How Old is "Old"?

RECOGNIZING HISTORICAL SITES AND ARTIFACTS

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INTRODUCTION

State (as well as federal) laws and regulations dealing with cultural resources apply to both "prehistoric" and "historical" resources – that is, sites, features, and artifacts dating to both before and after the arrival of non-Native peoples. "Historical" resources in most parts of California fall into a rough date range of the 1840s to the 1950s. In some areas, notably in the region of Spanish missionization, the historic era extends back to the late 1700s. Although there are many Native American sites that date to this period, a site is defined as "historical" only if it contains artifacts or materials of non-Native origin – glass, metal, brick, etc [1].

Although the line between "historical" and "modern" can be a bit fuzzy, sites and structures dating after 1960 are generally not recorded or managed as historical resources. It's important, then, to be able to differentiate between pre-1960 and post-1960 remains. Some types of artifacts (cans with soldered-lead seams, bottles with applied lips) are so old as to leave no doubt. Others (cans with "church-key" openings, crown-top bottles) can be right on the cusp. The following brief overview is designed to help you determine the "old" from the "not-so-old." It's important to remember, though, that dating sites and artifacts is only the first step. The real goal is to interpret the remains, and understand how they fit into the larger picture of human behavior and cultural processes. We'll come back to this later.

[1]The transitional period, after the arrival of non-Native peoples but before their longterm settlement in California, is sometimes referred to as the "proto-historic" period. Proto-historic sites may contain a few "European" goods – glass trade beads, for example – mixed in with the mostly Native assemblages.

Bottles

Because bottle-making technology changed over time, it is often possible to determine roughly when a bottle was made by looking at one (or more) of these attributes. Of course, any labels or embossed lettering are potentially helpful, as well.

There are four important characteristics for dating bottles: Mold Seams, Finish Types, Closures and Glass Color



MOLD SEAMS

Before the modern bottle-making machine, bottles were blown – first free-blown, and then in various kinds of molds. The different molds left tell-tale seams where the pieces of the mold came together.

Free-blown (no mold)

- No mold seams
- Asymmetrical and non-uniform
- Up to about the 1860s in the archaeological record

Simple Two-piece mold ("Hinged mold")

- Mold seam extends from just below finish, down the neck and side, across the bottom, and up the other side
- Symmetrical, uniform shapes
- May have embossed lettering on body, especially after 1869
- Ca. 1810-1880

"Cup" mold

- Mold seam on each side that extends from just below the finish down to the edge ("heel") of the base
- Most-common technology in the late 19th and early 20th centuries (ca. 1850s-1920s)

Post mold

- Bottle made in a three-piece mold with separate base plate
- Side seam continues onto base, then is interrupted by the circular (sometimes oval) post
- Dominant mold type used between about 1870 and 1900
- 1840s–early 1900s (sometimes later)

Ricketts mold

- No mold seams on body; horizontal seam around circumference where body joins shoulder, and vertical seam part-way up each shoulder
- Often used for liquor and pharmaceutical bottles
- 1820s-1920s

Turn mold

- Bottle turned while in mold, obliterating seams
- Often used for wine/champagne and brandy bottles (usually dark green)
- No embossed lettering; glass highly polished from turning in mold
- Ca.1870–World War I

Automatic bottle machine

- Bottles made by machine, rather than blown
- Seams run all the way up the bottle and over the finish
- Made in large numbers beginning after World War I (though the first machine was invented in the 1890s)

BOTTLE FINISHES

The technique for making the lip or "finish" of the bottle also changed over time, and can help determine when a particular bottle was made.

