Shoshonis still viewed the Paiutes with suspicion and accused them of squaw-stealing. The Paiutes in turn spoke derisively of the Shoshonis. The latter again invited the Paiutes to a fandango in May, but the insults continued (4-8-1878,

4-12-1878, 6-7-1878, 6-11-1878, 6-11-1878, 6-15-1878). The Committee of Arrangements decided not to include the Indians in the Fourth of July festivities, an event to which both Shoshonis and Paiutes looked forward each year, but presented them with "three sacks of flour and the carcass of a beef, with which the red men had a Fourth of July celebration of their own in their camps" (6-25-1878, 7-5-1878).

A Bannock war in the northern part of the state created the usual paranoia in Lander County, including rumors that the local Shoshonis were moving north to join the fight (6-10-1878, 6-18-1878, 7-1-1878). It was this fear that motivated the ban on the sale of ammunition to Indians. According to the paper, the sale of arms and ammunition to Indians was forbidden by State and Federal law, but had been an accepted practice in Austin (6-17-1878). An eclipse of the sun on July 29 caused alarm among the Austin Indians: "They imagined many things, one of the number being that the sun's dimness was significant of a great battle having been fought and that the Bannocks had been swept from the face of the earth" (7-30-1878).

In the 1870's there appears to be increased and more structured interaction of Indians and whites. The Indians' dealings with the marshal and the agents are one form of this. Another is their greater participation in the commerce of the town. The frequency of items has greatly increased, so that by 1878, almost every issue contains at least one article involving an Indian. Grass Valley ranchers began to raise sheep, while continuing to grow some of the same crops as before. As initial observations in the Grass Valley villages suggest that they were principally occupied in the 1880's, papers will yield more information and more pertinent information during that period.

## CONCLUSIONS

The Reese River Reveille appears to be an abundant source of information on the Historic period. However, several factors affect the reliability of newspaper accounts of Indians. Obvious inaccuracies and misinterpretations occur in some of the quoted items. For example, the Reveille repeatedly states that the Shoshonis did not build or use any type of shelter until they began to use tents. The presence of both prehistoric and historic housepits in Grass Valley and the Reese River Valley (Ambro and Wallof 1972; Clewlow, Ambro and Pastron 1972; Thomas and Bettinger 1976) contradicts these statements. References to burial practices are confused and contradictory and based on hearsay, rather than observation, so I have excluded them. Interpretation of the Indians' behavior often seems clouded by preconceived notions of their character. For example, a wounded horse or an elderly woman abandoned by her people (3-1-1872) is taken as evidence of the Indians' innate cruelty. The editorial attitude of the Reveille continually vacillates from a genuine concern for the Indians' fate to a desire to see them exterminated (5-5-1865).

Because it reports news, the Reveille usually writes about that which is sensational or unusual, rather than about the ordinary. Descriptions of the Indians' dress, for



example, are probably restricted to the more outlandish costumes.

The Reveille is occasionally careless, particularly in the early years, about distinguishing between Paiutes and Shoshonis. Frequently, it is confused about events which are taking place in the Indian communities. This becomes evident when a story about movements or meetings of Indians is contradicted or retracted. Estimates of numbers of Indians are rounded off to the same 300 or 400 too many times.

Although the information in the Reveille is very useful, it must be read critically and checked against other types of data. Much of this data will be in the form of archaeological evidence, which, when interpreted in conjunction with ethnographic and historic sources, will provide a fuller picture of this period.

#### ACKNOWLEDGMENTS

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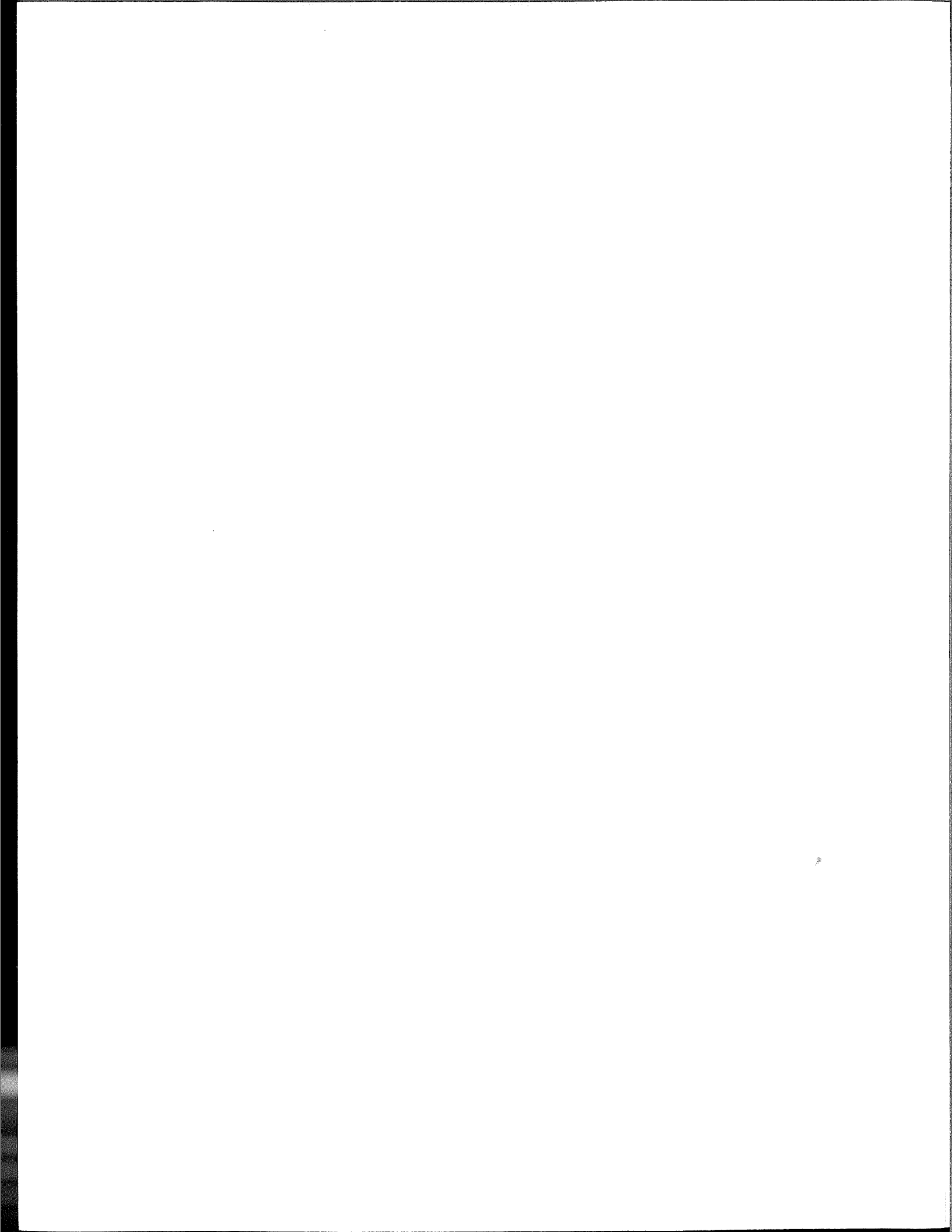
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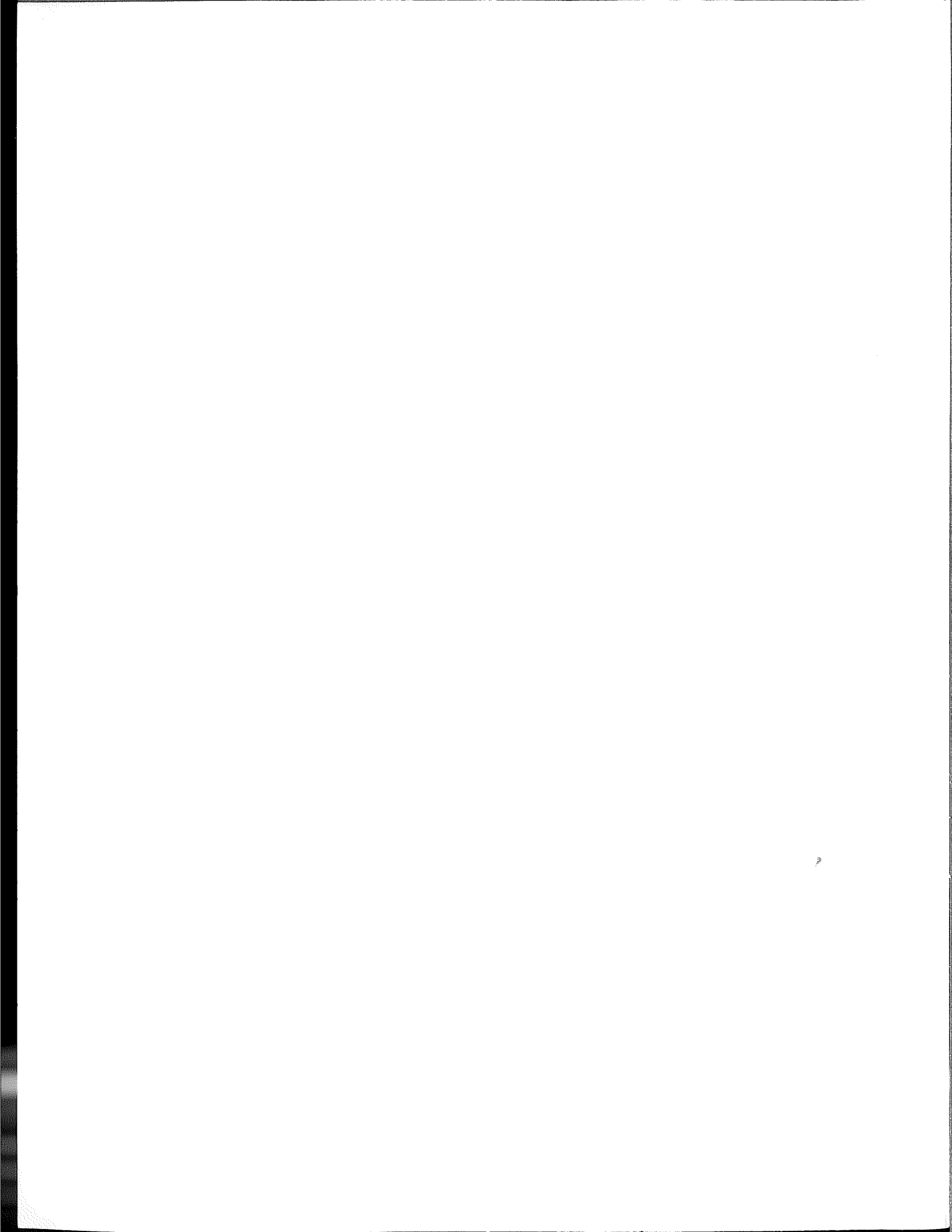
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FAUNAL REMAINS AS INDICATORS OF ACCULTURATION  
IN THE GREAT BASIN

Martin D. Rosen



# FAUNAL REMAINS AS INDICATORS OF ACCULTURATION IN THE GREAT BASIN

Martin D. Rosen

## INTRODUCTION

Traditionally, those studying past aboriginal behavior have concentrated on the analysis of artifactual material, while the significance of faunal remains has been given a low priority; this bias is true of research in the Great Basin. This study uses faunal remains to illustrate how ecofactual data can be applied to an investigation of culture change: to indicate (1) preferences in animals exploited as food resources during the acculturation period; and (2) changes in aboriginal butchering, hunting and food preparation practices as effected by the acculturation process.

Although the significance of archaeological faunal materials has been discussed in detail elsewhere (Cornwall 1956; Chaplin 1965, 1971; Daly 1969; Gilmore 1949; Olsen 1971; Reed 1963; Ryder 1968; Ziegler 1965, 1973), it is important to summarize here the inferences derivable from these ecofactual data. Methodologically, a faunal study should commence with a "site catchment analysis" in which the researcher has compiled a list of all known species present in the region of the site. From this data base the researcher progresses with a rigorous and systematic analysis of the faunal remains to ascertain:

- (1) which species were exploited;
- (2) where and how the animals were butchered;
- (3) how the bones were subsequently treated after meat removal;
- (4) trade networks or long-range settlement systems; and
- (5) the season of the year the site was occupied.

Once a list of utilized animals is compiled, this is compared with the catchment list of the site to determine:

- (6) which sectors of the environment were being exploited and conversely, which were not;
- (7) if the aborigines were dependent on a specific food source;

- (8) the dietary preferences of the site inhabitants; and
- (9) the hunting techniques utilized.

By examining the above data in conjunction with ethnographic and ethnohistoric documents the faunal analyst can factor out:

- (10) changes in the subsistence base over time;
- (11) changes in the hunting patterns and procurement technologies;
- (12) changes in dietary habits, and why those changes occurred; and
- (13) which bone elements of each species should be recovered within the site's deposits.

Ideally, analysis should proceed with an examination of the tool assemblage from the site. The knowledge of which tools were actually used by the site inhabitants can greatly enhance the analyst's insight into procurement techniques. The scope of the present study does not permit analysis of the tool collection from the Grass Valley historic sites. The zoologist could surely identify the faunal remains, but only a trained anthropologist/archaeologist is able to extract from the fauna the cultural inferences necessary for the reconstruction of aboriginal economic systems.

## BACKGROUND

During the 1940's and 1950's several anthropologists (Cook 1941; Cook and Heizer 1947; White 1952-56; Meighan *et al.* 1958) began to analyze faunal remains systematically as a viable research objective. Over the last few years archaeologists have continued to utilize these ecofactual data more effectively to discern aboriginal behavior. Many faunal studies have been conducted in the Great Plains on bison kill and related sites. T. E. White's papers (1952-56) laid the foundation for many of the subsequent works concerning the methodology and procedures involved in the analysis of butchering patterns as inferred from faunal assemblages. Other Plains studies patterned after White's earlier articles included Kehoe and Kehoe (1960), Kehoe (1967), Frison (1967), Wheat (1967) and Gilbert (1969). Parmalee (1965) has worked with Woodland cultures in Missouri, while Stein (1963) has analyzed the remains from archaeological sites in the American Southwest. Only Thomas (1969, 1971a) has dealt specifically with material from the Great Basin; however, his studies have concentrated on prehistoric sites. An important aspect of this report is its treatment of Historic period peoples in North America since most of the major faunal studies analyzing Historic period assemblages have been conducted in Europe.

Other faunal specimens, such as coprolites, have been effectively analyzed from



Great Basin cave sites (Callen and Cameron 1960; Cowan 1967; Heizer 1960:108-109; Jennings 1953:276-277; Martin and Sharrock 1964). Besides distinguishing what animals were exploited coprolites provide ethnobotanical dietary information on the site's inhabitants. These dry rock shelters have excellent preservation of perishable faunal remains, including feathers, egg shells and hairs which allow the archaeologist to interpret the past environments of its residents. Analysis of shellfish remains from coastal middens has provided rewarding ecological data for years (Cook 1946; Cook and Treganza 1950; Treganza and Cook 1948; Greengo 1951), but such analysis is not relevant to the Great Basin.

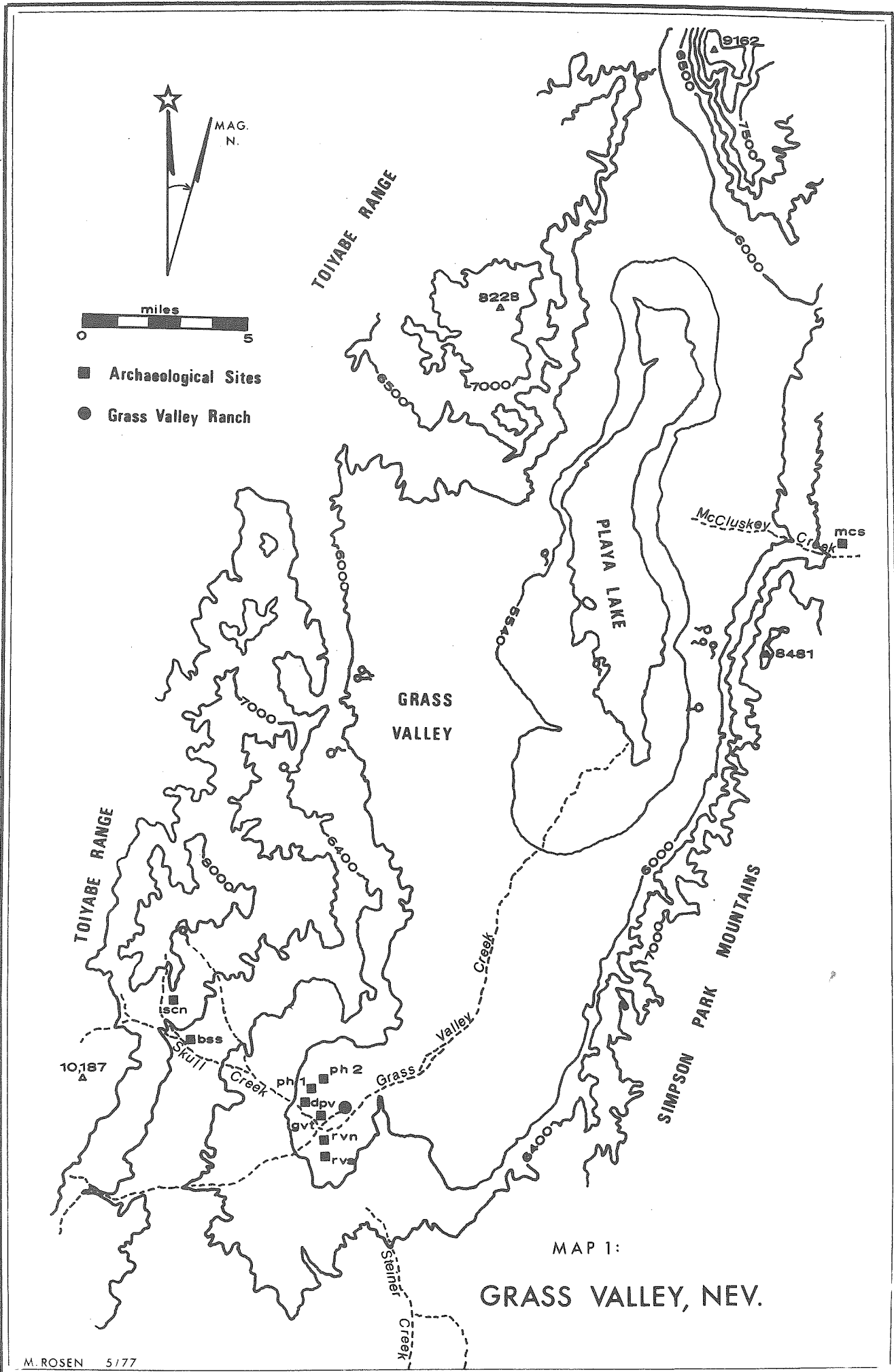
## SAMPLING TECHNIQUES

The faunal remains which form the basis for this study were collected from six Historic period sites, all of them located on the valley floor within a mile and a half of the present-day Grass Valley Ranch, near water and areas of abundant wild seeds and grasses (see Map 1). This faunal material was collected over five field seasons from 1968 to 1974. Surface collections and test excavations were the two main sampling techniques employed in Grass Valley (detailed descriptions of the various procedures can be found in Clewlow and Rusco 1972).

Initially each village was mapped, with all observable house pits, hearths and other features mapped on a master grid of the entire site. An independent grid system, ten meters on a side, was set up around the house pits at Dead Pile Village. At all other villages, the surface features were incorporated into the master site grid. Everything within the grid was surface collected, with the locations of all objects plotted on graph paper. Three of the six historic villages, Grass Valley Tom's, Ridge Village North and Ridge Village South, were completely surface collected using the grid technique.

Test excavations within grids were conducted on hearths, hearth areas, house pits and other structures. Hearths were the most intensively excavated features in Grass Valley, with these loci providing approximately 90% of the total faunal assemblage. These accumulations of fauna and other data are not from "middens"; no middens have been defined in any of the villages, and although Ambro (1972) has used the term, further analysis indicates these deposits to be large communal hearth areas. These features exhibit no visible stratigraphy; consequently, all the material from a small hearth would be sifted through 1/8 inch mesh shaker screens and bagged together. Small hearths are generally oval in shape, being 50 cm long by 30 cm wide, and approximately 15 cm deep. Larger hearth areas were gridded into one-by-one meter units, each unit being screened and bagged individually. A large communal hearth might occupy 36 square meters, and be 1/4 of a meter deep. House pits and other structures have yielded little useful faunal information in Grass Valley.

Transects were employed at Dead Pile Village, Pottery Hill Village 1 and



MAP 1:  
GRASS VALLEY, NEV.

KEY TO MAP 1

	<u>Site Name</u>	<u>Nevada State Site No.</u>
mcs	McCluskey Canyon Shelter	26La1111
scn	Skull Creek North Shelter	26La1112
bss	Big Springs Shelter	26La1110
ph1, ph2	Pottery Hill 1 and 2	26La1107
dpv	Dead Pile Village	26La1105
gvt	Grass Valley Tom's	26La1106
rvn	Ridge Village North	26La1103
rvs	Ridge Village South	26La1104

Pottery Hill Village 2. Transects were generally aligned along the north/south axis of the village and were surface collected in the same manner as the grids, although none of the transects was systematically excavated.

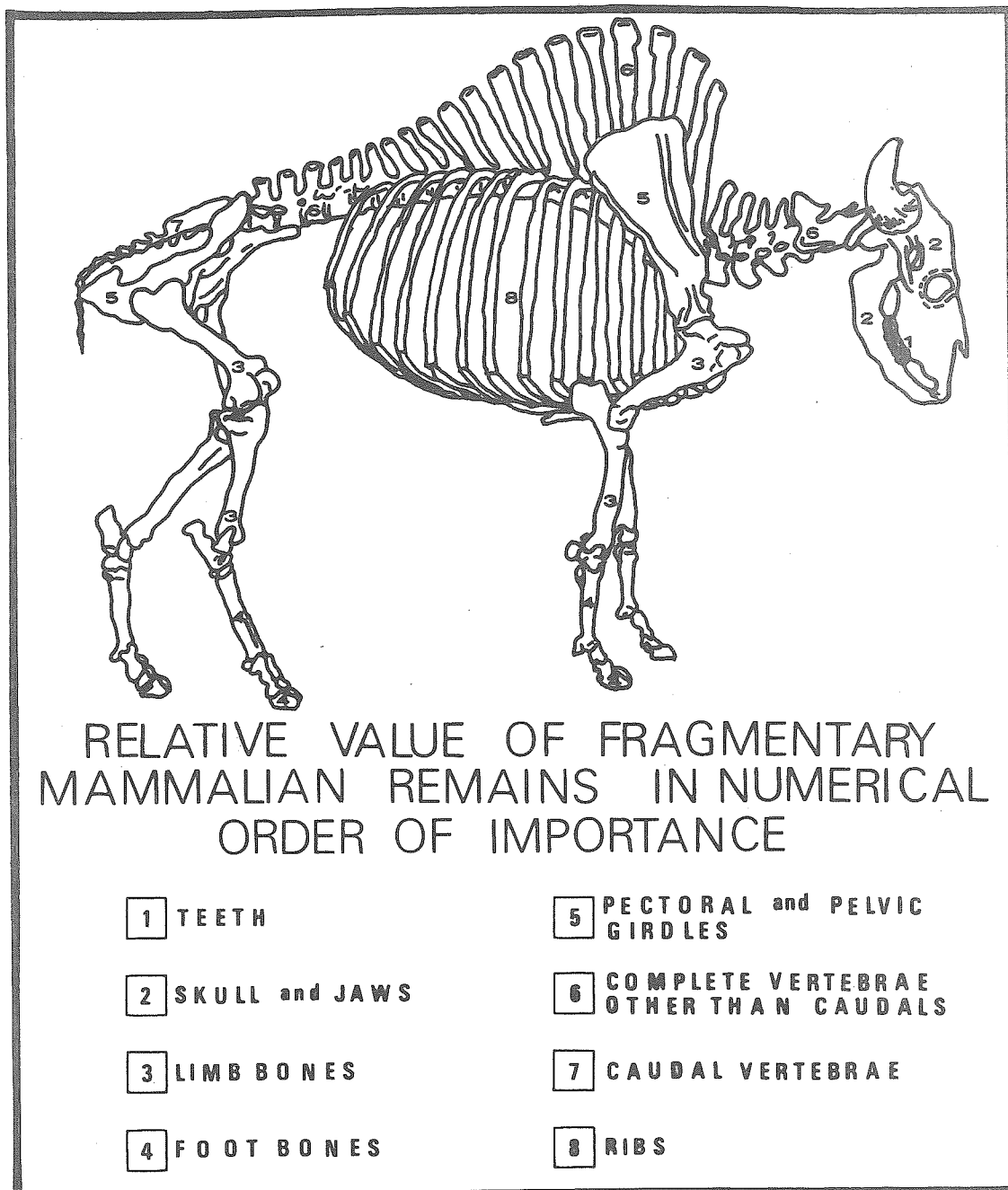
The cultural inferences made in this paper will deal with the faunal assemblages from all six sites, treating them as a unified block of data. This will be done because:

- (1) ecologically, each village is situated within the same environmental zone;
- (2) all villages were inhabited over the same time span of 80 years, although we are not sure how long, exactly when, or how many people lived at each site;
- (3) all sites are located near the Grass Valley Ranch; this would have enabled the Indians to freely interact with these local ranchers;
- (4) each village was sampled differently and to a different extent. Various methodologies were employed at each site, and there is no accurate way to estimate the percentage of site sampled since we are dealing with surface deposits and not middens; and
- (5) none of the Grass Valley sites has been totally excavated or surface collected; consequently, to make separate yet comparative statements regarding the nature of culture change as viewed from site to site would be unrealistic given the unknown factors involved.

