

# Lake Le Conte Pottery and Southern California Archaeology

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## Abstract

Nearly 60 years ago members of the Archaeological Survey Association of Southern California (ASA) collected 2,958 rim sherds from the shoreline of Lake Le Conte (aka Lake Cahuilla). Subsequently, these potsherds formed the basis of a comprehensive ceramic typology, defining the most frequently reported kinds of pottery of this region. Correlations between paste composition, sherd type, and lake location were observed. Tizon Brown Ware pottery and Colorado Buff Ware pottery were common components of the Lake Cahuilla assemblage. Defining the range of pottery types for this region is helpful for understanding social identity, ethnic boundaries, ceramic technology, and the relationships between human populations and their environments.

## Introduction

This article revisits a pottery typology published some years ago that developed from ceramic collections derived from multiple sources. Potsherds and field notes archived in public and private agencies and pottery recovered from excavations formed the comparative collection (May 1978, 2001). The Archaeological Survey Association of Southern California (ASA) made the prehistoric ceramics available for this study. The ASA team collected 2,958 rim sherds from 134 sites around the edge of Lake Le Conte (now known as Lake Cahuilla). Between 1954 and 1958 members of the ASA surveyed the perimeter of Lake Le Conte (Figure 1). The project was divided into 21 districts composed of 134 sites (King 2001:73)—33 in Riverside County, nine in San Diego County, with the balance in Imperial County. Sadly, most of these sites have been “vandalized, crushed, or dispersed by off-road vehicles, collected for profit by pothunters,

covered by construction, or otherwise destroyed” (King 2001:74).

Licensed land surveyor Benjamin McCown, Sr., Carl Hubbs of Scripps Institute of Oceanography, and a volunteer field crew carefully measured and recovered surface artifacts to determine the nature of ancient settlement along Lake Le Conte. McCown mapped the coordinates for each archaeological site that yielded vessel rim sherds; these sites were assigned code numbers that eventually were recorded at the Imperial Valley Desert Museum by Jay von Werlhof in the 1980s. Despite Grenda’s (2001:4) comment that “by today’s standards, the scientific contribution is debatable,” he also reminded us that “fortunately, the data . . . are not lost and the science of the project can be addressed by future archaeologists.” The author met this challenge by analyzing one of the region’s most significant, albeit overlooked, pottery collections.

The 1978 typology used in this analysis was based on the author’s examination over a two-year period of the San Diego Museum of Man’s collection of reconstructed vessels and pottery sherd drawers. Following that work in 1972, the author examined collections of Tizon Brown Ware pottery and Lower Colorado Buff Ware pottery at Prescott College and Northern Arizona University at Flagstaff, as well as specimens prepared for San Diego State University by Albert H. Schroeder. The draft typology was tested on 2,096 ceramic sherds recovered from Kitchen Creek (CA-SDI-80) on a summer 1973 archaeology salvage project (May

1975). The typology was further tested on a sample of sherds recovered from Barrel Springs in the Anza-Borrego Desert State Park in 1976 (May 1976). The resulting data from these studies were refined for the 1978 publication.

The sample consisted of 2,958 rim sherds out of a total of 12,366 ceramic sherds recovered by the ASA. These ceramics were boxed according to the site survey field number assigned by the ASA (May 2001:45). The rim specimens were separated out to evaluate the paste composition typology that developed from Malcolm J. Rogers' field notes, collections at the San Diego Museum of Man, notes accumulated from 2,096 potsherds recovered from the Kitchen Creek site (SDI-80) in the Laguna Mountains of San Diego County,

and a sample of pottery recovered by California State Parks personnel at Ocotillo Wells, San Diego County (May 1975, 1976, 1978).

The following section provides basic information about the paste composition of these 2,958 specimens. Then, pottery taxonomy receives attention. Another section describes the spatial patterning of wares, types, and sub-types at the Lake Le Conte study locations.