Sheared lip

- Bottle neck stretched and cut, end ground or re-fired to make smooth
- Bubbles in glass also will be stretched and elongated; vertical stretch marks visible on neck
- Pre-1860s

Hand-applied finish

- · Bottle re-heated and ring of glass applied to neck by hand
- Ring very asymmetrical, sometimes "globby"
- Ca. 1840-1860

Lipping tool

- Applied ring of glass smoothed into a more-uniform shape using a hand-held lipping tool
- Striations around circumference of neck from lipping tool; mold seam stops at neck (obliterated by lipping tool)
- After 1856

Automatic bottle machine

- Entire bottle, including finish, made by machine
- Lip completely symmetrical and even
- Mold seam runs over lip
- After World War I

FINISH TYPES

The way a bottle was sealed can sometimes help date it. Here are a few of the morecommon types of bottle closures (note that some closures, like crown caps and screwcaps, are still made today, making them less useful for dating).

Interior-threaded

- Screw-in top with plug inside bottle
- Interior threads on bottle finish
- 1870s-1900

Exterior-threaded ("screw cap")

- Screw-on top with cap outside bottle
- Exterior threads on bottle finish
- Mid-1880s-present (threads standardized after 1924); metal caps on early examples, metal or plastic after 1930s

Hutchinson "spring" stopper

- Rubber gasket inside bottle neck, with metal-loop handle
- Stopper could not be removed from (intact) bottle
- 1879-1915

"Lightning" stopper

- Ceramic plug held in place by metal loop attached to metal ring around bottle neck
- Bottle finish with wide, prominent lip to hold ring in place
- 1882-1920s (still used, but not in large numbers think Grolsch Beer)

"Crown" cap

- Metal, inverted-crown-shaped cap
- Bottle finish with narrow ring at top to hold cap
- 1892-present

GLASS COLOR

The color of glass is based largely on the minerals used to make it. While glass color is not as precise a dating tool as mold seams or finishes, it can provide helpful clues.

"Black" glass (iron oxide)

- Very deep olive-green (looks black until you hold it up to the light)
- Very thick (for strength), often with bubbles or other impurities
- The earliest type of glass found in most parts of California, pre-1880s

"Solarized" or sun-colored glass

- Amethyst, cobalt, aqua, pale yellow (colors darker with longer sun exposure)
- Sometimes with an iridescence caused by sun/heat
- Pre-World War I

Clear glass

Most likely dates to 1920s or later (check those mold seams!)

A FINAL NOTE ABOUT TRADEMARKS

Many manufacturers of bottles or bottle contents put advertising on the bottle, in the form of paper labels (usually missing in older sites) or embossed lettering. In the 1930s, many manufacturers also started putting code numbers, letters, and symbols on bottle bases. These symbols can help you determine when and where a bottle was made – sometimes right down to the factory and the day. Many manufacturers who are still in business (for example, Clorox and Owens–Illinois) keep archives of this information, and much of it is available on their company web sites.

OTHER SOURCE OF INFORMATION

The CAL FIRE Reference Manual and Study Guide contains dozens of pages of Illustrations and descriptions useful to date bottles and other historic artifacts that may be found on CAL FIRE projects. There are several other field guides for identifying and dating historic-period bottles, cans, and other artifacts. One is the Inter-Mountain Antiquities Computer, System (IMACS) Field Guide used by archaeologists in Nevada, Utah, Idaho, and several other western states available form the Nevada State Office of Historic Preservation, Carson City. Another is the "Field Guide to Identifying Historic Artifacts," compiled by historical archaeologists R. Allen, A. Medin, and S. Baxter (Past Forward, Inc., Richmond California). For very detailed information and illustrations on bottle types, mold seams, and other characteristics, go to the Bureau of Land Management's web site on historic-era bottles or the Department of Parks and Recreation Artifact Type Collection.

www.blm.gov/historic_bottles/index.htm

www.parks.ca.gov/default.asp?page_id=22207

www.fire.ca.gov/resource_mgt/archaeology-clorox.php

When in doubt – write it down (or take a picture) and look it up later!