#### ANALYSIS OF FAUNAL REMAINS

Prior to the identification phase of the analysis, the following zoogeographical keys were consulted in order to compile a site catchment for all species which inhabit or frequent the Grass Valley area: Burt and Grossenheider (1964), Cahalane (1947), Hall (1946), Hall and Kelson (1959), Murie (1954), Robbins et al. (1966) and Stebbins (1966).

The faunal remains were sorted into identifiable versus unidentifiable classes. Unidentifiable remains were grouped into the general categories of large mammals, small mammals, bird and fish. Identifiable materials consisted of those skeletal elements which lend themselves most readily to generic placement (Figure 1) (cf. Olsen 1961a; Cornwall 1956); these include tooth fragments, skull, mandible, maxilla or limb bone specimens. Conversely, the unidentifiable material consists of elements broken beyond recognition (Figure 2). After initial segregation, the unidentifiable remains were quantified, delineating the percentages of burnt versus unburnt pieces, and the frequencies, causes and locations of butchering scars. The identified remains were



**FIGURE 1**

Source:  
OLSEN 1961a

quantified in the same manner. These results were correlated into cultural inferences defining the methods and procedures of Shoshoni butchering and food preparation practices during the Historic period. During the initial classification stages the following osteologic guides were employed: Brainerd (1939), Glass (1951), Gilbert (1973), Hall (1946), Hildebrand (1954, 1955), Lawrence (1951), Leroi-Gourham (1952), Olsen (1959, 1960, 1961b, 1964, 1968), Orlov (1968), Romer (1956, 1966), Sisson and Grossman (1953), and Von Zittel (1925). All final species identifications were made at the Los Angeles County Museum of Natural History where the author utilized the comparative faunal collections housed there.

The results of this analysis are presented in Chart 1. Tabulated are the species lists and numerical counts of individual bones and bone fragments from the six historic villages.

In the lower section of Chart 1, "small mammals" are considered those species ranging in size from rodent to jackrabbit, "medium-sized mammals" those from jackrabbit to bobcat, and "large mammals" those from bobcat to horse. Other more specific categories were employed when possible, e.g., Artiodactyla (for indistinguishable even-toed ungulates), and Glires (for unspciated rabbits). The genus and species list in the upper portion of Chart 1 presents those remains identified by the author.

It is not possible to be more specific than the genus level of classification in some cases because:

- (1) there is a close similarity of forms within the genus;
- (2) more than one species of the same genus inhabits the Grass Valley area; and
- (3) there is not an adequate comparative osteologic collection.

The speciation of remains was hampered by the degree to which the bones were broken during butchering and food preparation activities (Figure 2). Most remains are well preserved as no site predates 1840. Only those remains which had been on the surface since deposition have become splintered, badly weathered and sun baked. It was difficult to determine if these elements had been burnt.

Cursory inspection of Chart 1 reveals that cows and rabbits made up the major proportion of the aboriginal meat diet during the Historic period in Grass Valley. Chart 6, lower section, provides the live weights for the species utilized in the sites, along with the percentages of usable meat. An analysis often conducted in zooarchaeological studies is the computation of the amount of available meat for a site based on the minimum number of individual animals exploited in each species. Other researchers weigh the bones and consider this a specific percentage of the total weight of the animal (Thomas 1969; Zeigler 1965). Most zooarchaeologists continue with a lengthy discussion on how the amount of faunal material recovered from their site does not adequately

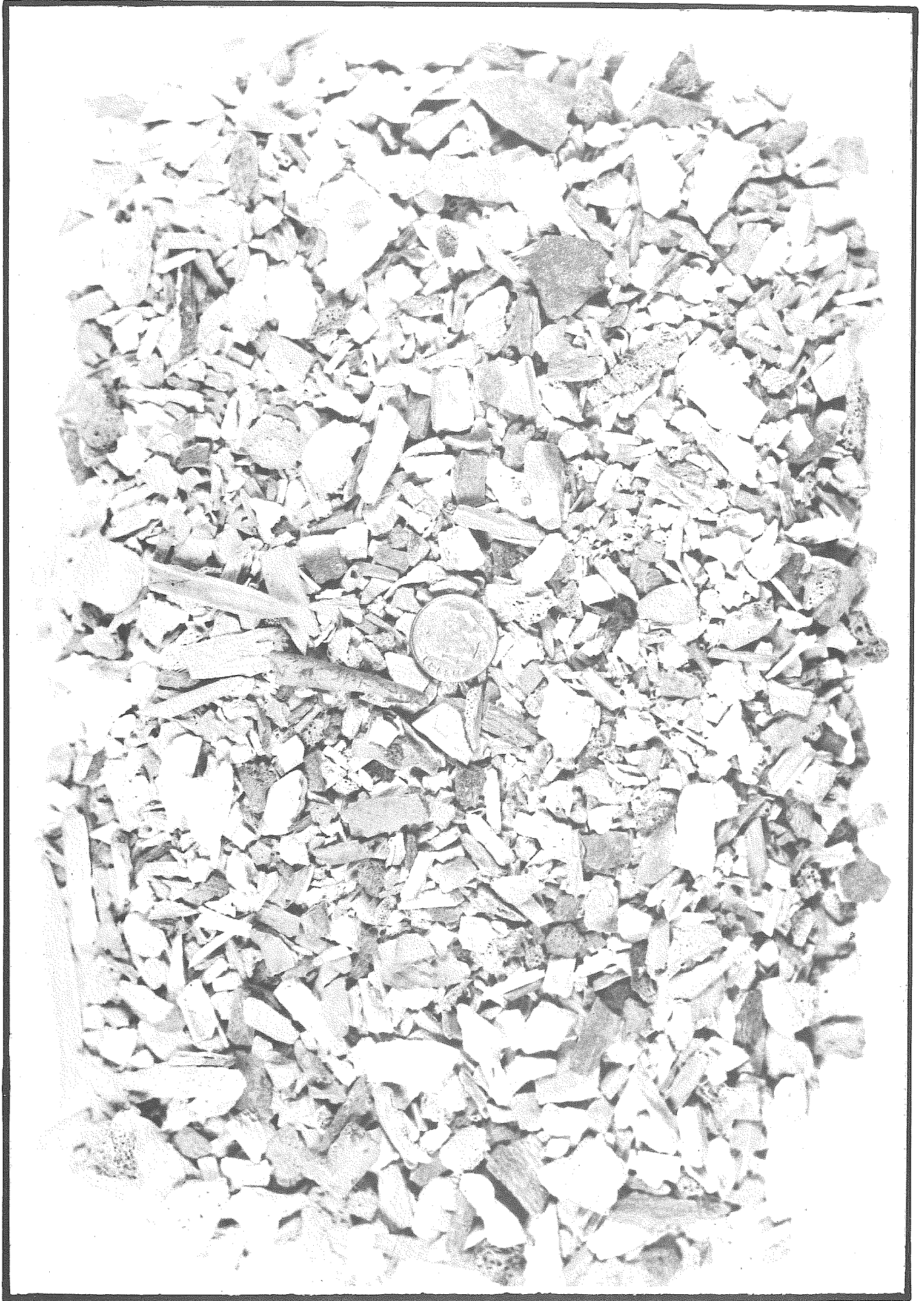


FIGURE 2: PHOTOGRAPH EMPHASIZING FRAGMENTARY CONDITION OF GRASS VALLEY FAUNAL ASSEMBLAGE-NOTE DIME IN CENTER FOR SCALE (photograph by M. D. Rosen)



CHART 1: DISTRIBUTION OF FAUNAL REMAINS FROM GRASS VALLEY HISTORIC VILLAGES

IDENTIFIABLE SPECIES	RVN*	RVS*	DPV*	PH1*	PH2*	GVT*	TOTALS	
							pieces	% of total
<u>Bos taurus</u> (domestic cow)	331	78	91	20	20	8	548	34.75%
<u>Ovis aries</u> (domestic sheep)	9	-	2	1	-	-	12	0.76
<u>Equus caballus</u> (horse)	1	-	1	-	-	-	2	0.13
<u>Lepus californicus</u> (blacktailed jackrabbit)	442	102	63	34	72	86	799	50.67
<u>Sylvilagus nuttallii</u> (cottontail)	37	59	18	2	-	3	119	7.55
<u>Lynx rufus</u> (bobcat)	-	-	1	4	1	1	7	0.44
<u>Citellus sp.</u> (ground squirrel)	-	2	1	-	-	1	4	0.25
<u>Neotoma sp.</u> (wood rat)	-	3	-	-	-	-	3	0.19
<u>Thomomys sp.</u> (pocket gopher)	-	1	-	-	-	-	1	0.06
<u>Dipodomys sp.</u> (kangaroo rat)	-	2	-	-	-	-	2	0.13
<u>Centrocercus urophasianus</u> (sage grouse)	8	58	9	4	-	1	80	5.07
	827	305	186	65	93	100	1577	100.00%

NONSPECIATED REMAINS	RVN	RVS	DPV	PH1	PH2	GVT	TOTALS	
							pieces	% of total
<u>Artiodactyla</u>	23	12	21	3	8	4	71	0.24%
<u>Glires</u>	117	7	15	5	11	30	185	0.63
<u>Rodentia</u>	2	-	2	1	-	1	6	0.02
<u>Bird</u>	30	23	3	-	-	-	56	0.19
<u>Fish</u>	2	-	4	-	-	-	6	0.02
Large mammal	1137	449	1018	106	761	135	3606	12.29
Medium to large mammal	12,532	1056	6212	1208	42	729	21,779	74.21
Small mammal	22	24	12	45	-	-	103	0.35
Bird or small mammal	2025	417	513	107	163	311	3536	12.05
	15,890	1988	7800	1475	985	1210	29,348	100.00%

COMBINED TOTALS									
	16,717	2293	7987	1540	1078	1310	30,925	-	-
% OF TOTAL	54.06	7.41	25.83	4.98	3.48	4.24	-	-	100%

\*RVN=Ridge Village North; RVS=Ridge Village South; DPV=Dead Pile Village; PH1=Pottery Hill Village #1; PH2=Pottery Hill Village #2; GVT=Grass Valley Tom's Village. Note: these site abbreviations have been employed for all charts.

reflect the totals which would have been necessary to support life at that location; then they offer alternative explanations for the seeming lack of osseous remains. These methods are not applicable to the Grass Valley collection because we have no way of calculating what percentage of the cow the Shoshonis were actually utilizing. Unlike prehistoric hunters who had an entire animal at their disposal, the Grass Valley Indians did not, for reasons that will be discussed below.

However, examination of the faunal assemblage does give the impression that there is an inordinately small amount of remains for the number of areas sampled. How does one account for the lack of osseous materials? Cornwall (1956:184) states:

However acquired, the remains of animals which we find at archaeological sites have mostly been butchered and carved, the bone even deliberately smashed for their marrow or to obtain industrial material. What was left was either dropped underfoot, wherever the diner or craftsman happened to be, or, in later and tidier societies, was consigned to the lake, the river, the bog, or the midden.

Oswalt and Van Stone (1967:70) talk of the scarcity of faunal material at Crow Village, Alaska, by stating that the Eskimos threw the bones into the river to prevent their dogs from obtaining the refuse. This was done so "...the spirit of the animal involved" would not be offended and, therefore, make hunting the species difficult in the future. There are no suitable lakes or rivers in the Grass Valley area large enough for the Shoshonis to have dumped their faunal debris. In the valley it appears that most remains were dropped underfoot; therefore, an alternate explanation is the one proposed by Elsasser (1960:68). In testing sites in the Sierra Nevada, he noticed marked deterioration in surface samples only 40 years old, and suggested that unknown quantities had probably disintegrated over the years. Since climatic conditions in Grass Valley are similar to those in the Sierra Nevada, this latter postulation seems more accurate for explaining the lack of faunal remains than any of the others mentioned above.

The importance of meat in the Indian diet can be questioned. The meager amounts recovered may confirm the supposition that meat played a secondary role to plant resources (Steward 1938:33). Isaac (1971) and Jolly (1970), studying Old World prehistoric adaptations, believe that the role of meat has been over-emphasized. Lee (1968) and Woodburn (1968) have estimated that vegetal matter could have comprised as much as 80% of the aboriginal diet. Clewlow and Pastron (this volume) on the Tarahumara of Mexico and Oswalt (1967) on the Eskimo of Alaska have used ethnographic examples to illustrate the over all importance of plants in the aboriginal diet. The Reese River Reveille (9/17/1874) mentions the significance of the pine nut crop to the Indian populations, stating that "...when the nuts are ready for harvest, no Indians can be found in town for employment...they have all gone off to the mountains." Therefore, this analysis will only discuss the faunal assemblage of Grass Valley as it has been collected, and will not attempt comprehensive study of Shoshonean dietary habits.

The reader is referred to Olsen (1964) for illustrations of the articulated skeleton of a dog, as exemplary of the body forms of rodents, rabbits and carnivores. Olsen (1968) includes an illustration of a wild turkey skeleton, which may be consulted for the terminology relevant to the discussion of the Grass Valley sage grouse remains. A discussion of each identified Grass Valley food animal follows.

## RODENTIA (RODENTS)

### Family Sciuridae (Squirrels)

#### Species Citellus sp. (Ground Squirrel)

- Characteristics:
- (1) diurnal
  - (2) rests in the ground or beneath rocks or logs
  - (3) inhabits pastures, grainfields, slopes with scattered trees, and rocky ridges
  - (4) feeds on green vegetation, seeds, acorns, fruits, insects, birds, eggs; stores food in its den
  - (5) Comments: diurnal activities make hunting this rodent more profitable than the other rodents present in the Grass Valley collection.

### Family Cricetidae (Mice, Rats, Lemmings, and Voles)

#### Species Neotoma sp. (Woodrat)

- Characteristics:
- (1) nocturnal, seldom seen by day
  - (2) builds stick houses on the plains
  - (3) adapts to human dwellings, and frequents old ranch houses; nests in cracks and crevices in caves, rocks and buildings
  - (4) feeds mostly on seeds, fruits, acorns and cacti

### Family Heteromyidae (Pocket Mice, Kangaroo Mice and Kangaroo Rats)

#### Species Dipodomys sp. (Kangaroo Rat)

- Characteristics:
- (1) nocturnal
  - (2) burrows into the ground for nest sites, usually preferring pliable, sandy soil
  - (3) inhabits dry grassy plains and partly open gravelly ground on slopes with sparse chaparral, scattered brush mesquite or juniper
  - (4) feeds mostly on green vegetation; stores seeds
  - (5) Comments: members of this genus are all very small; they are adapted for arid or semi-arid conditions and do not need drinking water.

Family Geomyidae (Pocket Gopher)

Species Thomomys sp. (Pocket Gopher)

- Characteristics:
- (1) active day and night throughout the year
  - (2) all are burrowers, seldom seen above ground
  - (3) prefers soil that is slightly moist and easy to work, but some are found in rocky situations, especially in the mountains
  - (4) feeds largely on roots and tubers as well as some surface vegetation; sometimes comes above ground to forage, but often pulls plants down through surface soil into burrow system
  - (5) solitary most of their lives; their subterranean habits and isolationism make them unprofitable to hunt

Rodent remains are tabulated in Charts 1, 3 and 5. Chart 1 illustrates the number of bones and bone fragments recovered for each species; Chart 3 lists the identified elements involved; while Chart 5 presents estimates for the minimum number of individuals represented by the bones of Chart 3. The lower section of Chart 5 enumerates the amount of usable meat available for each species. Except for Citellus, all rodent bones were recovered from Ridge Village South. The rodent remains do not exhibit any signs of butchering, and have not been burnt; therefore, their occurrence in the Ridge Village South deposits may be the result of environmental factors. The Ridge Village area is more moist and has more dense vegetation than the other historic sites; such a location provides a more attractive habitat for the smaller rodent species. Steward (1938:40) states:

Several kinds of small burrowing rodents occur in considerable colonies in valley flats, especially in comparatively fertile locations where they could feed on roots. Considerable effort was made to take these as other animal foods were often not to be had. They were either dug with a digging stick, pulled from their burrows by means of a rodent skewer, smoked out, flooded out, or killed with dead fall traps. If encountered away from their burrows, they could be run down and killed with sticks and stones. Usually weighing but a fraction of a pound, however, large numbers had to be taken.

Such smaller species did not contribute significantly to the aboriginal food supply (ibid.). Certain Great Plains Indians are known to have eaten small mammals and birds whole (White 1953a:396). The aboriginal practice of pounding small mammals in a mortar (Harrington 1942) prior to cooking or eating may explain the absence of these remains in the archaeological site. If such behaviors were employed, then it would be impossible to determine the overall significance rodents played in the Indian diet.

A numerically large category in the lower section of Chart 1 is labelled "bird and small mammal fragments." The similar thickness in the periosteum of their limb bones make generic analysis extremely difficult, especially when the articular ends are destroyed or lost before the archaeologist can unearth them. Bird and small mammal fragments comprise 11.5% of the Grass Valley total. It must be emphasized that the counts in Chart 1 reflect fragment totals and not complete skeletal elements, and this is especially true of the figures in the lower section of the chart.

#### OSTEICHTHYES (BONY FISHES)

Six fish vertebrae were recovered from the Grass Valley sites. They are all similar in size and shape and probably come from the same species. Only Brook's and rainbow trout currently exist in the streams of Grass Valley. Neither is indigenous to the area, but were introduced into the region in the early 1870's (Reese River Reveille 2/10/1871). However, the fish vertebrae in the collection are not trout (Kam Swift, personal communication); the spinous processes on the bones suggest they come from a higher order of fish. At present these remains are unclassified. The Shoshonis could have utilized trout during the Historic period; Steward (1938:40-44) describes how other species of fish were widely caught in the Great Basin. Laird (1976:46-47, 116-117, 171, 241) describes how another Shoshonean tribe, the Chemehuevi, disdained eating fish in any form. Whether the Indians of Grass Valley did not like fish, or did not have the technical knowledge to catch trout, it is apparent that trout were not exploited after they were introduced into the valley.

#### GALLIFORMES (GALLINACEOUS BIRDS)

Family Tetraonidae (Grouse)

Species Centrocercus urophasianus (Sage Grouse)

- Characteristics:
- (1) diurnal
  - (2) roosts on the ground in areas of high vegetation
  - (3) common to sagebrush country, generally summering in the foothills and wintering on the plains
  - (4) principal food is sagebrush; forages on the ground
  - (5) movement is not fast, but they can burst into full flight with rapid wingbeats from a stationary position; when flushed, they seldom fly more than a few hundred feet, and are profitably hunted by a group of six or more

Sage grouse is the only bird species identified in the Grass Valley collection. The Grass Valley species is particularly large (turkey-size; Rob McKenzie, personal communication), and remains from the sites indicate that this wild game resource was definitely utilized for food. Without exception every grouse element exhibits some degree of burning or butchering. The bones are quantified in Charts 1, 4 and 5. The

overwhelming majority of sage grouse remains are from Ridge Village South, probably because of the environmental conditions near the site. Today the preferred roosting grounds for the local grouse are in the tall grasses and willows near Ridge Village South.

Apparently the birds were placed next to the fire prior to disarticulation. Most remains are only slightly burnt, suggesting they were not placed directly into the fire. Such a technique could have been utilized for feather removal. The limb bones have been characteristically broken in those places which allow access to the rich quantities of marrow within them. The Indians would remove the articular ends just above and below the proximal and distal epiphyseal joints on the diaphysis. After this was done it was a simple matter to remove the marrow by either sucking it out or poking it out with a twig. There is very little usable grease in bird bones (because of the thinness and density of the bone walls), and an analysis of their remains indicates the bones were discarded after meat removal and marrow extraction.

Bird remains amount to 6% of the Grass Valley total, with unknown quantities lumped into the small mammal and bird category. There are inherent problems in the identification of bird remains beyond the family level (Langenwalter 1974), where speciation takes an inordinate amount of time. The Reese River Reveille (5/16; 6/3/1874) reported that Indians caught birds to sell in Austin. Therefore, during the acculturation period the Shoshonis were hunting wild game for purposes other than the procurement of meat for their own consumption. However, this activity is not evidenced in the site collections which are representative only of the food eaten at the site.

#### CARNIVORA (CARNIVORES)

Although other carnivores such as coyote, mountain lion, red fox, badger, skunk, weasel, kit fox, and wolf occur in the Grass Valley area, none of these were hunted. Only bobcat remains have been found in the historic villages.

#### Family Felidae (Cats)

Species Lynx rufus (Bobcat)

- Characteristics:
- (1) mostly nocturnal and solitary
  - (2) dens in rock crevices, hollow logs, beneath downfalls
  - (3) inhabits rimrock and chaparral areas in the West, swamps and forests in the East
  - (4) feeds on small mammals and birds; will eat carrion if not tainted
  - (5) extremely difficult to hunt

Evidence suggests that bobcats may have been hunted for a variety of reasons:

- (1) The Reese River Reveille reported on January 1, 1870, that local

Indians were hunting wild game to supply pelts for buyers in Austin;

- (2) Steward states, with respect to the belief that most carnivores were not hunted because of Indian superstitions, that carnivores were not disdained as at least occasional sources of meat (1938:34); and
- (3) The metapodials of carnivorous animals were used in the manufacture of bone tubes as those in breast plates and the spirit-blowers in the kits of exorcists (Gilbert 1973:31).

Inspection of the bobcat remains (Charts 1, 3 and 5) seems to corroborate the last supposition, for four of the seven recovered bones are metapodials. Steward (1938:34) mentions that the Indians considered carnivores as not being "greatly valued... and were taken with great difficulty and were rarely eaten." The distal and proximal ends have been removed from two of the metapodials, creating hollow tubes approximately 3 cm long. The other two metapodials also lack the distal ends, but the proximal ends are still attached. None of the lynx bones have been burnt, and there is no evidence to suggest they were the by-products of food preparation. It may be postulated that the bobcat remains are extant in Grass Valley because of activities related to monetary or religious factors and not food procurement.

#### GLIRES (RABBITS, PIKAS AND HARES)

Family Leporidae (Hares and Rabbits)

Species Sylvilagus nuttallii (Cottontail)

- Characteristics:
- (1) active from early evening to late morning; spends day in partially concealed form
  - (2) burrows in the ground or beneath brushpiles
  - (3) inhabits thickets, sagebrush, loose cliffs; mountains and forests in the South
  - (4) feeds on green vegetation in summer, bark and twigs in winter

Species Lepus californicus (Blacktailed Jackrabbit)

- Characteristics:
- (1) most active early evenings through early morning; sits motionless at base of bush or clump of grass during day
  - (2) habitat open prairies, sparsely vegetated deserts and sagebrush plains
  - (3) feeds mostly on green vegetation
  - (4) populations fluctuate; most species, particularly in warmer climates, carry tularemia or "rabbits disease"; the meat must be well cooked and preferably not touched with uncovered hands during preparation.

Rabbit remains are tabulated in Charts 1, 2 and 5. Leporids account for 58% of the Grass Valley identifiable assemblage, while Lepus osseous material outnumbers the fragments of all other species utilized for meat (except cow at Dead Pile Village). Cottontails were only sporadically taken compared to jackrabbits. The reasons jackrabbits were hunted so specifically over other available wild game resources are many. Knowledge of the preferred habitat of the animals excavated at a site will reveal something of the extent of the hunting range of the inhabitants (Ziegler 1965:56). If most of the bones in a site are from one species of animal, this may indicate, barring a restricted type of site, specialization of hunting, while finding a number of animals from different ecological zones indicates both more generalized hunting and a large hunting range (Gabel 1967:15; Read 1971). The situation in Grass Valley approximates that of the specialized hunting behavior.