### Paste Composition Typology

Although the details of the paste composition typology have been published elsewhere, a background summary is in order. Paul H. Ezell and Albert H. Schroeder

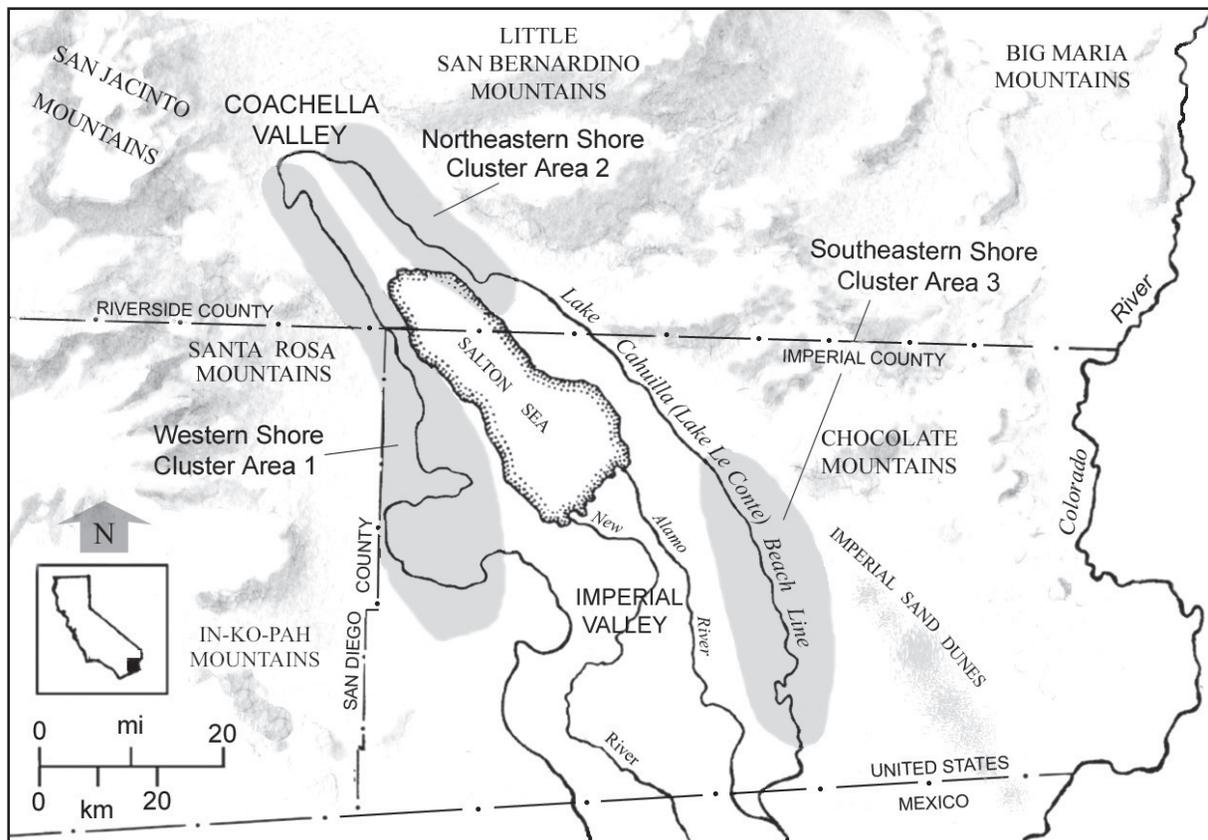


Figure 1. Map of the ancient Lake Le Conte/Lake Cahuilla study area, showing the three cluster areas discussed. By Rusty van Rossmann.

surveyed portions of the Lower Colorado River for the Bureau of Land Management (BLM) in the 1950s (Schroeder 1952, 1957). Schroeder's (1958) typology followed the Museum of Northern Arizona's protocol for ceramic analysis (see also Colton 1953). Later, Paul Ezell (personal communication 1968) taught that analytical method at San Diego State College (later, San Diego State University) to those archaeology students working in the region.

A major supposition of the Museum of Northern Arizona's pottery analysis was that ceramic vessels were distinguishable by type of clay paste; this presumes that potters distinguished between residual and sedimentary clays sources. On the basis of this distinction, Native potters returned to the same clay source over time (Colton 1953). Ethnographic research among Indian potters in Arizona confirmed this premise. The author has personally interviewed potters in Arizona, New Mexico, and California, and not only did they consistently mine clay from the same source but they always prepared the natural clay in the same manner. These practices were attempts to minimize damage to the pottery during firing. Some Native potters chose residual clays for reddish orange pottery; others preferred sedimentary clay to achieve colors that ranged from light tan to yellow or pink. For California, pottery made from residual clays has been named Tizon Brown Ware (Dobyns and Euler 1958); pottery made from the sedimentary clays found along the drainages feeding into Lake Cahuilla and along the river are called Lower Colorado River Buff Ware (Schroeder 1958).