Cans

The ubiquitous "tin" can (many metal cans actually have no tin at all) provides information on both the age of an archaeological deposit and the activities that went on there. Large piles of coffee, evaporated-milk, cooking-oil, and tobacco cans probably represent the kitchen area for a major work camp; fragments of tea tins and opium tins are often found at nineteenth-century sites occupied by Overseas Chinese. Household dumps might contain a wider variety of food cans – fruits, vegetables, canned meat, baking powder, coffee – in smaller numbers than at a work camp. No matter what the context, though, remember that large-scale canning in tin began very early – in the late 1820s.

The most important characteristics to note about cans in an archaeological site are these: *Lid/Closure, Seam Type and Measurements*

Also recording the opening type (punched, pried, lid completely removed) might help determine what was in the can – for example, whether it was liquid or solid. And be sure to record any legible labels or lithography.

LID/CLOSURE

The kind of lid or closure a can has will help you identify when it was manufactured and, in some cases, what it contained.

Hole-and-cap



- Can lids have central cap where food was inserted before sealing
- No vent hole; cans often swelled or burst during cooking
- 1810-1820

Hole-in-cap



- Same as hole-and-cap, but with tiny pin-hole in center of cap to act as a vent during cooking 1820s-WWI •





- Cans opened by using a "key" to roll or tear away a metal strip from the top or side of the can; often used for coffee after 1917 (still used on some canned . meats and fish [corned beef, sardines]) 1866-present (key-wind tapered tins after 1895)

Hole-in-top (also called Vent-hole, Matchstick-filler, or Drop-of-solder)



- Cans have solid lids except for tiny pin-hole vent at center, which was sealed with a drop of lead solder after the contents were cooked
- After 1900
- Evaporated milk cans almost exclusively of this type by 1920

Sanitary

- Cans made entirely by machine, with one-piece lids no caps or vent holes
- No lead solder
- "Modern" cans
- Commercially available by 1904

CAN SEAMS

The other major technological change in cans was the type of seam closure. Early cans were sealed along the sides and top with lead solder – first by hand, later by machine. Solderless cans appeared in 1898 and quickly became the dominant type after the introduction of the modern "sanitary can" in 1904.

Hand-soldered seams

- Globby, irregular bands of lead solder along edges and around top, cap, and base of can
- Until the 1880s

Machine-soldered seams

- Bands of lead solder much thinner and more-evenly applied
- After 1883

Double locking side-seams

- First solderless cans; side-seams crimped on inside or outside of can
- Commercially available by the late 1890s
- Used on modern "sanitary" cans

CAN MEASUREMENTS

Cans changed size over time, too, and some of these changes provide clues as to their ages. This is particularly true for evaporated or condensed milk cans. *Note that only whole, uncrushed cans should be measured, and all measurements should be made in inches and sixteenths of an inch;* for example, an evaporated-milk can that is 3 inches in diameter and 3 and 4/16 of an inch tall with a 1 and 12/16 inch cap diameter dates to the period 1875-1885 "See IMACS Users Guide 471 - Tin Cans (Page 9), June 1992."

OTHER CAN TIDBITS

Condensed milk was first canned in the US in 1856, evaporated milk in 1885[1].

Kerosene was first canned in 1865 (in tall, rectangular cans with small caps).

Tapered tins, like those still used for some brands of corned beef, were first marketed in 1875.

The log-cabin-shaped syrup tin was introduced in 1897 and discontinued after WW II (with modern reproductions).

The first vacuum-packed coffee (in one-pound cans) was marketed by Hills Brothers in 1903.

Pocket tobacco tins (most-famously Prince Albert brand) were patented in 1913 and popular into the 1950s. See Pocket Tobacco Tins under Miscellaneous Artifacts.

The first beer cans were cone-tops (like modern-day STP® cans), and were introduced in 1935. The first all-aluminum beer can appeared in 1959; it was opened with a "church key."

The first aerosol cans came out in 1945.

The pull-tab beverage can was introduced in 1962.

[1] You sometimes can tell a can that held evaporated milk from one that held condensed milk: if the can was opened with two tiny punctures (ice pick, nail, knife blade, etc.), it held evaporated milk. Condensed milk is too thick to pour through these small openings. Those cans had to be opened by partially removing the lids.