Dried rabbit meat will last only two weeks and consequently was consumed immediately, while prepared large mammal meat can be preserved much longer (Steward 1938:83). Since we know the Indians were hired by Austin residents to hunt wild game for their pelts (Reese River Reveille), this information can be correlated with what Steward has said about the communal hunting of jackrabbits: "...the main purpose of the drive was to provide pelts for twined robes and blankets" (1938:98). During the Historic period the Shoshonis no longer needed the rabbit fur themselves; they either bought clothing in town, or received discarded articles from the whites. The communal rabbit drive could account for much of the Grass Valley rabbit material, where the Indians consumed the meat and sold the fur to the whites. The Austin newspaper reported "...the chase after jackrabbits, except when snow is on the ground, has been pretty nearly abandoned by the Indians, for they can get no ammunition, and though game is more abundant now than in olden time, it is much wilder and very hard to kill with bows and arrows..." (Reese River Reveille 8/27/1873). While the accounts of untrained and unsympathetic witnesses should not be taken literally, one can imagine that a generation of white contact and the Indians' use of guns undoubtedly had a profound effect on traditional hunting methods. Steward comments that "communal rabbit drives were relatively unimportant in pre-Caucasian days, as all informants agree that there had been few jackrabbits at the time" (1938:179), but the "...jackrabbit drive was the single most important communal activity" during the Historic period (ibid.:38). The communal hunt after jackrabbits may therefore have become a more sociologically important event during the Historic period.

Before elaborating on any cultural inferences based on the rabbit data, another point should be mentioned. Steward (1938:37) and Heizer and Baumhoff (1962:216) have discussed the methods of hunting mountain sheep and deer; they conclude that these species are best stalked or ambushed either individually or by a few hunters. Similarly, cottontails must be collected individually rather than by herding (Thomas 1969). Flannery (1966, 1968) argues that antelopes and jackrabbits will tend to co-occur in archaeological deposits if both species are indigenous to the area, since both are best hunted by the communal technique. Since deer and cottontails are most profitably taken by lone or small groups of hunters, they could also be predicted to appear archaeologically together. It may be posited that the non-utilization of large wild game species in Grass



Valley during the Historic period was a reflection of the specialized hunting technologies of the Indians. The small number of cottontails -- along with the absence of any large wild game -- indicates this inability of the Shoshonis to adequately hunt animals individually or in small bands. The communal drive procurement strategy was suited to the capture of jackrabbits; and while antelopes are not extant in the Grass Valley collection, this situation could be predicted since this mammal is no longer indigenous to the region (Hall 1946; Burt and Grossenheider 1964; Cahalane 1947). If the Shoshonis who moved into the valley in the mid 1800's were not descendants of the aboriginal peoples who inhabited the area during the prehistoric period, then it is reasonable to assume they brought with them different hunting procurement strategies. All three prehistoric sites excavated in Grass Valley to date (Map 1) (cf. Pastron 1972; Rosen n.d. [a], n.d. [b]) exhibit faunal assemblages very different from the patterns illustrated by the historic sites. While the prehistoric occupants of the valley had a broad knowledge of their environment and the available food resources, the Historic period Indians were specialized hunters, utilizing only a few of the available wild game animals.

Ethnographic examples discuss how Shoshoni women aided in the procurement of small game (Egan 1917:235-237; Steward 1938:44, 138-139, 231), and how individual families would set up the rabbit drive net to capture small game (Steward 1938:235). Therefore, it is assumed that a certain percentage of cottontails would be trapped in the drive nets when they were set up. These rabbits could be killed with a club once they had become entangled.

Most rabbit remains exhibit no specific butchering patterns. The majority of the bones are burnt and it is likely that the animals were cooked whole after skinning. After the animal was cooked, the rabbit would be segmented by the Indians who would tear off the desired piece from the carcass. Rabbit limb and skull bones contain the most marrow; these elements are highly fragmented, and were invariably broken at points allowing access to this nutrient. (Ziegler [1965:57] has noted similar treatment of small mammal assemblages from California.) The bones of the manus and pes were usually recovered whole, indicating they were probably discarded after the animal had been cooked. Like bird bones, rabbit osseous remains contain little usable grease, and are not suitable for the removal of this substance. If the Grass Valley rabbits had tularemia, the Indians may have had some sort of resistance to the disease or a method to alleviate the problem.

#### UNGULATA (UNGULATES)

Since the ungulates recovered are domestic species, a discussion of the habitats or behaviors of these mammals will not be presented.

#### Species Equus caballus (Domestic Horse)

Two bone elements were recovered from the six sites; tabulated in Charts 1, 3 and 5, they represent one nearly complete scapula and one complete first phalanx from the left hindlimb. Both specimens were surface collected and since neither

example exhibits any butchering scars, their occurrence in the villages is probably the result of non-aboriginal activities.

Species Ovis aries (Domestic Sheep)

Unlike the horse remains, sheep were definitely utilized by the Indians for food. The material is quantified in Charts 1, 3 and 5. Except for an isolated horn, surface collected at Dead Pile Village, all Ovis elements are lower limb bones. The implications related to the use of sheep are discussed in the section on Bos. Sheep were not widely raised in Grass Valley, and they were not brought into the region until 1874 (Reese River Reveille 8/27/1873).

Species Bos sp. (Domestic Cow)

Figure 3 has been included to facilitate discussion of the cow material, and to aid reader comprehension of ungulate osteology.

The cow remains are quantified in Charts 1, 5, 6 and 7. In percentages of usable meat, cows represent the most widely utilized food animal. Although the elements recovered come from a minimum of 13 individuals, compared to 40 rabbits, a single cow has as much edible meat as 130 jackrabbits or 230 cottontails (Chart 5, lower section). But the Indians exploited entire rabbits, not entire cows; evidence indicates that only specific portions of the cow were ever used by the Grass Valley Shoshonis.

Before continuing with a discussion of the cow material, it is necessary to explain the differential recovery rates of mammal bones from archaeological sites. Ziegler (1965) and Thomas (1969) have formulated ratios which discuss the percentages of bones recovered and lost through various screen mesh sizes, related to the size of the mammal. Though their respective methodologies and ratios are not in agreement, they both concur that almost 100% of the large mammal bones will be recovered by the excavator, while certain percentages of smaller animals will be lost, either through the mesh of the screen or unnoticed by the recoverer. Considering these ideas in terms of the Grass Valley assemblage suggests that only one-half of the osseous material of small mammals extant within the deposits of each site were actually collected from the sampled areas, while "all" of the larger mammalian remains were recovered from those same areas. Rabbits, already a significant part of the Indian meat diet, were probably even more important than the Grass Valley totals indicate. The assemblage is skewed favoring a greater aboriginal utilization of larger mammals.

Acculturation factors affected the use of large mammals during the Historic period by the Indians:

- (1) The Grass Valley Ranch records substantiate the fact that the Shoshonis had received cow meat from the white ranchers.
- (2) Accounts in the Reese River Reveille (2/16/1867, 5/5/1873, 4/2/1878)

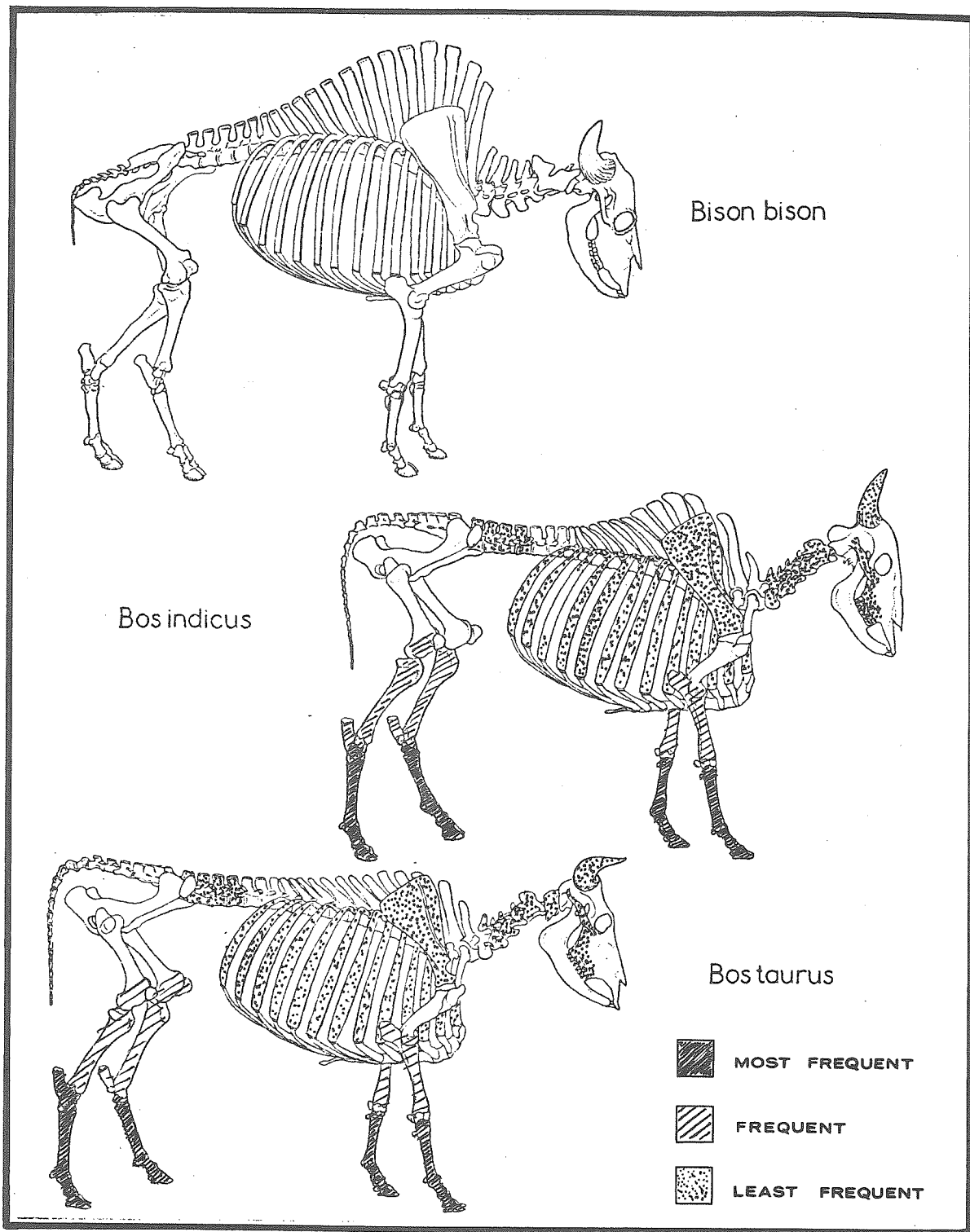


FIGURE 3: ARTICULATED SKELETONS OF BISON BISON, BOS TAURUS, BOS INDICUS ILLUSTRATING GENERAL BODY PROPORTIONS AND LENGTH OF NEURAL SPINES. BONES OF BOS SPECIES HAVE BEEN SHADED TO INDICATE THOSE ELEMENTS OCCURRING MOST FREQUENTLY IN THE GRASS VALLEY COLLECTION (after OLSEN 1960).

CHART 2: DISTRIBUTION OF LEPUS (JACKRABBIT) AND SYLVILAGUS (COTTONTAIL) ELEMENTS IN GRASS VALLEY HISTORIC VILLAGES

BONE ELEMENTS	RVN			RVS			DPV			PH1			PH2			GVT			TOTALS		
	S*	R*	L*	S	R	L	S	R	L	S	R	L	S	R	L	S	R	L	S	R	L
skull frags		4	15		2	2		6	1					5					12	23	
mandible frags	5	4	14	4		6			3	1	1	1	11	5		1	3	10	17	32	
maxilla frags		23	6	2		3			1			2						2	23	12	
isolated teeth	1	7	10	2		2					3	2		1		1		3	11	15	
vertebra frags			10	1		1	2		1			1		2			1	3		16	
sacrum												1		1	1			1		2	
rib frags	1		2			2			1			1		4			3	1		13	
scapula	2	2	18	2		6	1	1	3			2		1		2	1	5	5	31	
humerus, p*														2						2	
" , d*		2	13	3		4	1	1	2			2		3			2	4	3	26	
" , c*			1											1						2	
radius, p			8	1		1	1					1		4			1	2		15	
" , d			5			1						1		1			3			11	
" , c			1											1						2	
ulna, p	1	2	7				1	1	1			2		1			1	2	3	12	
" , d						2						1								3	
" , c			1																	1	
misc. carpals		2	5														1		2	6	
metacarpals, p	2	2	27			1										1	1	5	3	33	
" , d			10	1														1		10	
" , c			5																	7	
pelvic frags		1	6	6		10	2	1	5			2		3			4	8	2	30	
patella			2																	2	
femur, p	1		19	2		2			6			3		4				3		34	
" , d	2	9	7	4		3			1			2		2				6	9	15	
" , c				1		1												1		1	
tibia, p			2	2		1			1			1		1			6	2		12	
" , d	1	2	15	5		4	1		6	1		2		4			3	8	2	34	
misc. tarsals		2	19			2			1					1					2	23	
cuboid			6											1						7	
navicular			20				1										1	1	1	21	
calcaneum	2	3	44	3		10	1		4			1		3			1	4	6	66	
astragalus			4			1					1			1				2	1	8	
1st phalanx	15	2	49	8	1	12	4	1	8			3		5	1	9	13	28	13	90	
2nd phalanx	1	5	24	2	3	5			8			1		3		5	10	3	13	51	
3rd phalanx		11	9		1	3										1	3		13	15	
metatarsals, p	2		9	3		2	1							1		1	10	6	1	22	
" , d	1	8	27	3		1	2		6								4	6	8	38	
" , c			18	3		14			2			2		10				3		46	
**? metapodials		11	1													5	1		16	2	
? phalanges		15	3	1				4	1							2	2	1	21	6	
unident. bones									1					1						2	
TOTALS	37/117/442			59 / 7/102			18 / 15/ 63			2 / 5/ 34			0 / 11/ 72			3 / 30/ 86			119/185/799		
	596			168			96			41			83			119			1103		
% OF TOTAL	54.03			15.23			8.70			3.73			7.52			10.79			100.00		

\*S=Sylvilagus nuttallii; R=Nonspeciati ed rabbit remains; L=Lepus californicus  
p=proximal; d=distal; c=complete bone; \*\* ?=questionable

CHART 3: DISTRIBUTION OF MAMMALIAN REMAINS (OTHER THEN COW AND RABBIT) IN GRASS VALLEY HISTORIC VILLAGES

SPECIES AND BONE ELEMENT	RVN	RVS	DPV	PH1	PH2	GVT	TOTALS
<u>Citellus sp.</u>							
mandible, left						1	1
pelvic frag			1				1
tibia, complete		2					2
<u>Dipodomys sp.</u>							
maxilla, left		1					1
" , right		1					1
<u>Neotoma sp.</u>							
scapula		1					1
ulna, complete		1					1
femur, distal		1					1
<u>Thomomys sp.</u>							
femur, complete		1					1
<u>Lynx rufus</u>							
rib			1				1
radius, proximal						1	1
metacarpal, left 3rd				1			1
tarsal				1			1
metatarsal, right 2nd				2			2
<u>Ovis aries</u>							
horn			1				1
humerus, proximal				1			1
femur, distal		1					1
navicular		1					1
1st phalanx		3					3
2nd phalanx		3		1			4
metapodial		1					1
<u>Egus caballus</u>							
scapula		1					1
1st phalanx				1			1
TOTALS	10	8	5	5	1	2	31

CHART 4: DISTRIBUTION OF CENTROCERCUS UROPHASIANUS (SAGE GROUSE) IN GRASS VALLEY HISTORIC VILLAGES

BONE ELEMENT	RVN	RVS	DPV	PH1	PH2	GVT	TOTALS
skull frag		1					1
rostrum		1					1
misc. vertebra		2		1			3
coracoid, p		1					1
humerus, p		5		1			6
" , d		6		1			7
" , c		2					2
ulna, p		1				1	2
" , d		5					5
" , c		3		1			4
radius, d		1			1		2
" , c		1					1
carpometacarpus, p		2					2
" , c		1					1
3rd phalanx, manus						1	1
sternum		2					2
scapula		1					1
rib frags		2					2
pelvic frags		1					1
synsacrum		2					2
femur, d		1					1
tibiotarsus, d		10				1	11
tarsometatarsus, p		5		2			7
" , d		1					1
1st phalanx, pes		1					1
2nd phalanx, pes		1					1
TOTALS	8	58	9	4	0	1	80

p=proximal; d=distal; c=complete bone

CHART 5: ESTIMATED FREQUENCY COUNT FOR IDENTIFIED REMAINS FROM GRASS VALLEY HISTORIC VILLAGES

SPECIES	RVN	RVS	DPV	PH1	PH2	GVT	TOTALS
<u>Bos taurus</u>	5	2	2	1	1	2	13
<u>Ovis aries</u>	2	0	2	1	0	0	5
<u>Equus caballus</u>	1	0	1	0	0	0	2
<u>Lepus californicus</u>	13	5	3	2	3	3	29
<u>Sylvilagus nuttallii</u>	5	3	1	1	0	1	11
<u>Lynx rufus</u>	0	0	1	1	1	1	4
<u>Citellus sp.</u>	0	2	1	0	0	1	4
<u>Neotoma sp.</u>	0	1	0	0	0	0	1
<u>Thomomys sp.</u>	0	1	0	0	0	0	1
<u>Dipodomys sp.</u>	0	1	0	0	0	0	1
<u>Centrocercus urophasianus</u>	2	5	2	1	0	1	<u>11</u>
							82

This illustrates the estimated number of individuals represented by the faunal assemblage for each of the historic villages. For example, for Ridge Village North, Bos taurus, the bones of this species found at the site come from an estimated five individuals. The figures above represent the minimum number of that species that could be predicted to occur at the site as indicated by the faunal remains.

A total of 30,925 bone fragments recovered from the six Grass Valley sites indicate that they represent a minimum of 82 utilized animals for food. The minimum number of individuals is calculated by: first, specific bone elements are distinguished by left or right side, i.e., limb bones, maxillas, mandibles, etc.; second, there were five right maxilla fragments for Bos sp. at Ridge Village North, then the minimum number of cows utilized at that site would have been five. This process was repeated for all species identified in the collection.

The following are weights of the species represented above, live weight, % of usable meat, and pounds of usable meat. Based on White's Table 14 (1953b:397-398).

<u>Bos taurus</u> , male	1800lbs.	50%	900lbs.
<u>Bos taurus</u> , female	800	50	400
<u>Ovis aries</u>	200	50	100
<u>Equus caballus</u>	1000*	50	500
<u>Lepus californicus</u>	6	50	3
<u>Sylvilagus nuttallii</u>	3.5	50	1.75
<u>Lynx rufus</u>	30	50	15
<u>Citellus sp.</u>	1.5	70	1
<u>Neotoma sp.</u>	1	70	0.7
<u>Thomomys sp.</u>	0.8	70	0.56
<u>Dipodomys sp.</u>	0.8	70	0.56
<u>Centrocercus urophasianus</u> , male	5.5	70	3.8
<u>Centrocercus urophasianus</u> , female	2.6	70	1.8
	Live Weight	% of Usable Meat	Lbs. of Usable Meat

\*Horse weight based on Altman and Dittmer (1962:418)

CHART 6: DISTRIBUTION OF BOS SP. (DOMESTIC COW)  
ELEMENTS IN GRASS VALLEY HISTORIC VILLAGES

BONE ELEMENTS	RVN	RVS	DPV	PH1	PH2	GVT	TOTALS
horn	1	-	-	-	-	-	1
skull fragments	-	-	-	-	1	-	1
maxilla	6	4	1	-	-	-	11
mandible	2	1	-	-	2	2	7
tooth/enamel fragments	109	4	56	1	1	4	175
cervical vertebra	2	6	-	-	-	-	8
thoracic vertebra	-	10	-	-	-	-	10
lumbar vertebra	1	5	-	4	1	-	11
sacral vertebra	-	-	-	-	-	-	-
caudal vertebra	-	-	1	-	1	-	2
scapula fragments	3	1	-	-	-	-	4
pelvis	-	-	-	-	-	-	-
rib fragments	51	31	2	3	2	-	89
humerus, proximal	-	-	-	-	-	-	-
" , distal	2	2	-	-	-	-	4
ulna, proximal	2	1	-	-	1	-	4
" , distal	-	-	1	-	-	-	1
radius, proximal	2	1	-	-	-	-	3
" , distal	-	-	1	-	1	-	2
carpals	9	4	6	-	-	-	19
metacarpal, proximal	17	2	-	-	-	-	19
" , distal	10	2	-	-	1	-	13
femur, proximal	-	-	-	-	-	-	-
" , distal	-	-	-	-	-	-	-
patella	1	-	-	-	1	-	2
tibia, proximal	-	1	-	-	-	-	1
" , distal	2	-	-	-	-	-	2
tarsals	10	-	1	-	-	-	11
metatarsal, proximal	7	1	-	1	-	2	11
" , distal	8	1	-	1	1	-	11
" , complete	-	-	1	-	1	-	2
metapodial fragments, distal	25	-	3	1	-	-	29
sesamoids	3	-	4	-	1	-	8
1st phalanges	19	-	6	7	2	-	34
2nd phalanges	28	1	5	1	2	-	37
3rd phalanges	11	-	3	1	1	-	16
<b>TOTALS</b>	<b>331</b>	<b>78</b>	<b>91</b>	<b>20</b>	<b>20</b>	<b>8</b>	<b>548</b>
<b>% OF TOTAL</b>	<b>60.4</b>	<b>14.23</b>	<b>16.61</b>	<b>3.65</b>	<b>3.65</b>	<b>1.46</b>	<b>100%</b>

CHART 7: DISTRIBUTION OF BOS SP. IN GRASS VALLEY HISTORIC VILLAGES

BONE ELEMENT	RVN		RVS		DPV		PHI		PH2		GVT	
	no. of individ.	% of total	no. of individ.	% of total	no. of individ.	% of total	no. of individ.	% of total	no. of individ.	% of total	no. of individ.	% of total
horn	1	20	0	0	0	0	0	0	0	0	0	0
skull	0	0	0	0	0	0	0	0	1	100	0	0
maxilla	2	40	2	100	1	50	0	0	0	0	0	0
mandible	2	40	1	50	0	0	0	0	1	100	2	100
cervical vertebra	1	20	2	100	0	0	0	0	0	0	0	0
thoracic "	0	0	2	100	0	0	0	0	0	0	0	0
lumbar "	1	20	2	100	0	0	1	100	1	100	0	0
sacral "	0	0	0	0	0	0	0	0	0	0	0	0
caudal "	0	0	0	0	1	50	0	0	1	100	0	0
scapula	2	40	1	50	0	0	0	0	0	0	0	0
pelvis	0	0	0	0	0	0	0	0	0	0	0	0
humerus, p	0	0	0	0	0	0	0	0	0	0	0	0
" , d	2	40	2	100	0	0	0	0	0	0	0	0
ulna, p	2	40	1	50	0	0	0	0	1	100	0	0
" , d	0	0	0	0	1	50	0	0	0	0	0	0
radius, p	2	40	1	50	0	0	0	0	0	0	0	0
" , d	0	0	0	0	1	50	0	0	1	100	0	0
metacarpal, p	5	100	2	100	0	0	0	0	0	0	0	0
" , d	4	80	1	50	0	0	0	0	1	100	0	0
femur, p	0	0	0	0	0	0	0	0	0	0	0	0
" , d	0	0	0	0	0	0	0	0	0	0	0	0
patella	1	20	0	0	0	0	0	0	1	100	0	0
tibia, p	0	0	1	50	0	0	0	0	0	0	0	0
" , d	2	40	0	0	0	0	0	0	0	0	0	0
metatarsal, p	3	60	1	50	0	0	1	100	0	0	2	100
" , d	3	60	1	50	0	0	1	100	1	100	0	0
" , c	0	0	0	0	1	50	0	0	1	100	0	0
1st phalanx	3	60	0	0	2	100	1	100	1	100	0	0
2nd "	4	80	1	50	2	100	1	100	1	100	0	0
3rd "	2	40	0	0	2	100	1	100	1	100	0	0

p=proximal; d=distal; c=complete bone. Tooth-enamel, ribs, misc. distal metapodial fragments, carpals, tarsals and sesamoids were not included in the above quantification because they do not lend themselves to the calculation of number of individuals.



describe how ranchers would sometimes supply a cow or a sheep to the local Indians for their religious ceremonies.