Prior to Ezell (1961) and Schroeder (1952, 1957), Malcolm J. Rogers (1936) surveyed the Peninsular Mountains of California and Baja California, coastal plains, river valleys, the Imperial Desert, and the Colorado Desert west of the Lower Colorado River. The San Diego Museum of Man curates the M. J. Rogers ceramics collection. Owing to his untimely death in 1960 (Ezell 1961), Rogers never refined,

published, or shared these data. Rogers did conduct paste composition analysis, yet his research methods did not always match the system established by the Museum of Northern Arizona. For example, Rogers might arbitrarily name "types" after the geographic region from which they were recovered, even though paste composition was sometimes identical to specimens recovered from other areas. This has caused no little confusion for archaeologists who subsequently examined Rogers' specimens and notes.

While researching historic brown pottery unearthed during the Royal Presidio de San Diego Field School digs in the late 1960s, Dr. Ezell turned the ceramics analysis over to me and provided contact information for other researchers such as Albert Schroeder. I obtained copies of Schroeder's BLM notes, traveled to Arizona to examine sample collections, and studied the specimens described by Dobyns and Euler, which were repositied at Prescott College and at the Museum of Northern Arizona. These efforts helped form the basis for the paste composition analysis applied to 2,096 potsherds recovered at Kitchen Creek. Refinement of the resulting data appeared in May (1978). Analysis of the Lake Le Conte collection took ten years to complete. The results were promising, indicating that paste composition among pottery types is distinguishable between regions (May 2001).

The following outcomes are presented:

- Of the 2,958 rim sherds, 680 were identified as falling into the Tizon Brown category. Of these, 536, or 78.8 percent, were identified as San Diego Brown, a type of Tizon Brown Ware not distinguishable by specific paste composition identifiers.
- Of the 680 Tizon Brown sherds, 72, or 10.6 percent, were identified as Salton Brown, a type of Tizon Brown Ware distinguished by silvery mica flecks.

- Of the 680 Tizon Brown rim sherds, 60, or 8.8 percent, were identified as Hacum Brown, a type of Tizon Brown Ware distinguished by golden-colored muscovite mica. Salton Brown and Hacum Brown data indicate that mica was added to the paste; this is less clear for the Tizon Brown Ware specimens.

### **The Ware Premise**

With regard to testing Tizon Brown Ware or Lower Colorado River Buff Ware as valid taxa, the following data are relevant: of the 2,958 rim sherds, 1,818 were identifiable as Lower Colorado River Buff Ware sherds (61.5 percent), while 680 were Tizon Brown Ware sherds (23.0 percent). These data support the findings of Schroeder (1958) and Dobyns and Euler (1958) that two distinct wares proliferated at the Lake Cahuilla shoreline. Most pots were of Lower Colorado River Buff Ware (sedimentary clays), yet a significant number belonged to the Tizon Brown Ware category (residual clays). This is noteworthy since few residual clay sources have been identified in the desert region.

### **Tizon Brown Ware Types**

Evidence suggests that Native potters used naturally decomposed gravel to temper their ceramic vessels (e.g., Type I, San Diego Brown) (May 1978). However, numerous Salton Brown rim sherds exhibited silvery mica flecks that differed visually from the gold-color muscovite mica in the paste of Hacum Brown sherds. These data may indicate that ancient potters mined residual clays from different sources; alternatively, they could have added mica to the clay mixture. Although mica was predominant in the paste of Tizon Brown Ware pottery from Lake Le Conte, other temper was noted. Seven Palomar Brown rim sherds, representing 1.0 percent of the 680 Tizon Brown Ware rim sherd sample, exhibited crushed white quartz particles in their core (May 2001:52). Curiously, a pattern emerged from the potsherds found at

archaeological sites along drainages in the Peninsular Mountains; there, Palomar Brown and other types are more prevalent than other Tizon Brown Ware types at higher elevations (May 1974, 1978). One possibility is that quartz grains functioned to retain heat, decreasing the likelihood of breakage during firing or frequent exposure to cooking fires. Another possibility is that micaceous clay sources were not present at higher elevations. Still, the low frequency of Palomar Brown, Coachella Brown, and San Felipe Brown at Lake Le Conte merits further investigation. It could represent regional trade or the movement of artifacts by sierra peoples visiting the lake.