Fun fact: Did you know that Calumet Baking Powder dates back to 1889?

Dishware and Ceramics

Ceramics in general are less time-sensitive than cans and bottles, but they are sometimes helpful in dating an historic-era site. Here are a few clues to look for.

MAKER'S MARKS

Potteries in Europe and the US often put identifying marks on the bottoms of plates, bowls, and other dishware. The designs tended to change over time, and so a particular mark sometimes indicates when – and where – the dish was made. (Chinese potteries also often marked their wares, but these are not legible to most of us.) Because the style changes can be very subtle, it's best to take a close-up photograph of the mark for later comparison with references. Also be sure to copy down any lettering, in case it's not readable from the photo. Good references for makers marks include these:

Ceramic Marks from Old Sacramento, Califonia Archaeological Report No. 22 by Mary Pratzellis, Betty Rivers, and Jeanette K.Schulz 1983 Handbook of Pottery and Porcelain Marks by John P. Cushion 1980 Encyclopedia of British Pottery and Porcelain Marks by Geoffrey A. Godden 1964 The Handbook of British Pottery and Porcelain Marks by Geoffrey A. Godden 1968 http://www.parks.ca.gov/default.asp?page_id=22207



James Carr's New York Pottery (1852-1889)



R. Cochran & Company, Glasgow, Scotland (ca. 1857-1918)



Possibly Jacob Furnival, Cobridge, Staffordshire, England (ca. 1845-1870)



Examples of Chinese Ceramics



Chinese Maker's Mark

SPECIALTY BRANDS

Some specialty types of ceramics can be useful for dating a site, especially if we know the year they were first manufactured. For example, the popular "Fiestaware" line began production in 1936. Certain colors of Fiestaware can be dated even more precisely: cobalt blue and light green were made from 1936 to 1951; turquoise from 1937 to 1969; rose, gray, and forest green from 1951 to 1959. The original line stopped production between 1973 and 1985. "Modern" Fiestaware dates from 1986 to the present.



Light Green Fiestaware Bowl Ca.1936-1951



Fiestaware Fragments Stand Out in the Snow

Another specialty type is Enamelware or Graniteware. This is actually steel or cast-iron with multiple coats of enamel applied over the metal. While there are newer items of this line, these are light-weight and comparatively flimsy; old or "vintage" enamelware (pre-1940) is heavy and substantial, and will have multiple coats of thick, glossy enamel. Many old pieces also are marked – look for Kockums or GM marks on the bottoms. The most common enamelware/graniteware pieces in California sites tend to be coffee pots and large cooking pots with bail handles.



Modern Enamelware

CERAMIC SMOKING PIPES

These little clay tobacco pipes are common on 18th- and 19th-century sites in California. Most were imported from Great Britain, and especially from Scotland. If you find these at a site, you can be confident that the site includes an historic-period component.



Miscellaneous Artifacts

There are other easily recognized artifacts that may indicate historic-period use or occupation at an archaeological site. Usually these are items which are no longer commonly made or used in most parts of California:

- Cut Nails
- Pocket Tobacco Tins
- Black-powder Cans

While these items alone may not allow you to pin-point the age of a site, their presence can help you identify whether it's old enough to qualify as "historical."

NAILS: HAND-FORGED VERSUS CUT VERSUS WIRE

If a site includes, or once included, a wooden structure, odds are there will be nails – often thousands of them. Since nails are not especially attractive to treasure hunters, they will remain on the site long after the whole bottles and other diagnostic artifacts have been carted away.

The earliest nails were wrought or forged by hand. These taper to a point from all sides, are somewhat irregular in thickness, and have uneven heads. Hand-made nails indicate either a very early site, or the presence of a blacksmithing operation (or both). Hand-wrought nails are rare in California sites.

Machine-cut nails became dominant in western contexts in the early to mid-19th Century, though their manufacture began much earlier. Thin sheets of steel were cut into uniformly shaped nails with rectangular (rather than square) cross-sections, tapered sides, and blunt ends. These nails date from about 1830 to roughly 1920.