- (3) The Shoshonis may have owned cattle themselves, therefore not necessitating the hunting of large game (although I have been unable to find accounts to substantiate this fact).
- (4) Reports in the Reese River Reveille (6/17, 12/17/1864; 2/7, 5/16/1865; 2/17/1872) tell of Indians stealing cows from local ranchers.
- (5) And most significantly, not one piece of mammal bone from a large animal indigenous to the Grass Valley area has been recovered in the Historic period sites.

The numerous empty gun shell casings found in the sites, along with accounts in the Reese River Reveille (12/17/1864, 4/26/1872, 8/27/1873, 6/17/1878) of the Indian use of guns, reflect that the Shoshoni had at their disposal a much more efficient means for procuring wild game during the acculturation period. Since wild animals were supposedly plentiful (Reese River Reveille 12/18/1864, 10/2/1868, 8/27/1873), and whites in Austin were willing to pay the Indians for pelts and feathers, we see with the advent of guns the hunting of indigenous animal populations for purposes other than the procurement of meat.

#### SELECTION OF LARGE ANIMAL BONES THROUGH BUTCHERING PRACTICES

If the Indians were receiving cow meat indiscriminately from the ranchers, we would expect a greater proportion of the entire skeleton to exist in the archaeological faunal collection. A whole cow could be easily transported the short distance from the ranch to any one of the Grass Valley historic villages; it would not have to be butchered at a kill site, as bison were during prehistoric times. Chart 6 illustrates how the cow assemblage is predominantly composed of lower limb bones. The reasons for this are discussed in greater detail below.

The analyses conducted by White and others on faunal collections from prehistoric Indian sites in the Great Plains revealed substantial differences between the remains recovered at habitation or village sites compared to the material unearthed at butchering or hunting stations. Rabbits, birds and other small game could be easily brought back to the village whole. Consequently, more complete skeletons of these animals would exist within the villages' deposits.

From the accounts of Wilson (1924) on the Hidatsa and Wissler (1910) on the Blackfeet, it appears that men normally do the hunting and gross butchering, women do the final cutting up of the meat for smoking and drying, and both participate in

carrying the meat from the kill to the hunting camp or village (White 1954:254; Kehoe and Kehoe 1960:421). White (1952, 1953b, 1954) has postulated that the further the kill site is from the habitation camp, the lower the amount of osseous material brought back to the village. The transporting of the large mammal meat was a central problem for the Indians. The entire animal could not be brought back because:

- (1) of the weight of the animal;
- (2) of the distance from the kill site to the village; and
- (3) portions of any animal are unfit for human consumption; each person would be carrying a small amount of edible meat in proportion to the total amount he or she would be carrying.

Therefore, to attempt to haul the entire animal back to the village would be an unwise use of the available Indian labor. Only 50% of a bison's gross weight converts to edible meat (White 1953a:397). A more efficient method for prehistoric hunters was to butcher the animal at the kill site, or transport the carcass a short distance to a butchering station, and systematically cut up the dead mammal. Smaller artiodactyls, i. e., deer and antelope, could be easily moved to the hunting camp, while bison were probably butchered at the kill site (White 1953b:160). Therefore, when the animal was killed away from the habitation site, only specific parts of it would ever be brought back and recovered by archaeologists.

Since the hunting of smaller game probably proceeded during the Historic period as it had in the past, the discussion of large game (specifically cow) is important because it is through the analysis of these remains that the effects of acculturation on the Grass Valley Shoshonis are most discernable. A detailed section on the butchering of cow remains follows. The procedures employed by the Grass Valley Indians are discussed and an attempt is made to explain why traditional behaviors changed during the acculturation period. It is posited that the Grass Valley Indians abandoned the hunting of large game during the 1800's because it was no longer economically advantageous for them to continue these aboriginal practices.

From ethnographic accounts and knowledge of modern butchering practices employed on cattle, we can imagine the procedure employed by the Indians went somewhat as follows (after White 1953b). They would begin by splitting the skin of the animal down the middle of the back (Wilson 1924: 246, 252). After the skin had been removed from the sides of the trunk and the upper legs lay flat on the ground on either side, the axial muscles were cut away and laid on the skin to keep them as clean as possible. If the head was wanted, the neck was chopped through between the atlas and axis cervical vertebrae; otherwise it might be severed anywhere. The tongue was removed by smashing the ascending ramus of the jaws and cutting both free of the skull. Next the limbs were cut free from the trunk and the ribs of both sides were chopped through close to the backbone. The backbone was then lifted free from the trunk and the kidneys and tenderloin removed, saving possibly only the liver, heart and some of the

intestinal fat. The torso was then rolled on its side and the skinning of the legs and trunk finished for that side. This procedure was repeated for the other side. If the kill was some distance from the village, the lower legs were removed by chopping through the wrist and ankle. The brisket was then freed from the basket by cutting through the episternal ribs and both were piled with the rest of the meat. The hide was then split down the middle of the belly. All of the meat was piled on one-half of the hide and covered with the other half to await transportation to the village or hunting camp.

These aboriginal procedures leave characteristic cuts and breakage patterns on the various bone elements, features which can be utilized as criteria for discussing Indian dietary habits. Had the Grass Valley Shoshonis hunted large game, they would have undoubtedly butchered their kill in the manner outlined above. The following section analyzes the effects of prehistoric butchering on the individual elements of the skeleton, and compares that information with the observed conditions on the Grass Valley large mammalian assemblage. A more thorough discussion of prehistoric butchering patterns can be found in White (1952, 1953b, 1954, 1955) and Gilbert (1969, 1973).

#### Skull

The maxillae are generally badly broken as though the muzzle had been chopped free from the rest of the skull. Possibly the nasal cartilages and upper lip were considered a delicacy by the Grass Valley Indians as some of the northern Indians do those of the moose (Cahalane 1947:52). The head as a whole is a heavy, unwieldy part of the animal, with a minimum of usable meat and, except for special purposes, would be unprofitable to transport any distance. The brain, if desired, could be easily removed at the kill site. The Grass Valley skull remains comprised almost entirely maxilla fragments. Their condition corroborates the breakage patterns suggested from the analysis of prehistoric remains for the removal of marrow in the nasal cavities (cf. section on marrow extraction). However, in proportion to the rest of the skeleton, many more maxilla fragments occur in Grass Valley than would be found in a comparable sample from prehistoric habitation sites. This suggests that the skull was not butchered for consumption by whites; instead the heads of butchered cattle were given to the local Indians by white ranchers.

#### Mandible

Presumably these were brought into camp with the tongue. Wilson's (1924:249) ethnographic work with the Hidatsa indicates that the Indians considered the tongue a choice cut which was eaten within a few hours after the kill. Certainly, the easiest way to remove the tongue would be to smash the ascending ramus of the jaw and remove the mandible and the tongue as a unit for further cutting at a more convenient time. In Grass Valley, there are few mandible fragments, and no ascending rami. As tongue is eaten in many Caucasian cultures, the lower jaw may not have been at the disposal of the Shoshonis.

## Hyoid

The hyoid is normally recovered with the tongue, but it is small and might be overlooked or lost. No hyoids were found in Grass Valley.

## Vertebrae

Generally, prehistoric utilization of vertebrae was minimal. After the axial muscles were cut away, these elements were often left at the kill site. The number of Grass Valley remains is usually consistent with the greatest number of individuals present; this is in direct contradiction to most prehistoric examples in the literature. According to Wilson (1924:201), after the hunter had taken what he wanted, that which was left became common property and was often picked up by others for their dogs. Three arguments refuting the implication that the recovered vertebrae from Grass Valley were remnants of dog food are:

- (1) there are no ethnographic or ethnohistoric documents which state that the Shoshonis in Grass Valley had dogs;
- (2) the recovered vertebrae do not exhibit any canid tooth punctures or other gnawing characteristics; and
- (3) the Grass Valley remains have been mostly burnt and butchered in a manner which could only be attributed to human agency.

All cow vertebrae have been cut by a metal saw and are exemplary of the way cattle are currently butchered for modern American markets. Therefore, the vertebrae normally discarded after butchering were probably offered to the Shoshonis.

## Ribs

In prehistoric sites there is a high incidence of the bodies of ribs with concurrent absence of the heads of ribs; this may indicate that meat was cut loose then much as now. The rib heads and vertebrae were left at the scene of butchering, while the meat-laden rib bodies were transported back to the village. The rib remains from Grass Valley are characteristically those parts that were chopped free close to the backbone. Again, the choice parts, the meat-laden rib bodies, were supplied to the people of Austin, the remainder being offered to the Indians.

## Forelimb

Since large ungulates do not possess a clavicle, the forelimb could be cut loose from the thorax in its entirety and brought back to the camp as a unit. Prehistorically, this was probably the common practice. The preparation of the limb for cooking or drying appears to have been fairly well standardized. The glenoid portion of the scapula, when present, is usually complete; however, if the element is lacking from the faunal

assemblage, it may be because it was left at the butchering site. The scapula has a relatively low marrow content, and the meat may be easily stripped from its surface. If the bone was not used, then there was no reason to carry it back to the camp if it had to be transported a great distance. The separation of the humerus from the scapula is difficult, but the task, accomplished with the aid of a stone cleaver, could demolish the head of the humerus beyond recognition. Also, since the head of an adult bison's humerus may contain as much as 250cc of free marrow (Gilbert 1973:30), with more obtainable from the proximal end, the element is usually smashed to obtain as much of the nutrient as possible. The number of distal humeri ends, and proximal radii and ulnae ends usually agree fairly well with each other. Presumably, the missing elements were broken beyond recognition in the preparation of bone grease. Further cutting up of the forelimb appears to have been accomplished by smashing the radius and metacarpal near the middle as the ends are generally recovered whole. However, since the lower limb does not carry any usable meat (White 1954:261), and very little marrow, it is conceivable that it was chopped off, either through the distal end of the radius or through the carpals, and left at the place of the kill in order to reduce the load. In Grass Valley, no proximal humeri ends have been found. Either they were smashed during bone grease extraction or the Shoshonis never received that portion of the cow. If the Grass Valley Indians owned their own cattle, we would expect to find at least a few examples of the cow skeleton which represent "choice" cuts, but we do not. Generally, the numbers of distal humeri ends and the proximal radii and ulnae ends do agree well with each other, consistent with the patterns observed in prehistoric deposits. Figure 3 illustrates those portions of the cow most frequently found in the historic villages. Equal percentages of the same elements were recovered in prehistoric sites because the whole forelimb was brought back to camp. Chart 6 demonstrates that most of the cow assemblage was composed of lower limb bones.

### Hindlimb

In order to remove the hindlimb from the trunk it would be necessary to cut through bone. Prehistorically, this could have been accomplished by:

- (1) cutting the ilium just behind the sacral attachment and splitting the pelvis at the symphysis;
- (2) cutting through the neck of the femur, thus freeing the shaft from the pelvis; after the bone had been exposed, a single blow from a stone axe would have sufficed to remove the leg for either method; or
- (3) cutting the diaphysis of the femur just below the proximal end.

Femoral shafts contain as much if not more marrow than do humeral shafts (Gilbert 1973:31). Consequently, in obtaining this food much of this bone would be smashed beyond recognition. The hindlimb appears to have been further separated at the knee. A few blows with a stone cleaver would demolish the femoral distal end. If the knee was cut at one side or the other of the joint, one of the elements would be preserved.

Generally, the length of the distal end of the tibia is very short, indicating that the tibia was again cut just above the medial malleolus. In prehistoric sites the distal ends of long bones are usually encountered more than the proximal ends, because the proximal ends have a relatively thin cortex and contain more marrow-bearing cancellous bone. Characteristically, low percentages of all elements of the hindlimb were recovered except for the distal end of the tibia which is possibly preserved because it formed a convenient hand-hold for steadying the femur and tibia on the anvil stone while they were being broken with a hammerstone (Figure 4).

As with metacarpals, the metatarsals, when recovered in habitation site deposits, are usually smashed somewhere in the middle. Their number is usually far below that of the minimum number of individuals represented by the faunal assemblage. Consequently, it is assumed they were left behind at the butchering site. The ankle appears to have been a favorite point of cutting off the lower limb, since the astraguli and calcanei are often encountered broken or defaced. According to Wilson (1924:202,251), the metapodials were usually discarded or given to the dogs. Butchering of the phalanges is rarely discussed in the literature; and if the bones occurred in the habitation site, it was inferred that the kill site had been close by. In Grass Valley, the data for the hindlimb approximates that of the forelimb. Portions of the lower hindlimb dominate the collection, while elements of the upper limb are lacking.

It is interesting to observe how the patterns in Grass Valley are the reverse of the prehistoric descriptions in the literature. The Grass Valley Shoshonis were utilizing those elements of cow which prehistoric hunters had normally left at the kill or butchering site. The age of the butchered cattle substantiates the postulate that the Grass Valley Indians had received cow meat from the ranchers. In standard Anglo-American ranching practices, cattle are slaughtered when they are approximately 18 months old (Paul Langenwalter, personal communication). At this age epiphyseal union of the proximal and distal ends of the long bones is incomplete (Sisson and Grossman 1953; Silver 1963). The Grass Valley material follows this pattern totally.

#### MARROW EXTRACTION AND BONE GREASE PREPARATION OF LARGE MAMMALIAN REMAINS

The bones were gouged for marrow to prepare blood, berry or marrow pudding or for eating raw (White 1954:261), and were smashed into tiny fragments for the preparation of bone grease (Figure 2). Bone elements are dissimilar in structure and marrow content, and grease does not occur in the same way in all bones; a variety of techniques must be employed to extract the marrow from one animal. The processes involved in marrow extraction and bone grease preparation are discussed below (after Leechman 1951 and Bonnicksen 1973).

First, the skull is severed from the spinal column with an axe prior to segmenting the latter into parts which have food value. Next, the skull is cut in half near the

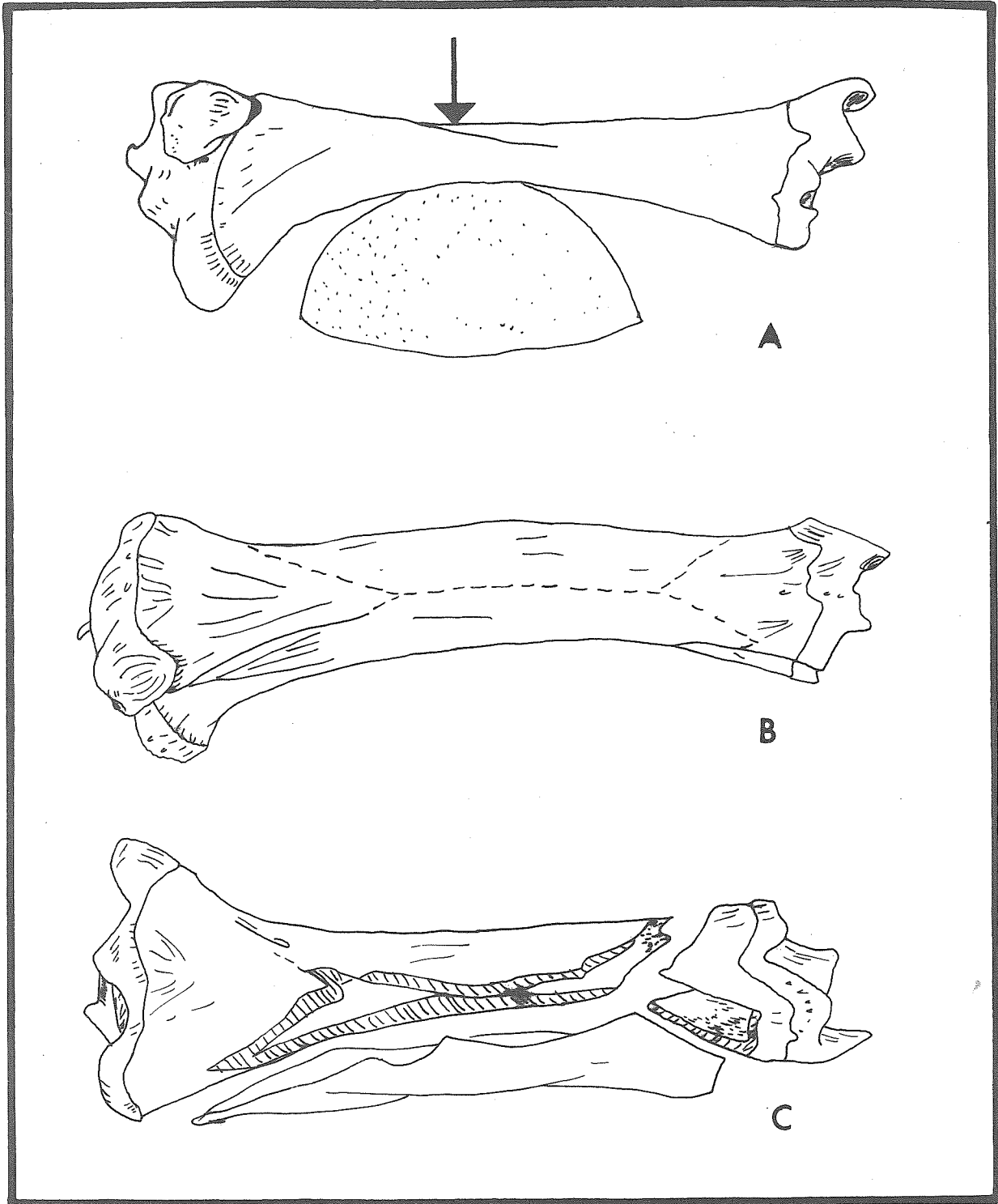


FIGURE 4: BOVID TIBIA BEING BROKEN ON AN ANVIL STONE (redrawn from Gilbert 1973:15)

contacts of the frontal bones and nasal bones. This cut opens up the cranial cavity, permitting the brain to be removed; it may subsequently be used in the tanning process. The orbits are chopped off, exposing the large maxillary marrow cavities. Four to five inches of the nose and palate are then cut off. The remaining section of the nose and palate is then split longitudinally providing access to the marrow cavity over the maxillary teeth. The mandible is probably removed prior to splitting the skull. The inferior border of the mandible is removed to gain access to the marrow cavity which runs the length of the mandible directly below the roots of the teeth. This process may be accomplished by delivering blows with the blunt end of an axe to the inferior border of the mandible while it is supported on an anvil stone. Usually blows are directed below the roots of the back molars. The mental foramen along the inferior border may be chopped open with an axe, providing access to the front end of the mandibular cavity.

After the meat has been stripped from the long bones, such as the humerus, radius, ulna, metacarpals, femur, tibia and metatarsals, they are left for a day, which allows them to dry. If the bones were left for two or three days, the grease made from them would taste too strong to be pleasant. They are then placed on or next to an open fire, heated for a short time, and are turned over periodically to prevent burning. This procedure facilitates breakage of the periosteal sheath (the reinforcing shield of the bone). The elements are taken from the fire and allowed to cool before being broken. An animal skin or blanket is laid on the ground and the anvil stones are placed in the middle of it. The proximal and distal ends of a long bone are placed on the two adjacent stones, thus suspending the midshaft between the rocks. Using the blunt end of a small axe, the bone is then struck in the middle with one or two vertical blows to break it into two halves. A small stick between 25 and 30 cm long and 1 cm in diameter is inserted into the broken ends of the bones and then pulled out again to remove the marrow. The slightly congealed marrow is collected from the two sections of the bone, and placed in a small pan, can or other suitable container.

Once the diaphyseal cavity is emptied, the remaining shaft may be broken into smaller pieces in preparation for boiling the bones during the grease extraction process. Extraction is accomplished by placing the broken ends of the shaft on one of the anvil stones and smashing the shaft into pieces as big as fingernails with the back of an axe or hammerstone. The ribs are chopped into sections ranging in length from 5 to 15 cm, and the neural spines are removed from the thoracic vertebrae, and chopped into sections similar to the ribs. The vertebrae themselves are little altered with the exception of a few that are cut in half, thus converting the spinal column into transportable sections. The rather nonproductive carpals, tarsals and phalanges are not broken for the grease preparation process. The broken bones are then put in a kettle with a little cold water and placed on the fire. As soon as the water comes to a boil, cold water is added (snow in the winter time) to keep the water simmering rather than boiling violently. The purpose of this is to allow the oil and grease rendered out to float to the top, which it would not do if the water were boiling vigorously. The grease is skimmed off and put into a separate vessel where it will keep quite well for as long as two years; it may be used for making pemmican or for daily use in cooking.



## PEMMICAN PREPARATION

The Indians made efficient use of those portions of the cow which they did receive. The meat could be dried and saved for future consumption, or made into pemmican cakes. Pemmican was prepared by taking lean portions of beef dried in the sun or wind, and pounding it into a powder. The powder was then mixed with hot fat, and nuts and berries, and made into a paste. This paste was then tightly pressed into cakes. The cakes would keep very well, and would provide a high-protein food source during the long work day.

## CONCLUSIONS

Prehistoric butchering procedures have been discussed and compared with the evidence from the Grass Valley faunal collection. The aboriginal use of faunal remains has been reviewed, discussing each utilized species, with a detailed description of the processes of butchering large mammals and their subsequent treatment during marrow extraction and bone grease preparation. For obvious reasons, the remains of rabbits and cows cannot be treated similarly. Rabbit bones are not profitably suited to the bone grease extraction process; the meat does not preserve well and, therefore, cannot be used for the preparation of pemmican.

The major purpose of this paper has been to demonstrate the effects of acculturation on aboriginal food procurement through the study of faunal remains. Osseous materials have been extensively employed to ascertain the answers to methodological problems outlined in the introduction. To reiterate the importance of this ecofactual data, they have been used to ascertain:

- (1) which animal species were exploited during the Historic period through a thorough, systematic examination of the identifiable faunal collection;
- (2) how the animals were butchered by analyzing the breakage patterns and cut marks and comparing this information with the presence or absence of the specific bone fragments for each utilized species;
- (3) the treatment of the bones after meat removal during the marrow and grease extraction phases, indicating that the Indians continued to employ traditional food preparation practices during the acculturation period;
- (4) which sectors of the environment were exploited. In Grass Valley, the Shoshonis abandoned the hunting of all wild game that could not be readily caught within the immediate vicinity of the historic villages (rodents, rabbits and sage grouse); no large wild game animals were

exploited for food, even though evidence suggests they were abundant during the Historic period;

- (5) the dependence of the Indians on meat from domestic animals to supplement the lack of large wild mammal game resources;
- (6) the dietary preferences of the site inhabitants -- rabbits, cows and to a lesser degree sage grouse; these may not have been preferred resources, but were the most available species;
- (7) the necessary procurement strategies the Grass Valley hunters employed; the capture of jackrabbits required the strategy of herding, not individual hunting;
- (8) changes in the subsistence base over time. Although the prehistoric evidence in the valley is slight, it appears that the inhabitants shifted from a broad subsistence base to a specialized subsistence base, exploiting only a few of the available animal resources; and it can be posited that during the latest Indian occupations of the valley, the nomadic "seasonal round" subsistence pattern was replaced by semi-sedentary habitation near the Grass Valley Ranch; and
- (9) changes in the hunting patterns and procurement technologies; the evidence suggests that the prehistoric Indians were hunters capable of total environmental exploitation, while the historic Indians were specialized hunters.

The Historic period Shoshonis of Grass Valley did not appreciably alter the butchering methods of their predecessors. They continued to exploit large mammals systematically for their meat, marrow and grease. The Indian usage of particular animals as gleaned from ethnographic accounts may be tentatively inferred from the presence of said species in archaeological contexts. The four prehistoric sites excavated in Grass Valley yielded osseous assemblages very different from the Historic period collections, suggesting the disparate natures of the hunting technologies involved. The data from Big Springs Shelter and Skull Creek North Shelter indicate that the prehistoric hunters had a broad knowledge of their resource base (cf. Pastron 1972:56-60). Procurement strategies were suited to the capture of all wild game. However, the Historic period Shoshonis did not hunt any wild species larger than jackrabbits for meat, even though large mammals were plentiful. The 19th century Indians utilized herding as the procurement strategy; they may have hunted antelopes had the range of this animal extended into the Grass Valley area. Since other large mammals are not profitably hunted by herding, this may account for the lack of these remains in the collection.