### **Lower Colorado River Buff Ware Types**

Lower Colorado River Buff Ware pottery was manufactured using sedimentary clay sources that formed by pooling in drainage areas east of the Peninsular Mountains. The hydraulic transport of the water-dissolved clays pared most of the iron minerals and coarser sands, leaving fine silty tan or pinkish clays. Potters who fired these clays probably experienced frustration and significant damage to their pottery, thus encouraging them to add artificial temper.

The Lake Le Conte data show seven distinct types of Lower Colorado River Buff Ware among the 1,818 rim sherds in this category. Names assigned to describe Lower Colorado River Buff Ware pottery refer to where they were identified: Parker for Parker, Arizona; Tumco for The Unlimited Mining Company east of Lake Cahuilla; Carrizo for the Carrizo Plains; Cahuilla for drainages leading up to the Cahuilla territory northwest of Borrego Springs; and Ocotillo for Ocotillo Wells, west of Lake Cahuilla and east of Borrego Springs. Research on the geographic distribution of these types is ongoing.

Lower Colorado Buff Ware types were distinguished from one another on the basis of sand grain size and rock or mineral composition (May 1978). The

Cahuilla type exhibits a very fine yellow to tan sand paste that fired very dense and hard. The Carrizo type exhibits a medium grain, more sandy variant that fired less dense. The Ocotillo type is distinguished by coarse, lumpy gray brown clay, often with crushed potsherds.

Of the 1,818 Lower Colorado River Buff Ware rim sherds, the following data are relevant:

- 496, or 27.3 percent, of the 1,818 rim sherds were Salton Buff/Stucco/Red-on-Buff. These represent 16.8 percent of the 2,958 rim sherds in the sample.
- 367, or 20.2 percent, of the 1,818 rim sherds were Vallecitos Buff/Stucco/Red-on-Buff. They represent 12.4 percent of the 2,958 rim sherds.
- 297, or 16.3 percent, of the 1,818 rim sherds were Ocotillo Buff/Stucco. This is 10.0 percent of the 2,958 rim sherds.
- 284, or 15.6 percent, of the 1,818 rim sherds were Parker Buff/Stucco/Red-on-Buff. This is 9.6 percent of the 2,958 rim sherds.
- 249, or 13.7 percent, of the 1,818 rim sherds were Carrizo Buff/Stucco/Red-on-Buff. This is 8.4 percent of the 2,958 rim sherds.
- 64, or 3.5 percent, of the 1,818 rim sherds were Tumco Buff/Stucco/Red-on-Buff. This is 2.2 percent of the 2,958 rim sherds.
- 61, or 3.4 percent, of the 1,818 rim sherds were Cahuilla Buff/Stucco. This is 2.1 percent of the 2,958 rim sherds.

### **Regional Distribution of Wares and Types**

The authors of the Lake Le Conte survey report (McCown et al. 2001) observed that the 134

archaeological sites around Lake Cahuilla were clustered in three areas (Figure 1), each of which was divided into districts, or site concentrations. In Cluster Area 1 (western shore) the greatest concentration of sites was associated with the Arroyo Salada and Sand Dune districts. The northeastern shoreline was tagged Cluster Area 2, producing the highest concentration of sites in the Fish Trap district. To the southeast, Cluster Area 3 revealed a concentration of sites in the Mammoth Wash district, which included a pass that connected the plains west of the Lower Colorado River to Lake Cahuilla.

### **Cluster Area 1 (Western Shore)**

The Arroyo Salada district represents a broad interbedded plain of crisscrossing ephemeral streams that flowed eastward to the western shore of Lake Cahuilla. Sand dunes to the south (Sand Dune district) are still captured in mesquite clumps marked by shallow water sources. Eighty percent of the Tizon Brown Ware came from these two districts along the Western Shore Cluster district. This included the highest concentrations of Hacum Brown sherds (over 80 percent) and Salton Brown sherds (over 45 percent). Given the proximity of the Peninsular Mountains to the west, this comes as no surprise. Although Hacum Brown pottery and Salton Brown pottery were present, the greater quantity of San Diego Brown specimens suggests a functional or cultural reason for adding mica temper to Tizon Brown Ware pottery.

The most abundant Lower Colorado River Buff Ware types were recorded on the western shore of Lake Cahuilla. Over 60 percent of all Vallecitos Buff sherds, over 50 percent of all Colorado Buff sherds, and over 50 percent of Carrizo Buff sherds were from Cluster Area 1. About 18 percent of the rim sherds were of the Parker Red-on-Buff type, which is of great interest because this type was made by Mohave peoples on the eastern shore of the Lower Colorado River. About 10 percent of Lower Colorado River Buff Ware types

were Ocotillo Buff; no stucco specimens were recovered on the western shoreline.