Modern nails are cut from wire, making them round in cross-section. They have pointed, rather than blunt, ends, and no taper. In California, wire nails had replaced cut nails for all but a few special purposes by the early 1900s.

If a site or structure contains more than one of these types of nails, it may indicate reuse of older nails or modifications to the structure over time. In such cases, it is important to note the relative proportions of one type to another. And remember that, in "hinterland" areas with less access to stores and factories, older types may be used (and re-used) for several years after they have all but disappeared in urban settings. This is true for many types of artifacts.



These Machine-cut Nails are Rectangular with Tapering Sides and Blunt Ends



Modern Wire Nails

POCKET TOBACCO TINS

Ever heard the old joke "Do you have Prince Albert in a can? Well, let him out"? The "can" in question is the pocket tobacco tin, a flattened tin with hinged lid that was patented in 1907. While various brands of tobacco were sold in these tins, they became known as "Prince Albert " tins after one of the most popular brands. These tins continued to be made into the mid-20th Century.





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CROSS-CUT SAWS

These two-person, hand-held saws felled many a giant redwood, fir, and pine in 19thcentury California, but they were slow and back-breaking. The first gasoline-powered chainsaw was invented in 1929, and within a decade or two, chainsaws had replaced cross-cut saws in California 's logging industry. A cross-cut saw (usually represented as broken blades) probably dates your site to no later than the 1930s-40s.



Saw Blade Fragment

BLACK-POWDER CANS

Blasting powder or "black powder" was used extensively in the American west in the 19th and early 20th centuries for mining, road and railroad construction, and even some forms of logging. The workers who built the Transcontinental Railroad, for example, used black powder to blast tunnels through the Sierran granite bedrock. Black-powder cans are large (about 5 gallons) and usually ribbed; and any trademarks found on them may help to date a site.

- □ California Powder Works, Santa Cruz (1861-1906)
- □ Hercules Powder Company, Hercules, Califonia (1882-1903 & 1912-1955)
- □ Western Powder Fuse & Explosives Company (1888-1902)

Summary

Determining the age of a refuse dump, railroad logging camp, cabin site, or other potentially historical resource depends in large part on your ability to date the artifacts you find there. Be aware, though, that many sites saw more than one period of use. You may find 1860s "black" glass mixed with cone-top beer cans dating to the 1930s, or broken bits of Fiestaware lying side-by-side with a pop-top soda can. Such admixture could mean that the historical integrity of your site has been compromised. However, it is typical of archaeological sites in California to have more than one period represented, so mixing does not automatically mean your site lacks significance. When recording an historical site, it is important to determine as closely as possible the time period(s) represented, and the relative percentages of items from each period. You can then construct a kind of time-line for the assemblage:



A qualified historical archaeologist can use this information when it comes time to evaluate the site's significance.

As we have noted, the ultimate goal of archaeology and anthropology is to understand how societies and cultures change over time, by interpreting the artifacts and sites they leave behind. Clues to human behavior are embedded in material culture (artifacts and features), and the archaeologist's task is to find these clues and unravel their meanings.

The age of a site is not the only clue to consider – even sites from the same time period can look completely different. For example, domestic refuse from a household (decorated dishes, canning-jar inserts, children's toys, etc.) will look very different from garbage left by a large construction crew (multi-serving food, coffee, and evaporated-

milk cans, tobacco pails, undecorated "cafeteria" ware). Likewise, a small family homestead from the 1850s may be more significant that a mining camp of the same age, because women and children were rather uncommon on the western mining frontier. Remember, too, that the oldest site is not always the most important one. A 1940s internment camp from World War II may have much more historical significance than a much older 1890s railroad-logging camp, because of importance of that war to our nation's history and the effects of those internments on Japanese-American society.

In summary, archaeologists and historians must consider all aspects of a site: its age, function, types of artifacts, degree of preservation (integrity), and context within a larger historical framework.