A number of factors are responsible for the observed changes in the aboriginal meat diet over the last 2,000 years. Environmentally, different animals may have

inhabited the valley over time; antelopes, now absent, may have been extant in the past. Culturally, different groups migrating in and out of Grass Valley may have brought with them different hunting technologies. Acculturation to the life styles of the whites supplanted traditional behaviors. The availability of domestic meat may have outweighed any incentive the Shoshonis had for hunting large wild game.

Initial white-Indian interaction proved beneficial for all concerned. The domestic animal meat the Indians received supplemented a diet dominated by plant resources. It also reduced the difficulty of aboriginal hunting with its seasons of scarcity and the constant effort of the food quest, allowing the Indians to become sedentary and largely dependent on resources of the white ranchers. Butchering and marrow and grease extraction practices endured as they had in the past, while hunting behaviors and subsistence changed. While the interdependence of Indians and ranchers continued, it appears that the Indians were more secure and "better off" in food resources than they had been aboriginally. As long as silver was being found in the Austin area, the ranchers needed the Indian labor to help raise beef for the townspeople. When the silver ran out and town populations declined, the Indians were no longer wanted. After two to three generations of white contact, many of the old ways were forgotten; lumbering and livestocking had depleted the natural resources so that the Indians could no longer exist in the valley as they once had. Therefore, by 1930 all the Grass Valley Shoshonis had left the valley, moving south to the reservations in the Reese River Valley and to Austin where they could continue as marginal beneficiaries of American culture.

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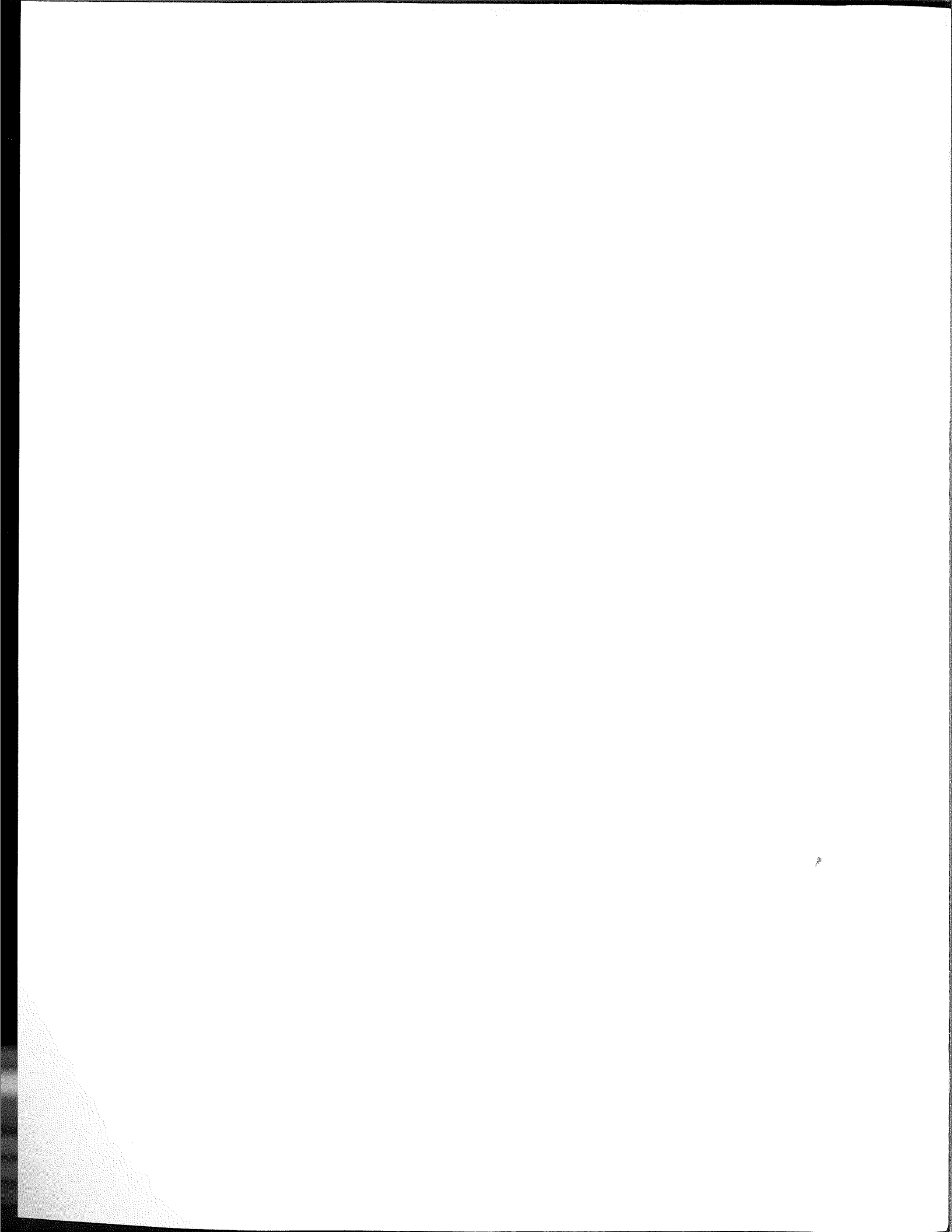
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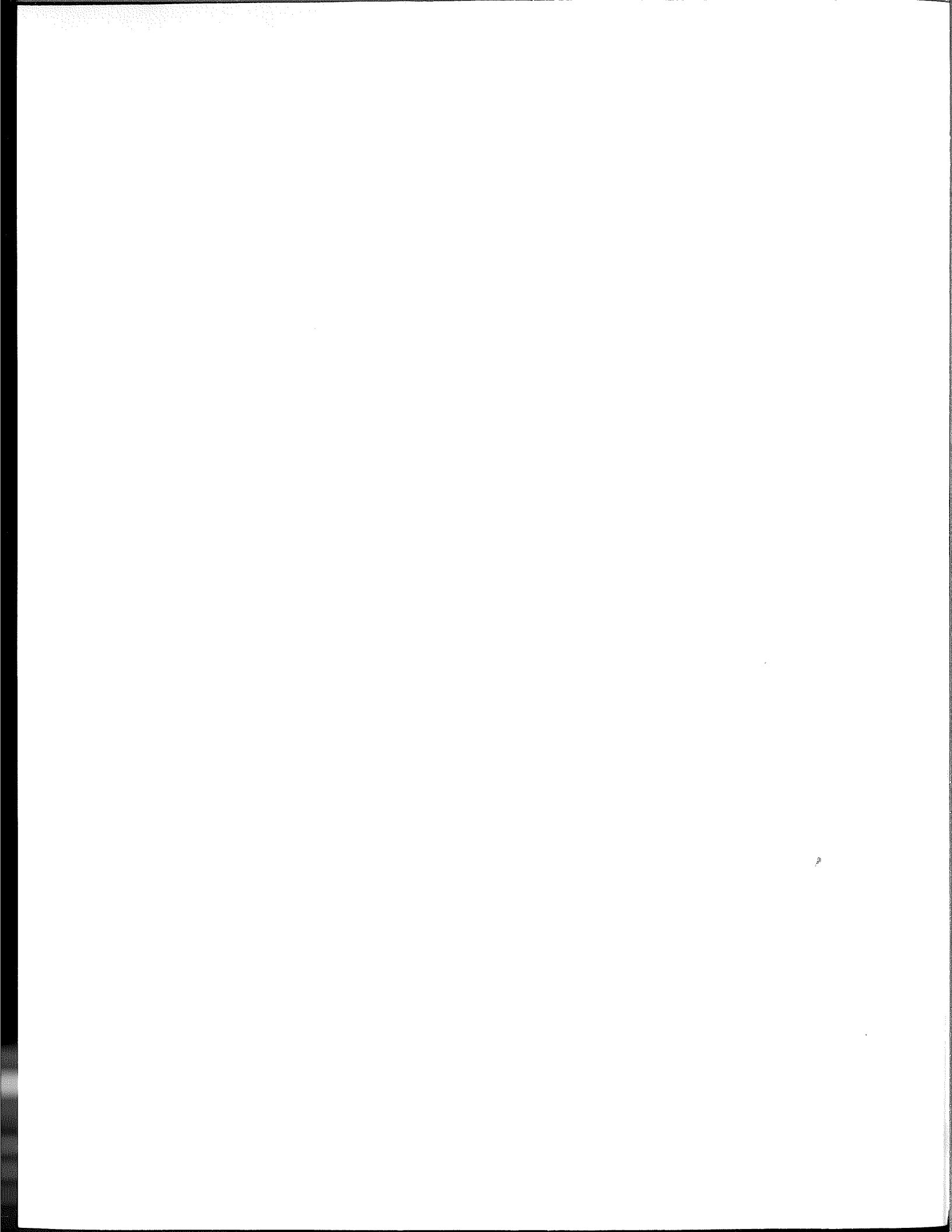
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SMOOTHSHOD - ROUGHSHOD

An Analysis of the Farriery and Other Horse Equipment from  
Two Historic Shoshoni Village Sites in Grass Valley, Nevada

Louis A. Payen



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#### INTRODUCTION

Among the array of non-aboriginal artifacts recovered during the Grass Valley Archaeological Project (Clewlow and Ambro 1972) are various items of horse-related equipment including wagon parts, harness hardware, saddle parts, farriers' tools and horseshoes. Ownership of horses by Shoshonis in the area is reported in newspaper accounts as early as the 1860's (Wells, this volume). The purpose of the present study is to examine this horse-related equipment from two Historic Shoshoni sites, Ridge Village North and Pottery Hill. The primary emphasis will be on an analysis of the horseshoes, with other equipment given a more general consideration. The potential informational value of such artifacts has been presented by the writer previously (Payen 1970); however, the analysis reported here is the first application to an archaeological sample.

#### HORSESHOES

##### Farriery and Archaeology

For the most part description and interpretation of horseshoes from archaeological sites has received minimal attention (Hume 1970:237-239). Interpretation rarely goes beyond the obvious, that is, evidence for horses (e.g. Fontana *et al.* 1962; Tuohy 1958). As archaeologists we are obligated to describe our finds and make every effort to reconstruct the original configuration, i. e., put the meat back on the bones or in the present study, the horses back on the shoes. Unlike prehistoric artifacts, horseshoes are part of the historic material culture linked to our own tradition; printed accounts, though fragmentary and scattered, are available, and the farriers' craft is still practiced. As Fontana (1968:175) has pointed out, the student of historic archaeology can learn firsthand the "intricacies of the types of horseshoes." We are then able to describe such artifacts in terms used by the farrier (emic) which allow us to interpret with reasonable confidence the observed (etic) attributes exhibited by these items in an archaeological sample.



## Function and Nomenclature, Basis for Classification

"No foot-no horse," this time honored adage among horsemen (Asmus and Williams 1927:1), provides the basic understanding of horseshoes as material culture items, i. e., the reason for, or function of shoeing horses. The horny casing of the foot, while quite sufficient to protect the extremity under natural conditions, wears away and will break when the animal is subjected to hard and extended work. The hoof will wear down faster than its normal growth; once this occurs the feet become tender and the animal will be unusable. Though the Ancients were impressed by this damage and attempted various foot coverings and sandals, the obviation of this problem, the practice of nailing an iron rim to the hoof, does not appear to have begun earlier than the 2nd century BC and was not commonly known until the close of the 5th century AD (Encyclopedia Britannica 1910:738; Hewitt 1972; Sparkes 1976). The horseshoe can then be viewed as a major technological advance in using animal power, second only to the initial domestication. Besides protection of the foot from wear, the shoe serves an important secondary function, that of increasing traction. Shoeing has led to modifying the horse and its uses by increasing manyfold the animal's ability to work, distance traveled, speed, terrain covered and endurance. Undoubtedly, this factor has been important in the development of the various breeds adapted to various requirements of work, war, sport and the like.

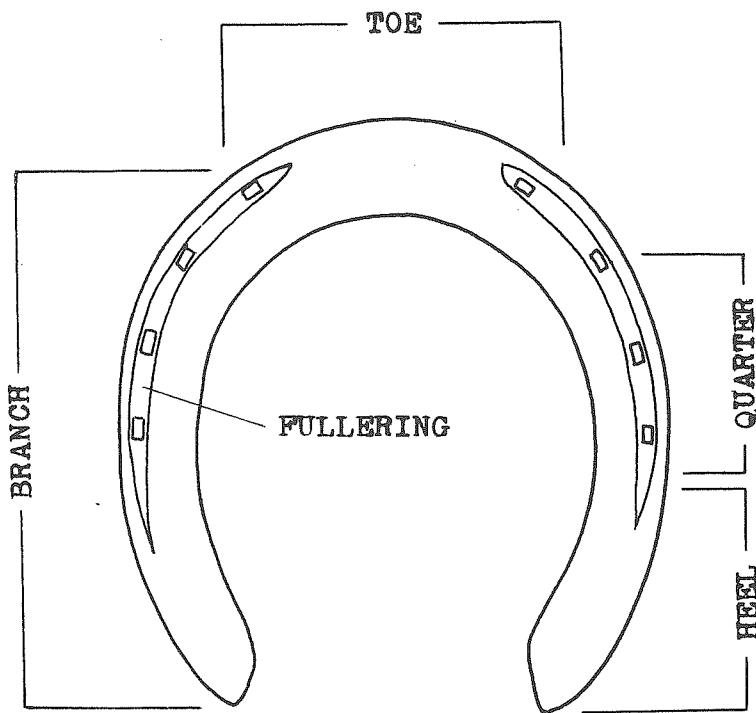
The primary value to archaeological interpretation lies in the fact that horseshoes are not merely a simple strip of iron nailed to the hoof, nor is one shoe necessarily the same as the next. The situation is somewhat more complex and entails a number of variables that can be described and understood in relation to specific purposes and requirements. To illustrate the complexity of variation in form, one needs only to mention that when machine made (standardized) horseshoes were introduced in the 19th century, one company offered 160 styles: (Mitchell 1971:56-57).

Due to marked differences in size between breeds, individual animals, and between front and hind feet, the attaching of a rim of iron to the hoof requires adjusting the shape and size. This basic variation in the form and size of the branches (Fig. 1), which are divided into the toe, quarter and heel, allows identification of the kind of animals our archaeological specimens have come from, be they ponies, draft, saddle horses or some other type of animal such as mules, donkeys or oxen. Further, the basic outline reveals on which foot the shoe was used. Front shoes show a broad, rounded form (Fig. 1a), while hind shoes are narrower and somewhat pointed at the toe (Fig. 1b).

Thickness, and thus the weight of the horseshoe, also exhibits some degree of variation. This variable derives from the fact the shoeing is actually a compromise between the lesser of two evils, the excessive wear damage that occurs without shoes, or shoes which are unnatural, thus unhealthy (Holmes 1949). The shoe must be thick enough to withstand at least four weeks of wear to be practical, yet thin enough that increased weight does not hinder the intended use of the animal. Weight reduces speed,

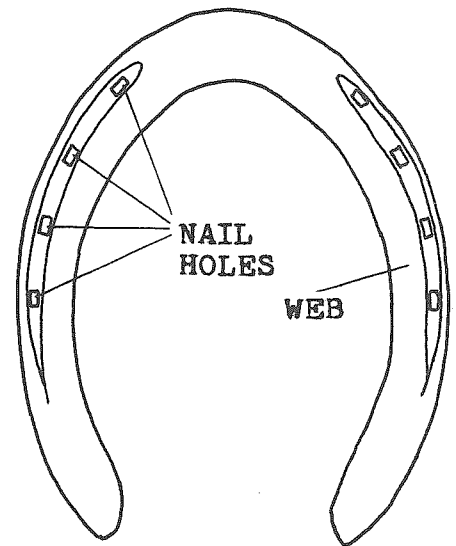
FIGURE 1

HORSESHOE NOMENCLATURE



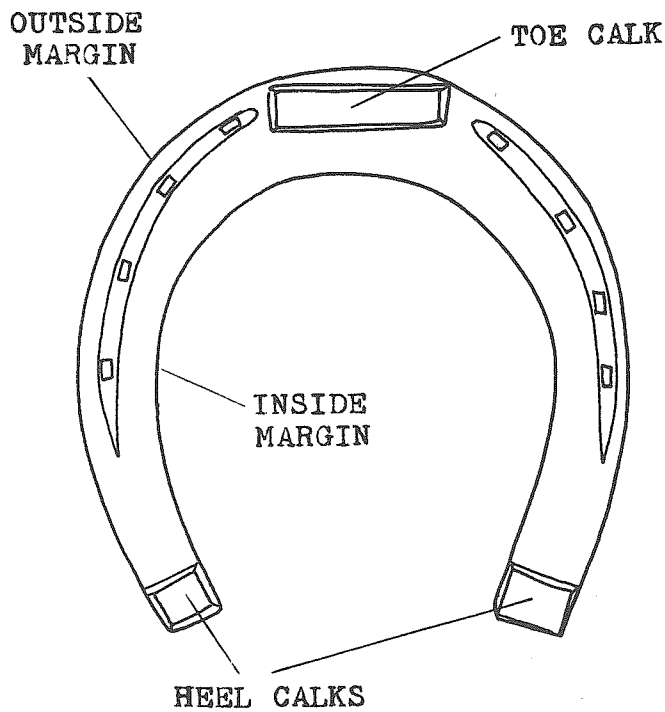
FRONT SHOE  
(Ground Surface View)

a



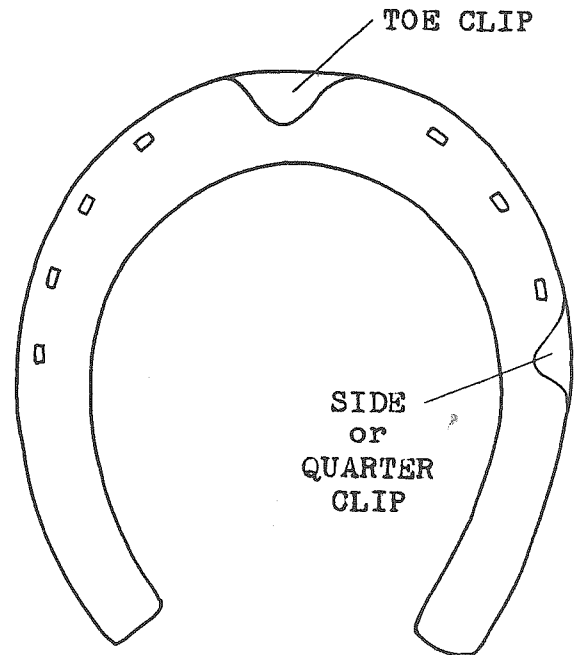
HIND SHOE  
(Ground Surface View)

b



(Ground Surface View)

c



(Hoof Surface View)

d

decreases agility, increases fatigue of the limb and can change gait, so the lightest shoe possible for the work to be done was usually desired.

Directly related to weight, and again a compromise, is the width or web of the metal strip or branches (Fig. 1b). The web is varied in relation to work requirements and terrain. Under normal conditions a medium web is adequate, about 3/4 of an inch wide. On soft ground and where speed is desired, a narrow web is employed. Wide webs are utilized where greater protection is necessary, such as on rocky surfaces; however, weight is increased, producing the negative effects mentioned above.

Along the outer side of the branches are located the nail holes, usually four to a side. These perforations can be a series of simple truncated holes punched from the ground surface side to receive the head of the horseshoe nail (see Adams 1962:254; Burris 1949) and are referred to as stamped. Or as more commonly found on American specimens, the holes are set along creases or grooves in which the nail head fits and are called fullering or swedging (Fig. 1a, 1b). Attachment may also be aided by a toe clip, a feature often added for use on rough and rocky ground to lessen the danger of the shoe being knocked loose.

If increased traction was required, the farrier would often add projections to the toe and heels. A bar across the toe is known as a toe calk or toe grab (Fig. 1c), and those on the heels, as heel calks (also referred to according to variations in form as jar corks, block heels or heel stickers). A horse so outfitted is referred to as roughshod, in contrast to the use of plain shoes, or smoothshod. If the calks are drawn to points or bevels for use on ice, the animal is said to be sharpshod. Rough or sharp shoeing is like shoeing in general, a calculated compromise or trade-off; these projections throw the feet off balance and add weight, but without these features efficiency and safety are reduced, allowing slipping on wet surfaces and steep grades or when pulling heavy loads.

The outer and inner edges of the branches are called the margins and can be modified for certain desired effects. A rounded margin curving up from the ground surface side of the toe forms what is known as a roller toe which facilitates the easy "break over" at the toe, i. e., to help prevent stumbling (Adams 1962:225). The outer margin is usually left straight; however, on certain large draft horses (beer wagon teams, etc.) a Scotch Bottom was used, i. e., a bevel outward from the hoof surface side was made to give the illusion of even greater size. Of more practical application was the snow margin, a bevel around the inner edge so that caked accumulation of snow or mud would fall out more easily from the hollow of the foot.

And finally, beyond these basic variations for the purposes of protection, the shoe may be modified to correct undesirable faults in gait and to treat certain pathologies. Both are accomplished through a variety of modifications in the branches, calks, weight and the like. A great number of these forms are illustrated by Asmus (1946). Such specialized shoes were primarily produced by rather skilled farriers and veterinarians and are not generally encountered in any appreciable number at most

sites. On the other hand, analysis of abnormal wear patterns can be quite informative in inferring the condition and general care of the animals in question.

### Temporal Significance

In the time period represented at most American sites, especially the "tin can period" settlements, the horseshoe provides little information for dating purposes. Certainly the evolution of the artifact has had a specific history, i. e., introduction of fullering, etc., but as Hume (1970:237-239) has pointed out, very little serious attention has been given to the problem and most "published guidelines unfortunately are not always valid." Sparkes (1976) recognizes five typologically distinct phases of horseshoe manufacture in England, spanning the period from Roman occupation to the 20th century. Certainly the most significant technological change introduced in the 19th century for which specific dates might be determined (patents, etc.) was the ready-made or machine manufactured horseshoes. However, blacksmith-made shoes also continued in use into the 20th century, especially in rural regions.

### Farriery at Ridge Village North

The larger of the two samples from Grass Valley comes from Ridge Village North; 19 horseshoes are represented in the 20 pieces collected. Condition varies from excellent to crumbling; rusted fragments, the latter having resulted either from extreme original wear or from post-depositional deterioration. Some attributes are no longer observable on the latter pieces. Six front and ten hind shoes can be identified. The size range indicates 17 shoes from saddle horses (about 700 - 1,000 pound animals), one from a light draft horse and two from a small pony.

Two general categories or shoe types can be identified in the Ridge Village sample, plain shoes and shoes with calking. The former group is the predominant form, 16 examples or 84%, and is characterized by smooth branches of medium web (13 examples) or narrow web (3 examples). Only three exhibit evidence of a toe clip. Snow margins are present on nine, while six have standard margins.

The second category, shoes with calking, is represented by only three examples. This group is characterized by heavy toe and heel calks; all three have toe clips, two have wide webs and one has a medium web. One draft horse is represented in this group and has somewhat thicker branches (Fig. 2f). Of interest are two specimens (#569, #591) in this lot which are tentatively identified as having been fashioned to military specifications, that is, a rolling toe and Army heels (cf. Asmus 1946: Figs. 121, 122); however, this observation will need further verification. Both appear to be from the same animal (Fig. 3a).