### **Cluster Area 2 (Northeastern Shore)**

Of the Tizon Brown Ware rim sherds identified along the northeastern shore, none are attributed to the Salton Brown type, and few sherds are identified as Hacum Brown. Surprisingly, only 3 percent of the Palomar Brown specimens came from this area. Most of the Tizon Brown Ware sherds recovered from northeastern shoreline sites are of the San Diego Brown type, implying that the cultural or functional reason for using Salton and Hacum Brown pottery was less important in this area than on the western shore. Does this simply mean potters could not find local mica sources, that there was less need for mica as temper, or simply that the tradition of adding mica was not represented among northeastern shoreline potters?

### **Cluster Area 3 (Southeastern Shore)**

Tizon Brown Ware pottery is rare along the southeastern shore of Lake Cahuilla; it represents less than 10 percent of all Tizon Brown ceramics found around the lake. Perhaps this is not so surprising, as this area is quite distant from the residual-rich clay sources located in the Peninsular Ranges. The single exception is a concentration of Coachella Brown potsherds that may represent a single vessel.

Notably high counts of Lower Colorado River Buff Ware pottery were recorded for the southeastern shore of Lake Cahuilla. Nearly 100 percent of all Vallecitos Buff rim sherds were recovered there. Over 80 percent of the Ocotillo Buff, Parker Red-on-buff, and Salton Stucco specimens were found along the southeastern shore of Lake Cahuilla. Over 70 percent of the Gila Plain sherds, a type identified by Schroeder as a Lower Colorado River type, were recovered from this area. Nearly 40 percent of the

Cahuilla Buff sherds and over 30 percent of the Carizo Buff/Red-on-Buff sherds were found in Cluster Area 3. The southeastern shoreline produced an abundance of the painted pottery. Nearly all the Vallecitos Red-on-Buff specimens came from this area. Large quantities of Parker Red-on-buff potsherds suggest contact with the Mohave.

### **Conclusion**

Fully developed coil-and-scrape and paddle-and-anvil pottery almost certainly spread rapidly through the Peninsular Mountains of southern California between AD 1000 and 1400. However, the sources of the clays for this pottery are poorly known. There are two hypotheses accounting for the sources of clay for prehistoric brown ware pottery. The test of the 1978 pottery typology based on paste composition by analyzing 2,958 rim sherds from 134 site locations around the shoreline of extinct Lake Le Conte/Lake Cahuilla provides strong data to argue that ware and type distinctions were distributed in different ways. During the approximately 600 years of standing water in the lake, people exploited resources along the ever-changing shoreline, used ceramic vessels, and discarded broken pottery. Paste composition analysis demonstrates Tizon Brown Ware was more abundant on the western shore than anywhere on the east. Although Lower Colorado River Buff Ware was found all around the lake, it was most abundant along the southeastern shore. Types from the Lower Colorado River were found in abundance along the southeast and in trace quantities on the west. Mammoth Wash through the eastern shore contained significantly high quantities of pottery, and this points to a primary trading route between the river and Lake Cahuilla.

The Lake Le Conte collection provides evidence that pottery makers along the Lower Colorado River quickly adapted to their lacustrine environment, spreading a fully developed coil-paddle-and-anvil

pottery making tradition up the western drainages of the Peninsular Mountains of southern California. This study provides strong evidence of the addition to Tizon Brown Ware pottery of at least two varieties of mica temper that make it distinct from the most common brown ware type, San Diego Brown. The data support the argument that mica was added to the clay paste, contradicting any notion that its presence was due only to natural processes. How this may relate to the identification of Hacum Brown pottery near the town of Jacumba, California, and throughout northern Baja California remains unclear.

Critics of the paste composition typology proffered by the author argue that a larger sample from a broader area would be needed to validate this typology. This notwithstanding, studies such as the Lake Cahuilla study are cumulative, requiring a great deal of testing over time. The data published in 2001 met that challenge but were not widely distributed. This paper serves the purpose of wider distribution, and it benefits from additional years spent refining the initial conclusions of the original study.