The general mode of farriery at Ridge Village North then can be described as smoothshod. Medium or even narrow webs and lack of toe clips suggest use on

TABLE 1

## ATTRIBUTES OF HORSESHOES FROM RIDGE VILLAGE NORTH

<u>SPECIMEN</u>	<u>ANIMAL SIZE</u>	<u>FOOT</u>	<u>WEB</u>	<u>TOE CALK</u>	<u>HEEL CALK</u>	<u>TOE CLIP</u>	<u>FULL-ERING</u>	<u>SNOW MARGIN</u>	<u>REMARKS</u>
94	Saddle horse	?	Narrow	?	?	?	?	?	Worn-out
108	Saddle horse	Hind	Wide	+	+	+	+	-	Minor toe dragging wear
116	Saddle horse	Hind(?)	Medium	?	-	?	+	+	Worn-out, extreme toe dragging wear
255	Saddle horse	Hind	Medium	-	-	-	+	+	Normal wear
257	Saddle horse	?	Medium	?	?	?	?	?	Worn-out
275	Saddle horse	Front(?)	Medium	-	-	-	?	+	Toe dragging wear
489	Saddle horse	?	Medium	+	?	-	?	?	Uneven wear, "Paddling to outside"
501	Saddle horse	?	Medium	?	+	?	?	?	Fragment of #489(?)
534	Saddle horse	Hind	Medium	-	-	-	?	+	Inside wear from sideways dragging
569	Saddle horse	Front	Medium	-	-	-	+	-	Normal wear
570	Saddle horse	Front	Medium	-	-	+	+	-	Toe dragging wear
591	Saddle horse	Front	Medium	-	-	-	+	-	Minor toe dragging wear
674	Small horse	Front	Medium	-	-	-	+	+	Toe dragging wear; worn-out
675	Small horse	Front	Medium	-	-	-	+	+	Toe dragging wear; outside wear; worn-out
705	Saddle horse	Hind	Narrow	-	-	-	?	-	Toe dragging wear; worn-out
706	Saddle horse	Hind	Medium	-	-	-	+	+	Normal wear; worn-out
768	Saddle horse	Hind	Medium	-	-	?	+	?	Toe dragging wear
781	Saddle horse	Hind	Medium	-	-	-	+	+	Normal wear
939	Light wagon horse	Hind	Wide	+	+	+	+	-	Some toe dragging
1766	Saddle Horse	Hind	Narrow	-	-	-	+	+	Normal wear

soil surfaces with little coarse rock. Coupled with the high frequency of snow margins, a winter use or possibly use on sticky mud (wet meadows?) may be suggested. The plain shoes are from saddle horse sized animals and give the impression of the type of farriery associated with "cow ponies" where reasonable speed and agility are desired and work is primarily confined to fields and meadow land. On the other hand, the three shoes with calking, i. e., roughshod, indicate need for increased traction; this coupled with wide webs on two suggest use on slippery, rough and/or steep surfaces or for pulling wagons. As pointed out above, one in this group is from a light draft horse.

As can be seen in Table 1, a number (12 or 63%) of the Ridge Village shoes exhibit abnormal wear patterns. This wear is characterized by one example of "padding" to the outside, a fault in gait (see Adams 1962:15-17), two examples of side wear, and ten with varying degrees of toe dragging. In the latter cases, this means the animal was either stumbling frequently or dragging the foot instead of lifting it off the ground. Toe dragging reflects unsound animals and was likely due to advanced age and/or a general "broken down" condition due to abuse, age or injury. The number of such animals reflected in the sample is quite high and leads one to suspect the inhabitants of the village were recipients of castoffs from the nearby ranch operations or, in one case, possibly from the Army.

In normal farriery practices the shoes are pulled and reset or replaced every six weeks or so due to the constant growth of the hoof. The Ridge Village horsemen appear to have neglected this practice in a number of cases; the shoes are worn very thin and several have either broken or have sections abraded away from being left on too long. There are also specimens present that are not badly worn and may well have been retained for further use. A certain amount of foot care and reshoeing are suggested by the presence of a pair of hoof nippers, a rasp for dressing down hooves and a makeshift forge formed from a metal barrel (Ambro 1972:92-93). A "Northwest" brand horseshoe nail (#498) was also present in the collection.

### Farriery at Pottery Hill

The sample of horseshoes from Pottery Hill is somewhat smaller, 11 specimens representing four front and seven hind shoes. Post-depositional preservation is generally good, but use wear on several has removed certain attributes. Saddle horse sized animals are represented and can be divided into plain and calked shoes. Unlike Ridge Village, rough shoes are in the majority; nine examples have calks, while only two are smooth. Six have toe clips still present, eight have medium webs and two have wide webs. All have straight margins. One specimen (73-1-188f) appears to have thick or swell heels and rolling toe as used in the Army (see Asmus 1946:20, figures 116, 117). As with the two previously mentioned shoes suspected of being made to cavalry design, final determination must await access to additional comparative material.

Six shoes exhibit normal wear patterns and five have varying degrees of wear due to toe dragging. Several are worn out indicating retention on the foot too long. One

shoe appears to be a corrective type, being made with a very thick and wide web to add weight and thick heels (Fig. 2c). The weight would suggest an effort to encourage the animal to lift the foot, a similar effect to that of weighted shoes used on high stepping show horses like pacers and Hackney ponies. Thick heels of this type, according to Holmes (1949:173-176), are used in the treatment of Navicular disease, an inflammatory condition of the navicular bone and tendons of the foot. This condition is mainly found in the lighter breeds and apparently is an inherited pathological tendency. This insidious disease is said to show improvement upon rest but reappears when the horse is put back into action for any length of time. In other words, the signs of the condition are intermittent (Adams 1962:173-181). Could it be possible that the inhabitants of Pottery Hill were the victims of the proverbial horse trader? With rest and corrective shoeing the animal would have appeared sound. Toe dragging wear on the shoe indicates the condition persisted!

Constrasting with Ridge Village North, Pottery Hill horses were roughshod and employed toe clips indicating need for increased traction and attachment. Use on slippery, uneven ground or possibly for pulling light wagons may be inferred. The instances of unsound animals is high, but probably somewhat less than at Ridge Village, i. e., 40% compared to 63% of the specimens exhibiting excessive wear (see Table 2).

## HORSE EQUIPMENT

In addition to horseshoes, various other horse-related artifacts are represented in the collections made at the two Grass Valley village sites. These items fall into three categories, tack, horse drawn vehicle parts and horse drawn agricultural machine parts.

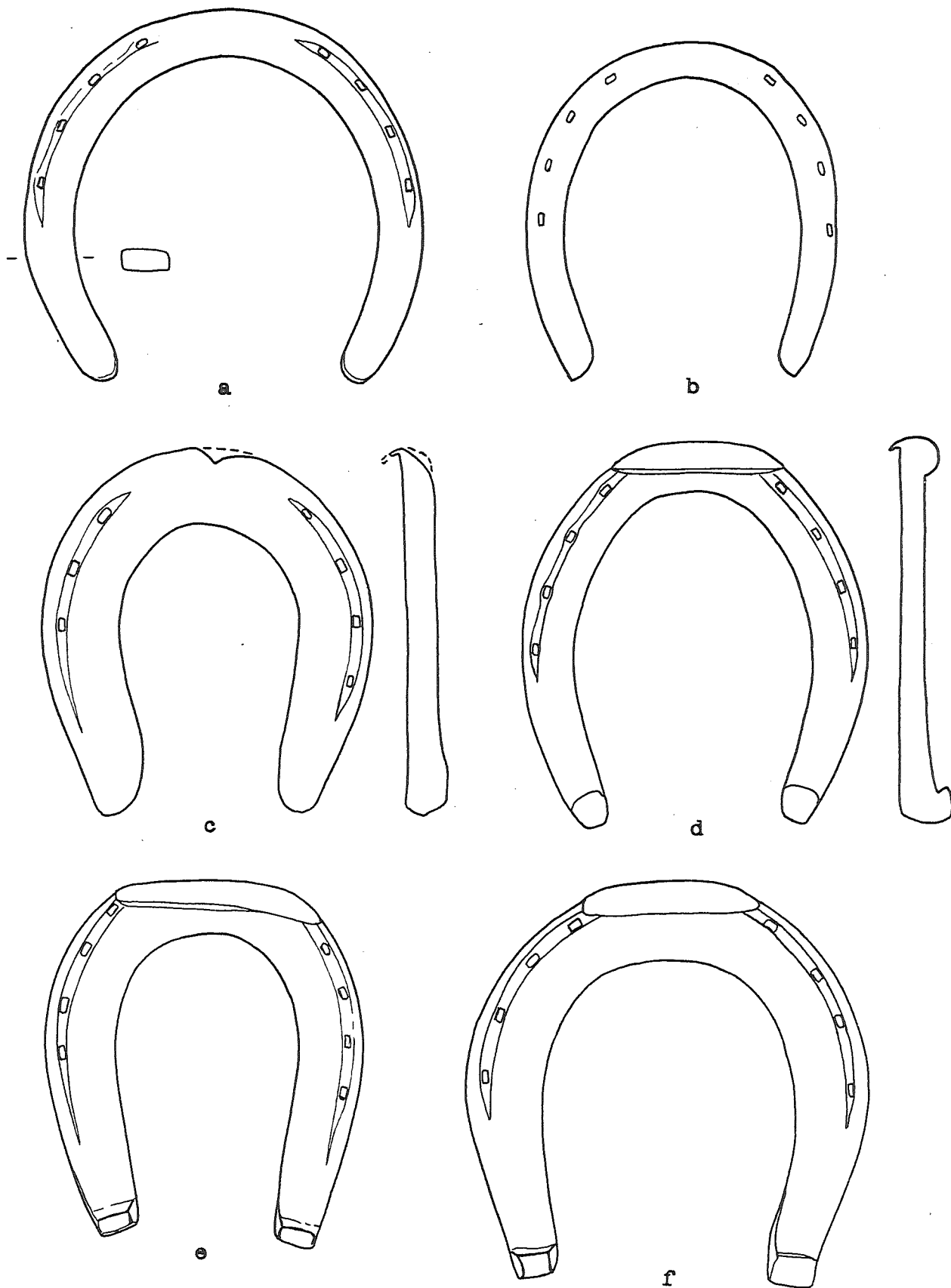
### Ridge Village North

By far the greater number and variety of horse equipment come from Ridge Village North, 44 catalogued specimens. The bulk of the material represents various items of tack such as fragments of harness and bridle leather, harness hardware such as buckles and rings (Figs. 4, 5) as well as a saddle. Six fragmentary wagon parts and three pieces from agricultural equipment make up the remainder of the collection. A listing of these specimens is given in Table 3.

### Pottery Hill

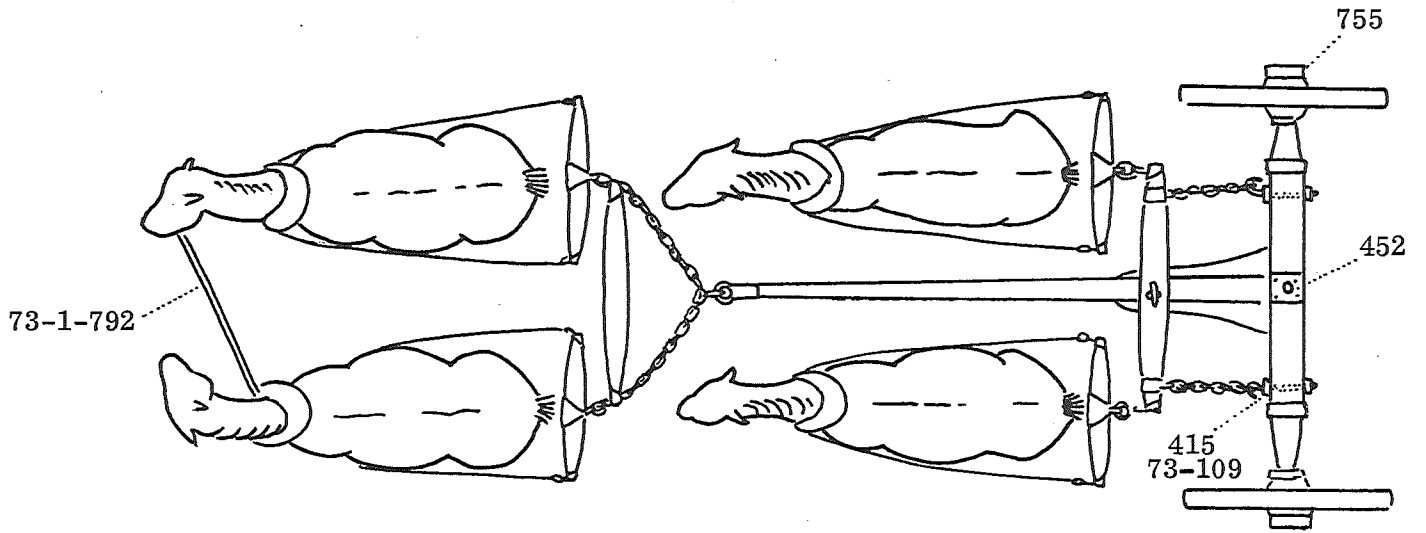
Only two horse-related items can be identified from the Pottery Hill site. Specimen 73-109 represents a stay chain hook from a light wagon (Fig. 4). It exhibits a blacksmith weld at the junction of the thin and thick metal. The second item is a fragmentary "Jockey Stick," an iron rod and chain affair used to connect the hame ring

FIGURE 2

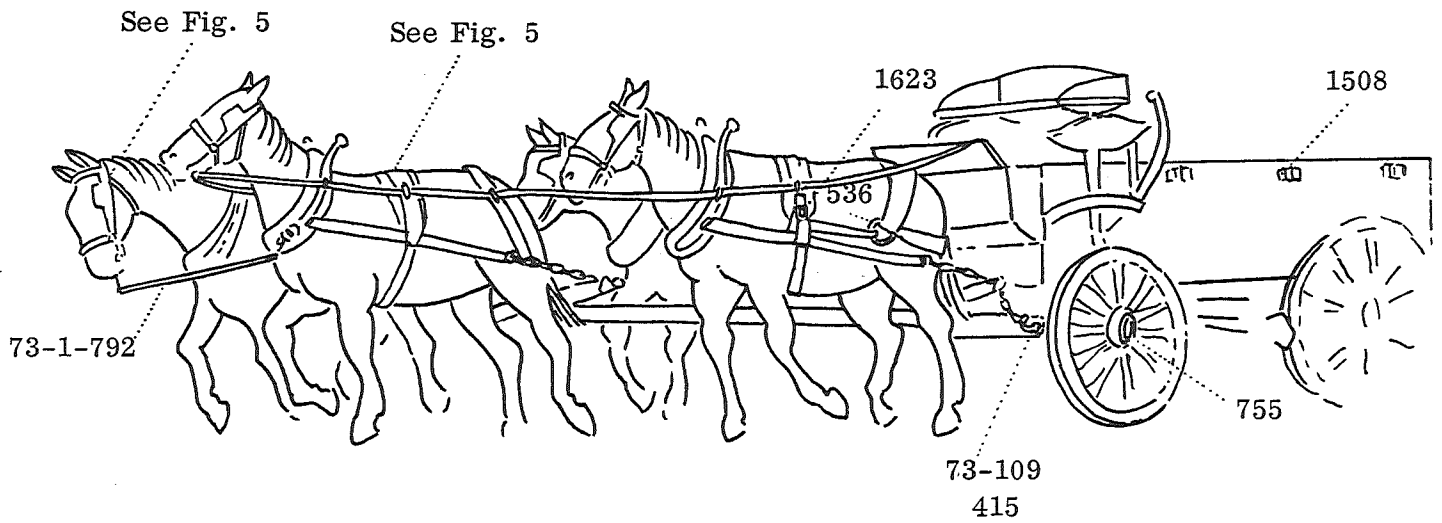


0 10 Cm.  
0 4 In.





TOP VIEW



SIDE VIEW

FIGURE 4: Harness, bridle and wagon parts identified from Grass Valley village sites. (Numbers refer to specimens listed in Table 3 or text).

TABLE 3

## HORSE EQUIPMENT FROM RIDGE VILLAGE NORTH

<u>Catalog No.</u>	<u>Item</u>	<u>Figure</u>
TACK: LEATHER		
275	Harness leather	5
278	Harness leather	5
494	Unknown leather object, possibly unfinished head stall ornament	-
495	Head stall leather from bridle	5
497	see 494	-
499	Head stall leather from bridle	5
505	Head stall leather from bridle	5
766	Harness leather (3 fragments)	5
931	Throat latch of head stall of bridle (2 fragments)	5
1493	Strap from bridle, hole present from rivet having pulled out	5
1500	Head stall leather from bridle	5
1505	Harness (?) leather	5
1618	Harness (?) leather and copper rivets	5
1665	see 494	-
1824	Burnt harness leather and rivets	5
1949	Head stall leather from bridle	5
1952	Leather string to join two pieces of leather	-
1953	see 494	-
TACK: HARDWARE		
536	Harness ring	4, 5
568	Head stall buckle	5
927	Chain chin strap from bridle (?)	-
929	Snap for combination leather and rope halter	-
1112	Cinch or girth ring	-
1521	Copper rivet for leather	5
1623	Harness buckle	4, 5
1948	Halter ring	-
1956	Harness buckle	5

on the "leader" or "near line" horse across to the chin strap of the "off" horse in a "jerk line" outfitted team (Figs. 4, 5; also see Eggenhofer 1961:50; Shumway, et al. 1966:Fig. 50).

The presence of both vehicle parts and certain items of tack, in particular harness parts, indicates the use of wagons as part of the horse activity pattern at Ridge Village North and Pottery Hill. Undoubtedly, the use of light wagons would have been an important factor in the transportation and economic pursuits of the villagers. Remains of a riding saddle, as well as a cinch ring, at Ridge Village North further support the observation suggested by the farriery that at least some of the animals were utilized for riding, possibly in connection with ranch operations. The several parts from horse drawn farm machinery involved in the production of hay are to be noted as well at Ridge Village North.

#### SUMMARY

Analysis of the horse-related artifacts reported here has thrown light on one aspect of the Historic Shoshoni cultural assemblage at two Grass Valley sites. From the farriery, inferences can be drawn as to the kinds, uses, sources, care and condition of the animals present at each village. Further clues and support indicating the use of these horses are provided by the various other items of equipment. As with any such archaeological effort, only a fragmentary picture can be drawn; however, this data, when combined with other aspects of the archaeological and historical record, should provide a reasonable reconstruction of Shoshoni acculturation. There can be little doubt the horse was a profound new element in the lives of these peoples as it was among many American Indians.

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A SECOND CLAY ANIMAL FIGURE FROM GRASS VALLEY, NEVADA:  
IMPLICATIONS FOR THE DISTRIBUTION AND INTERPRETATION OF  
GREAT BASIN FIGURINES

Richard D. Ambro

A SECOND CLAY ANIMAL FIGURE FROM GRASS VALLEY, NEVADA:  
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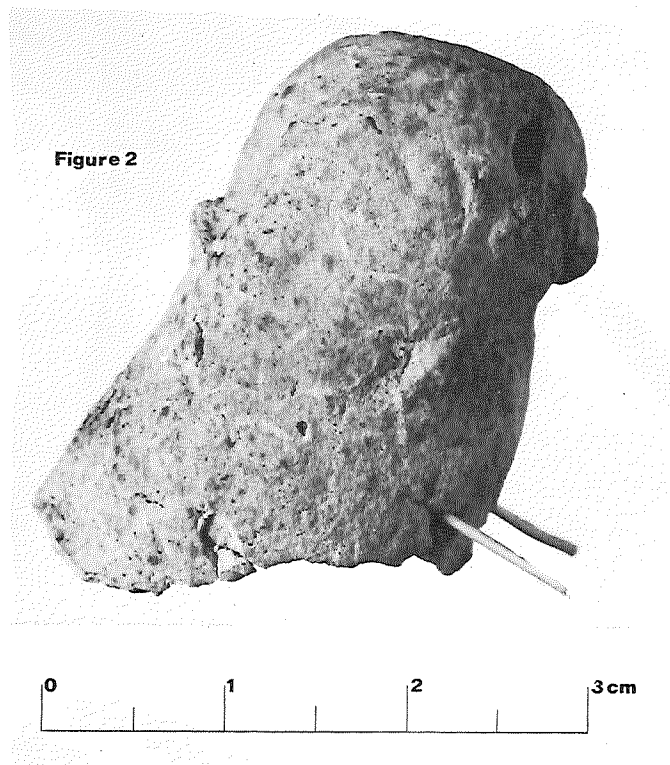
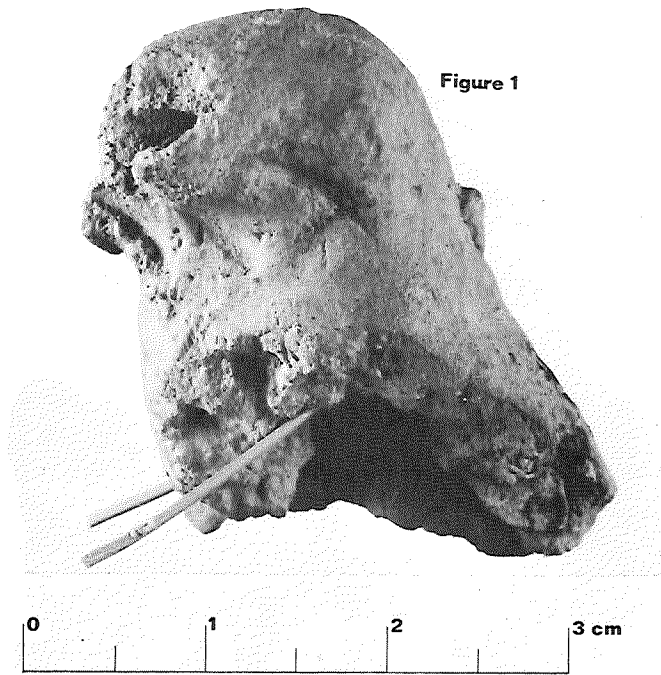
Richard D. Ambro

INTRODUCTION

During the summer of 1969, the author, C. William Clewlow, Jr. and Allen G. Pastron conducted the first season of a long-term field project of archaeological survey and excavation in Grass Valley northeast of Austin, Lander County, Nevada. Ridge Village North, one of two Historic period Shoshoni habitation sites located on a low gravel ridge in the southern part of the valley, was extensively surveyed, gridded for surface collection of data and artifacts and partially excavated (Ambro 1972). House No. 2, one of the structures partially excavated, proved to be a large wind-break of willow poles with a hearth in the center of the depression. Excavation of this hearth produced calcined mammal bones and a fragment of a clay animal figurine that was dubbed the "Grass Valley Owl" although this identification is not entirely certain. Previously a similar fragment, the "Grass Valley Horse," was collected from another hearth at Ridge Village North by the owner of Grass Valley Ranch, Mrs. Molly Knudtsen (Magee 1966).

DESCRIPTION OF FIGURINE

The new figurine is crudely modeled and poorly fired, but does bear a striking resemblance to an owl. Viewed as such, the figurine stands 3.0 cm high in its fragmentary state, 1.9 cm wide at the shoulders and 3.5 cm from the beak to the remnant of the tail in back. The head and most of the body are intact with only the lowermost portion of the body, the tail and a part of the left wing missing. Careful excavation and screening of the contents of the hearth failed to recover any other fragments of fired clay. The paste is light tan or buff in color with no fire clouding or reduced core present. The surface exhibits a homogeneous and fine texture while the piece's crumbly interior contains coarse (0.1-0.8 cm) natural inclusions, irregular in shape, chert-like and gray in color, that occur in most of the observed clay deposits in the valley. Although these coarse components are well submerged, their presence accounts for some of the surface irregularities and striations.



numbers, of which two owe their preservation to being discarded into hearths. This interpretation is supported by ethnographic data which suggest that unfired figurines or effigies (animals and human) were common and had a distribution throughout the entire area of the Great Basin.

#### ETHNOGRAPHIC DATA ON CLAY FIGURINES

Some of Steward's informants indicated that unfired "dolls" and effigies were made by the northern, southern and easternmost Shoshoni groups (Steward 1941:294; 1943:310, 334, 375). Apparently none of his informants from the Austin area were asked about such effigies, as no response whatsoever is recorded in his trait list (Steward 1941:295). However, Magee (1966:205) records that female Shoshoni servants from Crescent Valley to the north of Grass Valley modeled toys in mud (presumably unfired) for Grass Valley Ranch children in the early 20th century. In short, although not all Shoshoni informants recalled such figures or responded positively to the question, those who did indicated that unfired figures of animals and humans were made throughout the area of Shoshoni speech.

Ute and Southern Paiute (Stewart 1942:273) and Northern Paiute informants (Steward 1941:301; Hopkins 1883:57; Riddell 1960:54, 79) almost unanimously agree in recalling the making of unfired clay or mud dolls, figures, animals or "effigies." Whether the terms "doll" and "effigy" in the Cultural Element Distributions refer only to human representations or include animal figures is not clear. The only known illustrations are the human and horse figures (see Fig. 6) published by Steward (1943:375). These are simply modeled as are the Grass Valley figures with no elaborate detail, and general lack of punctuation or applique decoration or paint. Limbs are either hinted at by short protuberances or, in the case of the horse, the use of straws inserted into the moist clay. Whether all the ethnographic examples were as simple and unadorned is unknown. What seems clear is that during the Historic-Ethnographic period and into the 20th century, human and animal figures were made and used unfired with a minimum of detail or decoration in the Great Basin.

All sources clearly agree that such figures were made for, and often by, children as toys and for no other purpose. Suggestions that similar figurines served magical or shamanistic purposes (Hunt 1960:225; Wallace 1965:436) are not supported by the ethnographic data or the archaeological contexts of similar figures for the Great Basin (Elsasser 1961). Sarah Winnemucca recorded, "The Indian children amuse themselves a great deal by modelling in mud. They make herds of animals which are modeled exceedingly well, and after setting them up, shoot at them with their bows and arrows" (Hopkins 1883:57). Spier records that the Northern Paiute neighbors of the Klamath made clay figurines representing horses and other animals, corrals, etc. (1930:89). Riddell published even more detailed information for the Honey Lake Paiute:



Kitty's sister and sister's friend made mud dolls and models of kitchen stoves in mud. The dolls and stoves were quite well made, for the stove had circles for the stove lids and the dolls showed action. They played house with these toys and the women dolls would be using the mud stoves. The dolls would be arranged to represent domestic activities. . . . (Riddell 1960:79).

Northern Paiute mud toys in the Historic period were apparently both common and of great variety and the same was almost certainly true for other groups including the Shoshoni living in Grass Valley. They were spontaneously and quickly made and played with by children of both sexes and probably as quickly broken or discarded to disappear with the next rain. It is not surprising that only two have survived in Grass Valley and these due apparently to unintentional firing in hearths.

#### COMPARATIVE ARCHAEOLOGICAL DATA FROM THE GREAT BASIN

The ethnographic distribution and frequency of clay figurines undoubtedly reflect a similar prehistoric distribution and therefore recent children continued an ancient tradition enriched with the addition of horses and other European-derived items. However, in light of their casual manufacture and use, it is not surprising that archaeological evidence for their ethnographic use and the prehistoric tradition is sparse. With the exception of the Grass Valley examples, Layton's finds of slightly fired clay fragments in northwestern Nevada (1970a:105-108; 1970b:25) that are late Historic in date and one possible example from the Humboldt Valley, the overwhelming majority of Great Basin fired and unfired figures and miniatures come from the eastern and western peripheries of the area (Davis 1959).

Danger Cave and Hogup Cave in western Utah produced a number of unfired and undecorated objects that closely parallel those made in Historic times. There is a crude, probably human torso from Danger Cave, as well as a cylindrical form with an animal's head, two cylindrical fragments modeled around sticks that may be limb fragments, and possible miniature vessels (Jennings 1957:207-208, Fig. 188b-i). All are assigned to Danger V in date. Hogup Cave yielded six fragments of conical forms completely lacking decoration or features but which are probably human effigies. These were recovered from the three uppermost strata of the deposit dated to ca. AD 1350-1850 (Aikens 1970:30, 32). Aikens suspects that Danger Cave's deposits lumped into Danger V (2000 BC - AD 400) in fact included an unrecognized overlying later deposit which he would call Danger VI (AD 400-1850) (Aikens 1970:197-198). Thus, the Danger Cave effigies might come from the last deposit and be roughly contemporary with the Hogup Cave examples and either "Fremont" or protohistoric Shoshonean in cultural affiliation. A fragment of a possible unfired human figurine was found at the Scott site in southeastern Nevada, apparently as a surface find (Fowler, Madsen and Hattori 1973:70). The site had a primary occupation by Western Fremont peoples and a later Shoshonean

222), Coast Miwok (Heizer and Beardsley 1943:204), and some of the southern California Yuman speakers (Drucker 1941:109; Shipek 1970:34-35) all made unfired dolls or figures. The same may be said of archaeological evidence which occurs over a much greater area. Comparison of the archaeological figurine and miniature assemblages from surrounding areas to those of the Great Basin and speculations as to their relationships and origins are beyond the scope of this brief discussion; such questions have already been debated at length in great detail by others. It has been traditionally suggested that the figurine traditions of the Great Basin, Fremont area and California were derived via diffusion and/or intrusion for the Southwest (Heizer 1937; Heizer and Beardsley 1943; Davis 1959; Wallace 1965; Hunt 1960; Morss 1954). In the case of human figurines, especially those that are highly standardized, consistently fired or elaborately sculpted or decorated (California and Fremont traditions), these appear to be valid speculations. However, the simple, unfired toys of the Great Basin that appear as human forms, animals or miniature vessels should be considered in light of ethnographic data as objects that were made by or for children drawing upon items and behavior in their environment. The miniature baskets or vessels of Death Valley, Danger Cave, the Fremont areas and Basketmaker sites of the Southwest, while strikingly similar at times, may reflect nothing more profound than the similar material culture and the presence of children who made toys and played in imitation of adult behavior. The Grass Valley animals, although difficult to identify as to what part of what animal is represented, serve to remind us that the Shoshoni had children, too, who laughed and played among the sagebrush and who made and left charming toys, some of which survive to perplex the archaeologist.

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A THREE-SIDED STRUCTURE FROM GRASS VALLEY,  
LANDER COUNTY, NEVADA

Kurt Wallof

# A THREE-SIDED STRUCTURE FROM GRASS VALLEY, LANDER COUNTY, NEVADA

Kurt Wallof

## INTRODUCTION

During the field seasons of 1972 and 1974, part of the Grass Valley Archaeological Project effort focused on a peculiar three-sided structure in the Dead Pile Village. This structure was first described and drawn by Ambro and Wallof in their preliminary report on Historic Shoshoni structure types in Grass Valley (1972:115, 116, 123). This paper will deal with the excavation and interpretation of this three-sided structure's remains which have been labelled "Dead Pile Village Structure No. 6," hereafter referred to as "the structure."

## STRUCTURE DESCRIPTION AND EXCAVATION METHODS

The structure was recognized on the ground surface of the site by three straight, narrow ridges and a trench on the outer edge of these ridges. A line of four juniper post stumps exists about one meter inside of the southern ridge. The surface had a scatter of wire, cans, a metal washer, a piece of metal banding and an unidentified metal object (see Figure 1).

A 12 by 12 meter square, oriented north-south, east-west, was superimposed on the structural remains and the remains were photographed. This 12 by 12 meter square was then divided into four quadrants. The vegetation was cleared and each quadrant was mapped, noting the location of the surface features (ridges and trenches); the artifacts were plotted on the maps and then collected. A one meter wide trench was laid out, extending one-half meter on each side of the row of post stumps through the ridge on the western side. Excavation was begun at the southeast end of the trench by trowelling and screening the dirt removed through 1/4 inch mesh screens.

The floor was identified as a slightly packed layer directly below the loose upper silt layer. Another one meter wide trench was laid out perpendicular to the first, cutting through both the northern and southern ridges of the structure. The purpose of these trenches was, first, to try to define the limits of the structure, and second, to locate any large subsurface features. When this was completed, the entire structure was excavated down to the floor, saving all historic and prehistoric artifacts.

The loose silt layer, which must have been deposited after the abandonment of

the structure, contained a number of items of Caucasian and aboriginal manufacture: 14 pieces of wire, 3 square nails, 1 horseshoe nail, 3 chalcedony flakes and a wood chip. The wire may have been used in the structure's construction, but all these items can be accounted for as typical village scatter which would accumulate through time after the abandonment of the structure, (see Figure 2).

A number of items were uncovered on the structure's floor and at the original ground level. The three ridges were the remains of wall construction material, consisting of willow poles, smaller willow branches, grasses and juniper bark. No construction material was encountered in the interior of the structure. It is possible that some type of roof and roof supports were used and possibly removed at the time of or prior to abandonment. Construction material is shown in Figure 3.

Three post "ghosts" were encountered in the northern half of the structure; they roughly correspond to the post remains in the southern half. They were noted by soft, silt-filled holes surrounded by a harder more compacted floor (maximum diameter 26 cm, minimum diameter 19 cm, maximum depth 41 cm, minimum depth 36 cm). These posts may have been removed after abandonment for other construction or firewood.

The remaining artifacts uncovered on the floor included nuts and bolts, wagon parts, gun parts, Chinese pottery, a child's leather moccasin, a cache of five 45-70 caliber rifle shells and a gold plated wedding band. The locations of all these artifacts are shown in Figure 4, and a complete list accompanies it. Figure 5 shows a sample of the same material.

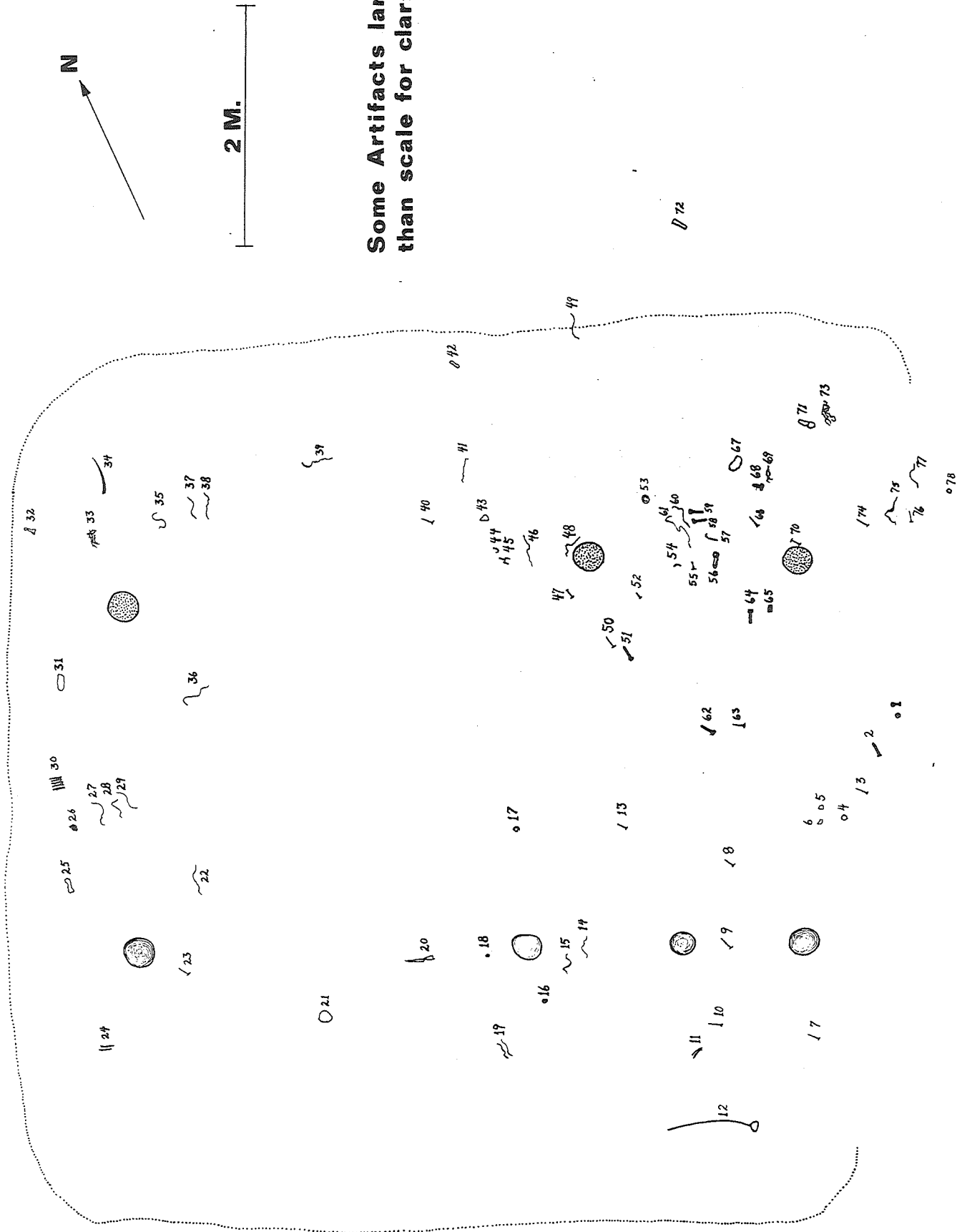
The majority of artifacts found on the floor suggest that the structure was used as a workshop and/or storage area. The presence of wagon parts and the size of the structure support the analogy to a present-day garage. The bones may be the remains of meals eaten within the structure, or they may have been discarded there during or after the structure's use, along with such items as broken glass and the metate fragment. The child's moccasin may also have been discarded or lost there, or perhaps it was taken to the area to be repaired. The gold plated wedding band was probably lost there.

#### SUGGESTED RECONSTRUCTION

From the remains encountered in the excavation it appears that the structure was either an open, three-sided windbreak or, if covered, a sunshade used as a residence, a storage structure or a workshop, similar in function to the small cabin reported by Richard Ambro in 1972 (1972:92). Its use could be compared to that of some modern-day garages. Whether it was a single family structure or was utilized by more than one family is impossible to say for certain; however, its large size and its lack of direct association with any other specific structure both suggest that it was used by more than one household.



Figure 3: Wall Construction Remains



Some Artifacts larger than scale for clarity.

Figure 4  
Floor Artifact Locations



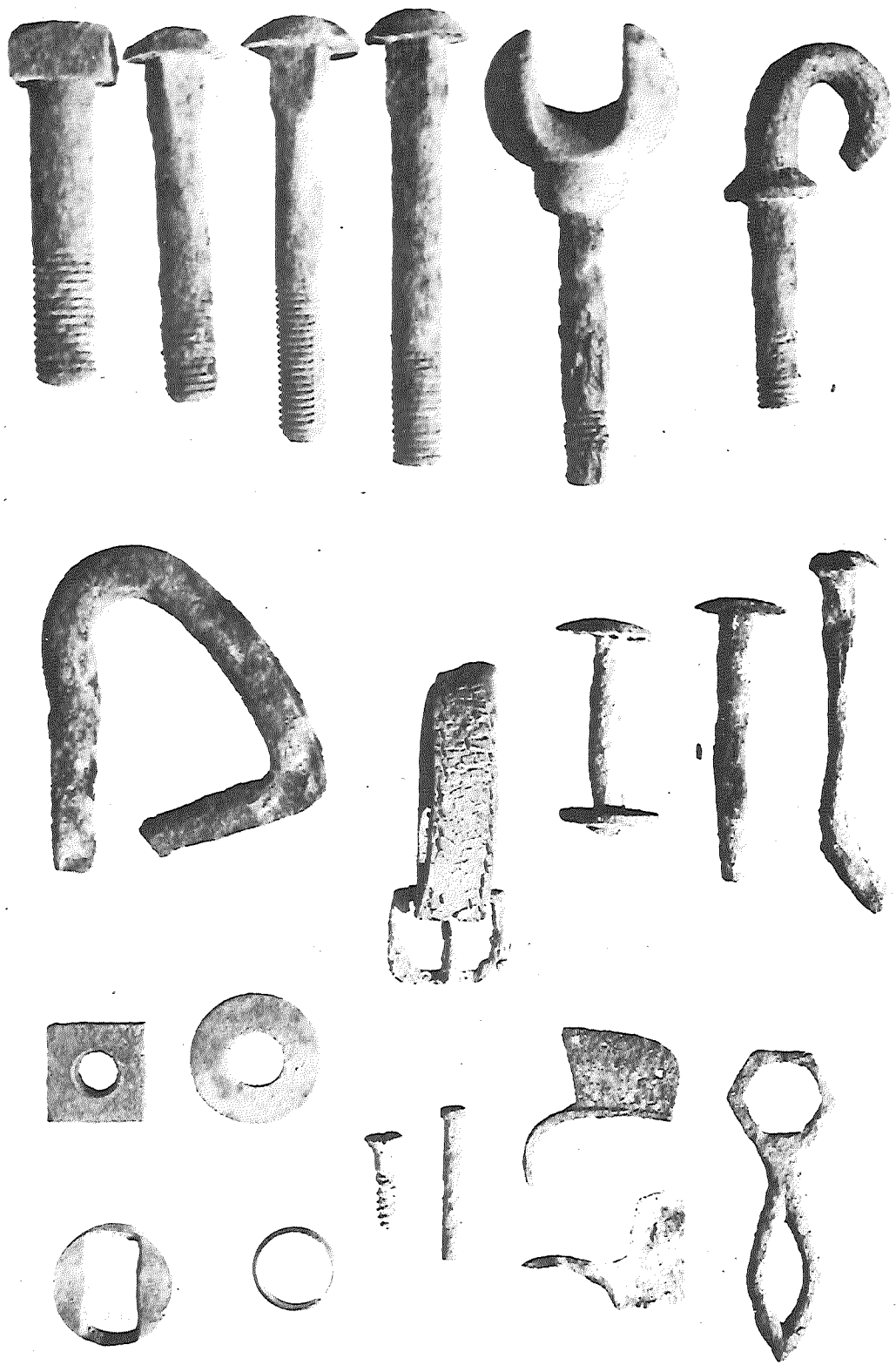


Figure 5

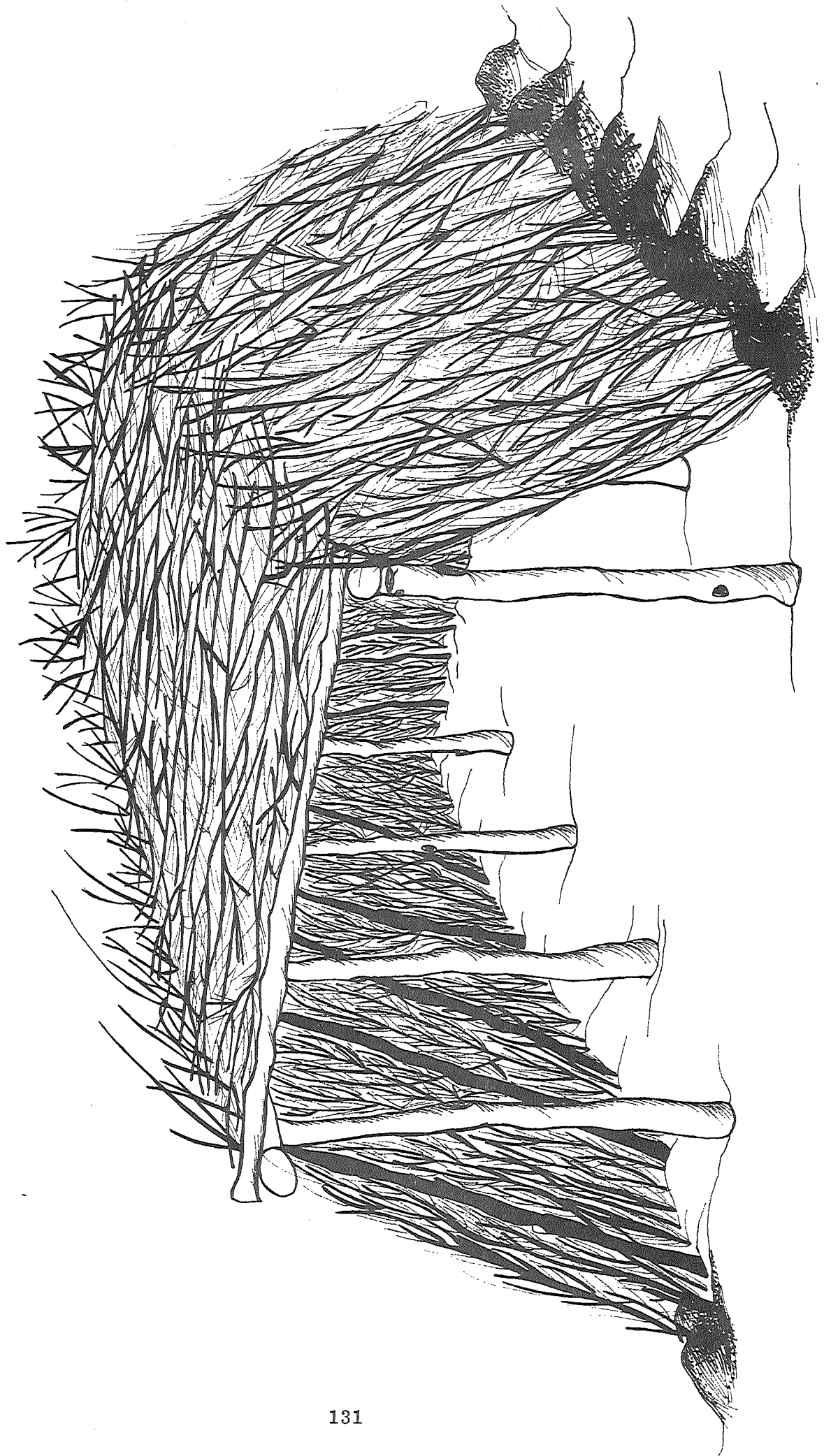


Figure 6 An Idea of Reconstruction

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ANOTHER EARTHENWARE VESSEL FROM GRASS VALLEY, NEVADA

Stephen Lee Deatrick

## ANOTHER EARTHENWARE VESSEL FROM GRASS VALLEY, NEVADA

Stephen Lee Deatrick

Pottery bearing sites are numerous in central Nevada, but there is little published information on them. Coale's (1963) general study of Shoshonean pottery includes no examples from this area. Pottery sites from Grass Valley and adjacent areas have been previously reported (Magee 1964, 1967; Thomas and Bettinger 1976: 345-346), and one partially reconstructed vessel has been described (Magee 1964). A second partially reconstructed vessel is reported here.

### DESCRIPTION OF VESSEL

Of 76 sherds recovered, 56 could be reassembled into two large pieces, both including sections of the rim. These add up to some one-third of the circumference of the pot at around 10 cm below the rim and some one-sixth of the rim itself, and supply 12 cm of the vertical profile of the pot. From these data it appears that the inner diameter of the lip was 28 cm; projecting the vertical curvature and assuming a round bottom gives a depth of about 23-25 cm and a capacity of around ten liters. The base might have been pointed, as in Southern Paiute vessels (Baldwin 1950), in which case the depth and capacity would be still greater; a flat bottom seems unlikely. No bottom sherds were recovered.

Construction: Coiling and scraping

Firing atmosphere: Probably uncontrolled; weakly oxidizing

Core color: Black

Temper: Medium, quartz sand and mica ("decomposed granite")

Carbon streak: None

Core texture: Medium

Fracture: Sharp, perpendicular to surface; broken edges often heavily eroded.

Surface finish: Scraped smooth, somewhat smoother inside than out, with horizontal striations and drag marks (where too vigorous scraping produced a roughened surface) inside and out

Luster: Dull

Surface color: Medium brown to dark gray brown outside; dark gray brown to black inside. Much of inside surface offers no contrast to the black core

Form, size, base: See above.

Thickness: A uniform 9 mm

Rim: Rounded, thickened and markedly outcurving (120° - 130° angle, rounded to carinate inside)

screened through a 1/4" mesh screen. Most of the smaller sherds and flakes were recovered by screening and thus not mapped. The first unit was taken down 10 cm, in an area of abundant rock; fire-cracked rock was found down to 10 cm and the deposit is probably deeper, but most of the cultural material came from the top 5 cm. Since time was very short, the other units were taken down only 5 cm. The surface for one meter around the excavated square was raked through, yielding only one sherd, and the entire area was carefully examined for sherds without result; still it is likely that extending and deepening the excavation will produce more sherds. Magee (1964:97) recovered sherds to a depth of 15 cm, and it may be that many of the "surface scatters" on the Skull Creek alluvial fan are similarly deep.

Within the excavation, an area approximately one meter across yielded some 150 pieces of fire-cracked rock, and the fill in this area was rich in flecks of charcoal. However, no actual charcoal concentration or hearth depression was found, and no burned bone; it is possible that a hearth may be located in the adjacent unexcavated area. Among the fire-cracked fragments were pieces from two manos. Found elsewhere in the three-by-three meter square was another mano fragment, pieces of five bifacially worked knives, a piece of a large basalt chopper, and most of the metacarpal of an unidentified ungulate with probable butchering cuts. Many flakes, mostly of chalcedony and chert, were recovered, but will not be treated further in this paper. Given its presence in a probable food preparation area, this vessel is likely to have been a cooking pot.

#### CONCLUSIONS

A vessel this large would have made an awkward burden and it is worth speculating whether large pots may have been cached at regularly visited sites (cf. King 1976; Clewlow and Pastron, this volume). If so, pottery might be useful in determining whether a site had been occupied once or repeatedly. Any research along these lines would be hampered, however, by the general paucity of published information on pottery in central Nevada. The 43 pottery bearing sites known to Magee in 1967 (p. 226) have been added to since; nonetheless, a worker who undertook to map, profile, illustrate and describe every rim sherd known from central Nevada would probably have no more than 50 rims to deal with. Such a general synthesis, though necessarily descriptive and void of paradigms, is badly needed and long overdue. If the pottery of this area is to provide any information on late prehistoric chronology, subsistence patterns or population movements, its characteristics and range of variation must be placed on record--hence this brief contribution.