The present analysis of 2,958 rim sherds from the shores of Lake Cahuilla supports Schroeder's findings from the Lower Colorado River. Some of his types were detected around the lake, especially in the southeast area. But perhaps even more importantly, identifiable ceramic types were associated with shoreline areas. This suggests that people who lived or foraged at the Lake Cahuilla shorelines produced distinctive pottery linked to specific locales. This line of research shows great promise not only for understanding how people adapted to the Lake Cahuilla environment but also how lacustrine peoples interacted with native people living along the drainages of the Peninsular Mountains. These data may prove invaluable for understanding how regional peoples were affected by the desiccation of Lake Cahuilla in the seventeenth century.

## References Cited

- Colton, Harold S.  
1953 *Potsherds: An Introduction to the Study of Prehistoric Southwestern Ceramics and Their Use in Historic Reconstruction*. Museum of Northern Arizona, Bulletin 25. Flagstaff.
- Dobyns, Henry F., and Robert C. Euler  
1958 Tizon Brown Ware: A Descriptive Revision. In *Pottery Types of the Southwest: Wares 14, 15, 16, 17 and 18: Revised Descriptions, Alameda Brown Ware, Tizon Brown Ware, Lower Colorado Buff Ware, Prescott Gray Ware, San Francisco Mountain Gray Ware*, edited by Harold S. Colton. Museum of Northern Arizona Ceramic Series No. 3D. Flagstaff.
- Ezell, Paul  
1961 Malcolm Jennings Rogers, 1890–1960. *American Antiquity* 26(4):532–534.
- Grenda, Donn R.  
2001 Preface. In, *The Archaeological Survey Associations of Southern California's Lake Le Conte Survey*, by Lucille R. McCown, Gordon A. Clopine, Doris H. Bowers, Jay von Werlhof, Ruth D. Simpson, Ron V. May, and Pat King. *San Bernardino County Museum Association Quarterly* 48(3):3–4.
- King, Pat  
2001 Utilized but Not Forgotten. In, *The Archaeological Survey Associations of Southern California's Lake Le Conte Survey*, by Lucille R. McCown, Gordon A. Clopine, Doris H. Bowers, Jay von Werlhof, Ruth D. Simpson, Ron V. May, and Pat King. *San Bernardino County Museum Association Quarterly* 48(3):73–74.

May, Ronald V.

- 1974 *The Cultural Implications of Two Cremations Recovered at Cottonwood Creek (4-SDI-80)*. San Diego County Archaeological Society Publication Number 1. Encinitas, California.
- 1975 *Archaeological Salvage Report On The Excavations at Kitchen Creek: An Investigation of a Subsidiary Hakataya Resource Camp and Associated Milling Stations*. Coyote Press, Salinas, California.
- 1976 An Early Ceramic Date Threshold in Southern California. *The Masterkey* 50 (3):103–107.
- 1978 A Southern California Indigenous Ceramic Typology: A Contribution to Malcolm J. Rogers' Research. *ASA Journal* 2(2).
- 2001 Ceramic Rims From The Rim of Lake Caahuilla. In, The Archaeological Survey Associations of Southern California's Lake Le Conte Survey, by Lucille R. McCown, Gordon A. Clopine, Doris H. Bowers, Jay von Werlhof, Ruth D. Simpson, Ron V. May, and Pat King. *San Bernardino County Museum Association Quarterly* 48(3):45–72.

McCown, Lucille R., Gordon A. Clopine, Doris H. Bowers, Jay von Werlhof, Ruth D. Simpson, Ron V. May, and Pat King

- 2001 The Archaeological Survey Associations of Southern California's Lake Le Conte Survey. *San Bernardino County Museum Association Quarterly* 48(3).

Rogers, Malcolm J.

- 1936 Yuman Ceramics. Paper presented at the 15<sup>th</sup> Annual Meeting of the American Association for the Advancement of Science, Flagstaff, Arizona. Manuscript on file, San Diego Museum of Man, San Diego.

Schroeder, Albert H.

- 1952 A Brief Survey of the Lower Colorado River from Davis Dam to the International Border. Manuscript on file, Bureau of Reclamation, Boulder City, Nevada.
- 1957 The Hakataya Cultural Tradition. *American Antiquity* 23(2):176–178.
- 1958 Lower Colorado Buff Ware: A Descriptive Revision. In *Pottery Types of the Southwest: Wares 14, 15, 16, 17 and 18: Revised Descriptions, Alameda Brown Ware, Tizon Brown Ware, Lower Colorado Buff Ware, Prescott Gray Ware, San Francisco Mountain Gray Ware*, edited by Harold S. Colton. Museum of Northern Arizona Ceramic Series No. 3D. Flagstaff.