AN EARLY BASALT SITE LOCATED IN AN  
HISTORIC SHOSHONI VILLAGE

Susan M. Hector

## AN EARLY BASALT SITE LOCATED IN AN HISTORIC SHOSHONI VILLAGE

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### INTRODUCTION

The 1975 field season in Grass Valley was aimed at two objectives: (1) a thorough surface collection of Grass Valley Tom's Village to determine whether the distribution of housepits by status as seen in Dead Pile Village (Hector n.d.) was applicable to any other Grass Valley historic sites; and (2) the further excavation of Big Spring Rock Shelter to investigate possible additional deposits in front of the shelter.

The unusual concentration of basalt artifacts at Grass Valley Tom's Village is the subject of this study. It is postulated that there were three separate occupations of Grass Valley in the area of the historic villages and that the earliest remains were left by a people who utilized basalt in preference to other lithic materials and inhabited the valley floor thousands of years before the acculturating Shoshoni. Comparisons between this site and others containing basalt, the study of surface artifact distribution at the site, and a projectile point typology are used to demonstrate the antiquity of Grass Valley Tom's Village.

### PHYSICAL DESCRIPTION OF THE AREA

The present study focuses on the extreme south end of the valley where the Grass Valley Ranch and associated historic Indian sites are located. Skull Creek and Callaghan Creek run past the ranch through these areas of historic occupation by Indians. These year-round water sources sink into the ground north of the ranch, promoting the growth of naturally luxuriant grass which permitted the establishment of cattle ranching in the valley. The south end of Grass Valley is dominated by 10,187-foot Mount Callaghan which even in the midst of summer protects a bit of winter snow in a cirque.

The geology of Grass Valley provided ample resources for aboriginal utilization. Mount Callaghan is composed primarily of quartzite. Chert outcrops appear on the east side of the valley; most notable is Rocky Point, an outcrop behind Grass Valley Ranch, approximately one-half mile from the historic villages. Rocky Point was explored during initial investigations at Grass Valley, and a number of projectile points and other evidence for aboriginal use of the area were found by Richard Cowan and others. Andesite flows and breccias and chert formations continue up the northeast



collected, Dead Pile Village and Ridge Village North. Dead Pile Village was surface collected in 1973 and hearths and housepits were excavated in 1974. The methodology used for the surface collection of Dead Pile Village was to collect artifacts around each of the numerous housepits, but areas between housepits were not investigated. When the material was examined, it was found that even though conclusions could be made about definite areas utilized in specific ways by distinct classes of historic Shoshoni, the sample was too unreliable to make general statements about the nature of acculturation in Grass Valley (Hector n.d.).

A previous collection at Ridge Valley North (Ambro 1972) employing a different method was more satisfactory. The entire area was divided into grids ten meters square; everything was picked up and mapped on grid sheets. The analysis of this material concentrated on spectacular house remains and usage areas in the Ridge Village area. As a complete collection was made, it was possible to study the distribution of artifacts throughout the surface of the site. Grass Valley Tom's Village was collected using the same methods that Ambro used at Ridge Village North, i.e., a total inventory of the area was made.

Molly Knudtsen gave us a tour of the village on our arrival, showing where she had picked up various showy historical artifacts (including a commemorative Queen Victoria lozenge box) and the locations of the housepits known to her. We had decided that the housepit locations would define our collection area; however, since we discovered that these were spread thinly over almost a square mile of ranch land, our strategy had to be revised. It was decided that we would collect the area of most concentrated habitation and simply map outlying housepits.

The entire area was divided into ten-meter square units ordered into quadrants labeled NW, NE, SW and SE for the cardinal directions. Each collector was in charge of one north-south transect in a quadrant in an attempt to achieve complete collection of every unit. Each collector was equipped with a paper bag into which the material was to be put, and a clipboard with a stack of sheets. On these sheets was a facsimile of the unit, a block divided into squares representing the unit divided into one meter increments. The collector was then to mark with a dot or appropriate sketch each item collected; the dots were numbered by the collector with a corresponding explanation given on an attached page. It was decided to plot large accumulations of the same type item with a lot number (e.g., 170 glass fragments in a 10 cm area could be drawn in with an encompassing circle and labeled #116). Thus, when all the grid sheets were collected and taped together, a map was constructed which showed the exact distribution of wood, metal, glass and stone artifacts.

Although the site was mapped, no housepits were tested. One historic garbage pit was excavated and one absolute date was derived from it. In the garbage pile was found a 1929 Wyoming license plate. It was established that this was an historic Shoshoni dump since it contained cans and glass of the type found in the remainder of the village as well as certain animal bones, a bobcat (Lynx rufus) phalanx for one (Rosen, this volume), used by the historic Shoshoni as food resources. Grass Valley Tom



To present this hypothesis, several factors must be examined. First, what does this concentrated area of basalt tool manufacture mean in relation to the scheme of Great Basin aboriginal habitation? How does this basalt-using occupation in the area relate to historic Shoshoni occupation of the site? Do projectile point types present at Grass Valley Tom's Village tend to support the hypothesis, or is this a relevant question given the possible multiple, separate occupations of the area?

## THE OCCURRENCE OF BASALT

A number of observations can be made on the kinds of lithic materials used for tool manufacture at Grass Valley Tom's Village. Table 1 indicates the quantity and distribution of artifacts manufactured of various lithic materials.

The quadrant figures are irrelevant beyond indicating general loci of lithic material concentrations. The southwest quadrant of the site was the largest and thus yielded the corresponding larger amount of lithic material.

It appeared to some students that the breakage and fracture planes occurring on pieces collected at Grass Valley Tom's Village were possibly caused by natural (cattle herding and wash action breakage) rather than man-made factors, and that the material occurred naturally in the area, washed down from an outcrop. Examination of the material suggests otherwise. Despite the presence of some large, unworked blank pieces, most basalt remains were marked with scars characteristic of the human hand. The herding of cattle over the land, even for one hundred years, could not imitate the flaking done by man. Tringham *et al.* (1974) discuss the wear on surface flakes, man-made vs. natural (or cattle hoof-made in the case of Grass Valley Tom's Village). They state that stamping on lithic material, or the wear and fracture of water, does not produce even, short non-random scars on stone like the deliberate work of man. The supposition that the area was indeed a basalt workshop seems well founded.

As previously noted, the nearest recorded basalt locality is about 20 miles north of Grass Valley Tom's Village. If the occupants exploited a quarry 20 miles distant, we would not expect to find such a large quantity of primary flakes and core material. Some of the material appears non-utilized. It seems obvious that an uncharted, probably small, basalt source lies somewhere near Grass Valley Tom's Village; we believe it is northwest of the ranch, in a series of scarp hills.

Several studies have been made of sites with a predominance of basalt tools. Comparison of Grass Valley Tom's Village with a number of these sites may shed light on the significance of the lithic scatter under discussion. Sites exhibiting similar flaked tool material include the Coleman Locality (Tuohy 1970) and the Cocanour site (Stanley, Page and Shutler 1970) in the western Great Basin of central Nevada; 26-Pe-5 in Pershing County, northwestern Nevada (Elsasser 1958); the Panamint

"Biface Series"....16. Frequent proximity to sources of water now dry or reduced" (Davis *et al.* 1969:22). The presence of ovate bifaces is stressed for the Western Lithic Co-tradition. Incomplete analysis of all Grass Valley Tom's Village lithic materials precludes data on the exact nature of basalt tools besides projectile points; however, from preliminary scanning it seems that large bifaces far outnumber projectile points or any other tool types apart from utilized flakes.

The San Dieguito type site along coastal San Diego County, California, is the most distant and culturally different from Grass Valley Tom's Village. This site exhibits strong stratigraphic associations, with several cultures represented. Estimates for an age on the San Dieguito material range from 8,000 to 11,000 years ago (Warren and True 1961:261). This culture seems to be more closely related to Lake Mojave and southeastern California cultures than to Great Basin cultures, but the exclusive presence of basalt tools suggests connections to Great Basin sites of similar antiquity.

Several prominent differences are seen between these sites and Grass Valley Tom's Village. Grass Valley Tom's Village has no midden deposit; all cultural material is on the surface, making any distinction between possible early lithic material and later artifactual remains impossible. The San Dieguito type site exhibits deep midden with explicit stratigraphy; Panamint Valley sites, despite a lack of real midden, provided organic material from which radiocarbon dates could be derived. Other sites contained obsidian for hydration data. No such dating techniques were possible at Grass Valley Tom's Village.

Ancient use of Grass Valley Tom's Village by basalt-utilizing peoples apparently was not connected with the playa lake occurring in the north end of Grass Valley. Most early sites are connected with an extinct water source but the Grass Valley Tom's Village basalt-associated occupation was non-lacustrine. Grasses were probably more widespread in Grass Valley before white occupation of the area; the grazing of cattle has greatly reduced native vegetation. The streams in the area would have provided ample moisture for human use and would have attracted animal life to the area.

High altitude desert areas have different ecosystems than typical low altitude Great Basin deserts. Like the climatic history of the Sierra Nevada, the climatic history of Grass Valley was distinctive and isolated from the major Great Basin trends. The playa lake in Grass Valley was probably dry by the time man arrived in the area, sometime in the regional late Altithermal period; no sites were found around the lake in a 1974 survey.

Culturally stratified dry cave sites in the Great Basin cannot provide guides as to possible chronologies relevant to Grass Valley Tom's Village. The range of material which occurs at the Village is limited in comparison to that found at sites like Lovelock Cave (Grosscup 1960; Loud and Harrington 1929), Eastgate Cave (Elsasser and Prince 1961), Southfork Shelter (Heizer, Baumhoff and Clewlow 1968), and Wagon Jack Shelter (Heizer and Baumhoff 1957), all in the same geographical area. Loud

(2) The strong localization of basalt at Grass Valley Tom's Village. The concentration of basalt artifacts in the Grass Valley Tom's Village locale is exclusive; no basalt remains in this clustered quantity were found in any other historic villages. Similar historic as well as middle period/rock shelter occupation materials appear widespread over the area. But the basalt agglomeration at Grass Valley Tom's Village suggests a workshop area, selected time and time again by a small group, the only group in the area.

Heizer and Elsasser (1953) discuss the trade of obsidian and state that prior to AD 1, obsidian was only used in areas where it was naturally available. The obsidian in Grass Valley Tom's Village is probably from the middle period culture at Grass Valley, as obsidian was not available to the early inhabitants. Early inhabitants of Grass Valley were not Shoshoni peoples, as these came into being as identifiable groups ca. AD 1000 (Hester 1973:127).

#### PROJECTILE POINT TYPOLOGY OF GRASS VALLEY TOM'S VILLAGE

Thirty-nine recognizable projectile points were found at Grass Valley Tom's Village, but most are fragmentary and for some only basal portions remain. Tips possibly belonging to projectile points were not included in this total because they are not as simply placed into categories by recognized methods. The typology of projectile points at the site is presented with caution; the errors in applying another area's stratigraphic relative dates to one's own material are recognized. However, it is only through compilation of data from all resources that these typologies can be refined. The recognizable projectile points from Grass Valley Tom's Village were placed in the typology proposed by Hester and Heizer (1973) and expanded by Hester (1973). No hard and fast dates can be applied to these types; each type's "flourit" (Hester 1973) spans and overlaps periods of time allotted to other types. The points were checked against Thomas's (1971:121) simple key to the typing of Great Basin points. The key as proposed by Thomas held for these points, broadening the 8,000 point sample he used to formulate the key. The lack of complete points made exact adherence to Thomas's measurements impossible; basal fragments appeared to uphold the types as presented. Projectile points are listed in Table 2.

Projectile point types are grouped into early and middle ranges, denoting as early the basalt-using complex of Grass Valley occupation, and middle the hunting, valley floor use. Those points labeled Grass Valley Tom's Village are large, crude, weakly stemmed points conforming to no accepted Great Basin typologies. Grass Valley Tom's Lozenge are small elliptical points. Both of these I have assumed to be early as they are of basalt and are crude in manufacture. The one fluted fragment that was found was of basalt, but small. It is obvious that various core materials were used; basalt was preferred earlier but it continued to be a viable resource for points during later occupations. This observation strengthens the idea that basalt was locally available, because higher grades of material would have been available through

trade during later occupations.

Although projectile points were the only lithic tools analyzed for this study, we may generalize about the nature of the implements present as they relate to other assemblages from similar sites. Large basalt tools dominate the assemblage. Leaf-shaped bifaces and scrapers seem to be the most numerous types (see Davis's description of the San Dieguito type site above). Several drills of basalt were observed. Finer materials such as chert and chalcedony were used mainly for small ovate bifaces. One area of intensive rhyolite use was observed, characterized by the presence of many flakes apparently from the same core. This workshop comprised most of the rhyolite figure given for the northwest quadrant in the lithic material table.

The projectile point types at Grass Valley Tom's Village represent early and middle occupation of the valley. The Historic period Shoshoni conducted limited hunting activities, such as communal rabbit drives, but not in the area of the historic villages (Rosen, this volume). The number of projectile point types present at Grass Valley Tom's Village shows a long span of occupation and utilization in the area, perhaps a continuum, but more likely not. The Grass Valley Tom's and Grass Valley Tom's Lozenge types are unique, but their number, crudeness and material suggest inclusion in an early typologic group.

## CONCLUSIONS

It is evident from Table 1, showing the distribution of lithic material, that the basalt component of the site is not associated with historic occupation. There would be no reason for acculturating Shoshoni Indians to use this great amount of basalt. On the same surfaces, chert and chalcedony lithic debris and middle period projectile points from a later valley hunting people, who also inhabited the nearby rock shelters seasonally, are found. These people also made use of the locally available basalt, but not to the extent of the earlier occupants of the valley floor.

Basalt has been established through studies mentioned above as an early occupation material for tool manufacture. The meaning of "early" is unclear and has been labeled in many ways by scholars in the field. In this study, "early" occupation means year-round habitation by a pre-Shoshoni Indian group. I do not claim any remarkable antiquity for the site, yet three distinct uses of this specific area have occurred. Heizer and Elsasser (1953:22) mention that most sites are only occupied by one group due to a fear or superstition of spirits living in deserted settlements held by many Indians. This fear was not operative at Grass Valley Tom's Village; the evidence of past Indian use was so alien to the Indians subsequently using the area that there was no superstition regarding the place. This may indicate extreme cultural differences; hunters during the middle period would regard the crude basalt remains as the acculturating Shoshoni might see chert and chalcedony points, as items out of place and relation to their lives. This site is unique in possessing these three cultural phases

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ETHNOARCHAEOLOGY AND ACCULTURATION  
IN GRASS VALLEY

C. William Clewlow, Jr.  
and

Allen G. Pastron

## ETHNOARCHAEOLOGY AND ACCULTURATION IN GRASS VALLEY

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### INTRODUCTION

In many ethnoarchaeological studies, the emphasis is on how and why refuse, features and assorted junk move around on an archaeological site. These are valuable data, with obvious methodological applications. For many readers, however, such works fall short of a generalized "study of man." It is worth pointing out, therefore, that such studies have broad implications when considered within larger conceptual frameworks. At Grass Valley, where we have a rich supply of archaeological, ethnographic and historical source material to integrate, ethnoarchaeological observations are particularly helpful. For the Historic period especially, the primary use of ethnoarchaeological data has been in studies of the process of acculturation. Ethnoarchaeological insights have been most useful in bringing into focus the so called "rules" of acculturation in action, as evidenced by the occurrence and patterning of Historic period refuse. It occurs to us that this perspective may be useful if pushed back further in time, for, in many respects, if we consider migration, trade, the necessities of the seasonal round, etc., prehistoric man in Grass Valley may be seen as always, or often, having been in a state of acculturation. Ethnoarchaeology, if utilized properly, can provide a way of seeing the social situation of prehistoric contact as reflected in the melange of the material cultural record. Although its main use at present is in dealing with Historic period data, we predict an enhanced use of ethnoarchaeological information in future work for dealing with the prehistoric past.

Since 1969, an ongoing part of the authors' research in central Nevada has centered on a number of exceptionally well-preserved Historic period sites in Grass Valley, Lander County, near Austin (Clewlow and Ambro 1972). Each season, with preliminary analysis of the data, the Historic period appears more complex archaeologically in terms of chronological subdivisions, the various adaptational changes on the part of local populations, and the eventual acculturation results (Ambro, Clewlow and Pastron 1970; Clewlow 1973). When the archaeological data is coupled with ethnographic and historical source material (cf. Wells, this volume), the problems multiply, and a neat "fit" is even more difficult to achieve. Some of the problems encountered in Grass Valley may be universal to Historic period archaeological research (cf. Oswalt 1973:3; n. d.), and will certainly be encountered by other workers in the Great Basin.

data and our own intuition, we felt that the larger Historic villages could be segregated chronologically, at least as to date of abandonment (Clewlow and Pastron 1972). This has, in fact, proved difficult to accomplish archaeologically. Thus, on strictly archaeological grounds, one could make the argument that all the houses were occupied more or less simultaneously during the Historic period. Again on standard methodological procedures, it could be argued that this represents the remains of a patrilocal society (cf. Ember 1973) of over 300 persons (cf. Naroll 1962). This is contrary to common sense as well as historical data for the period which clearly indicates a relatively small population (no more than 60) of the Shoshonis in Grass Valley (Reese River Reveille 4-22-1873). Ethnoarchaeological data may shed light on these conflicting trends of evidence.

The most common pattern of residence among the Tarahumara exploits both the mountain and the canyon environments which are found within their territory. The majority of the Indians spend the months between April and November in the Sierra engaged in the joint economic pursuits of agriculture and animal husbandry. During this time, the most common dwellings are log cabins, usually located adjacent to an individual's cornfield. In late November, after all of the crops have been harvested, the Indians, in order to avoid the bracing cold and snow which makes life difficult for both man and his domestic animals, migrate to the warmer canyons for the winter, where each family generally owns one or more caves (Bennett and Zingg 1935:79).

The Tarahumara never had a pattern of concentrated settlements, preferring instead to inhabit isolated and scattered "ranchos" throughout their territory (Bennett and Zingg 1935:83). To this day, they have resisted all efforts of the Mexican authorities to organize them into centralized villages. Today, the Tarahumara reside within the ejido system. An ejido (an administrative division similar to one of our counties) contains a central pueblo where a church and/or a community meeting place are located. During the course of the year, the isolated Tarahumara assemble at the pueblo to attend religious ceremonies or to conduct community business. The focus of everyday Tarahumara life is not the pueblo, however, but the rancho. In the ejido of Samachique, where the present data were gathered, the pueblo is surrounded by some 65 ranchos, each inhabited by from two to eight family groups and located anywhere from one to 15 kilometers distance from the pueblo of Samachique.

It would be very difficult for a future archaeologist to make an accurate estimate of present day Tarahumara population based on only physical traces, unless he understood the Tarahumara practice of multiple residence. Among the Indians, it is extremely common for an individual to own several cornfields located on various ranchos throughout the ejido. In such cases, an individual is likely to own one or two dwellings at the location of an agricultural field, in addition to a cave in the canyon region of the Sierra Madre, in the ejido of Samachique. It is the rule rather than the exception for an adult Tarahumara to possess in excess of one dwelling within the geographic boundaries of the ejido. In the ejido of Samachique, there are approximately 1,000 individuals organized into approximately 150-165 family units. There are, within the same geographical area, between 400 and 450 inhabitable dwellings of wood or stone (we have defined a dwelling as habitable if it has been occupied within the past three years). Within the ejido, there are

The grinding stones or manos have a much briefer life span. Depending upon the amount of use it is given, a mano will last anywhere from six months to a year and a half. As in Grass Valley, manos outnumber metates. As a rule, it was observed that a household contained three serviceable manos for every functioning metate. Manos, quickly and easily made from an abundant source of raw material, are almost never transported from one place to another either.

These observations suggest a possible explanation for the large numbers of metates and manos which are found in the Grass Valley Historic villages. The number of these implements may reflect the number of houses and number of women per house, rather than the degree of reliance on seed plant foods. If this is the case, the increase in the number of grinding stones per site in the Historic period may be the result of an increase in population, and possibly a pattern of multiple structure ownership, as well.

#### FAUNAL REMAINS

Faunal remains are present in Historic period sites in Grass Valley, but not in the abundance that one would expect. Both historic accounts (Wells, this volume) and ranch records indicate that a variety of game was available during that time; the same historic accounts confirm the archaeological evidence of Indian ownership of guns and ammunition. Nevertheless, the faunal remains in the villages indicate that the Shoshonis did not generally hunt animals larger than the jackrabbit (Rosen, this volume). It has been suggested that domestic beef from the ranch replaced large game in the Indians' diet, but according to both ranch records and the faunal evidence, the Shoshonis' regular beef supply was limited to lower leg bones (Ambro 1972; Rosen, this volume). Larger portions of beef may have been distributed to local Indians on such occasions as Fourth of July celebrations (Wells, this volume), but there is no archaeological evidence of this custom in the Grass Valley villages. Since earlier sites contain many species of faunal remains, it is probable that some particular change in the cultural pattern of refuse disposal could account for the lack of deer and other large animal bones during the Historic period. For example, in Alaska, at Crow Village, Oswalt and Van Stone found "that animal bones were thrown into the river to prevent the dogs from chewing them. It was thought that for dogs to chew bone would offend the spirit of the animal involved and, as a consequence, the species would be difficult if not impossible to take in the future" (1967:70). As there is no river present, such cannot be the case for Grass Valley. Yet we hazard a guess that a similarly direct cultural explanation based on ethnographic observation will account for the Grass Valley evidence.

There is an increasing interest among archaeologists in the various cultural and natural processes which contribute to the formation of archaeological deposits (cf. Schiffer 1976). The ethnographer is in an advantageous position to provide archaeologists with data on the disposal of refuse in traditional societies and on some of the post-depositional processes which affect its distribution and preservation (cf. Crader 1974; Yellen 1977). Observations on the disposal of animal bone among the Tarahumara suggest the use of caution in interpreting faunal remains from archaeological sites. Like most

occur in the sagebrush flats and well-watered stream-side localities where seed-bearing plants are in abundance. This is contrary to the evidence from the neighboring Reese River Valley, where nearly all pottery sites occur in the pinyon-juniper life zone (Thomas 1970), as they do in sizable areas of eastern Nevada (Fowler 1968). Many of the pottery sites recorded in Grass Valley are "one vessel" sites, where the single vessel represented was broken or discarded individually at a "use locality" which was not necessarily a habitation site (see Deatrick, this volume). If reliable quantitative data on vessel breakage frequency in a gathering society were available, we could make fuller use of Grass Valley ceramic data in formulating population estimates. Insights into why and how pottery was used would also help us explain why pottery was so quickly replaced by European-type containers during the Historic period. Our evidence now indicates that the chipped stone and ceramic technologies were the first aboriginal technical components to be replaced by Euroamerican counterparts. Exactly how and why this happened is part of the ongoing inquiry into acculturation at Grass Valley.

Pottery, like ground stone, provides a fertile area for inquiry of an "ethno-archaeological" nature. In the ejido of Samachique, virtually all adult women retain the knowledge and practice of fashioning their own pottery. Most Tarahumara households contain anywhere from six to ten functioning pots of various sizes and designed for basically three different functions: (1) The largest pots, employed as containers for tesguino, the homemade corn beer that is all important to Tarahumara culture (see Kennedy 1963); (2) Intermediately sized pots, used as either water jars or for cooking; (3) A special elliptically shaped pot, employed exclusively for popping corn. The average tesguino pot may be expected to last for between three and five years. The smaller cooking pots as well as the elliptically shaped corn parching pots have a much shorter lifespan, usually no longer than two years. Due to the rate at which pots break, a Tarahumara woman will of necessity replace between 1/4 and 1/3 of her functioning pots annually. Although occasionally transported from one location to another, most women have a few pots stored at all of their residences to be used when their families have use for them. As a result of this practice, a woman will generally own more pots than she will ever have use for at any one time. Pastron (1974) discusses ceramic lifespans in Tarahumara culture. Some of this information may be useful in correlating ceramic remains with population size and distribution in Grass Valley, and may bear on other questions related to ceramic technology in the Great Basin.

## CONCLUSIONS

Because we are dealing with the archaeological evidence of an acculturation situation, the interpretational problems in Grass Valley are exceptionally complex. The use of ethnoarchaeological data here, as elsewhere, serves primarily a cautionary function, underlining the complexity of the problems and the fallacies inherent in archaeological inference. Given the archaeological evidence alone, one would infer a larger population, a greater dependence on seed plants and a lesser dependence on meat for both the Grass Valley Shoshoni and the Tarahumara than are indicated by the ethnographic and historic records. Ethnoarchaeological data collected among the Tarahumara may help resolve some of the contradictions which have emerged from a consideration of archaeological, ethnographic and historic data in Grass Valley.

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