

THE IMPLICATIONS OF FOOD PRESERVATION AT THE NATHAN HARRISON SITE

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Archaeological evidence of food preservation at Nathan Harrison's homestead (ca. 1833-1920) enhances our understanding of the dynamics of his daily life on Palomar Mountain in northern San Diego County, California. Historically, food preservation materials and strategies for canning and bottling at home became invaluable to homesteaders who previously did not have access to safe canning methods. Preservation technology made it possible to have a reliable food source after harvest, which limited dependency on outside food sources. This article investigates the vessels, canning technology, and resources found at Nathan Harrison's homestead in order to create a detailed picture of how he was interacting with food preservation.

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Most contemporary self-preserved foodstuffs consisted of fruits, and a majority of these items were placed in jars. Mason jars, as we know them today, are a relatively recent invention. Since their original patent, they have undergone a variety of changes in design and production. In 1858, tinsmith John Landis Mason put forward his design for three new jar features that collectively produced the revolutionary invention termed the "mason jar" (Mason 1858). His patent included designs for a glass jar mold and a screw thread on both the jar mouth and metal lid. These three innovations transformed food preservation technology from a basic glass jar and misfit lid to a hermetically sealed container for safely storing food. In 1869, Lewis Boyd patented his design for a glass liner to be placed inside the mason jar lid. Before 1869, lids were made either entirely of glass or metal. However, glass was ill-fitting and metal leached into the jar contents, producing an unpleasant flavor (Whitten 2013). The liner became an effective method for preventing jar contents from coming into contact with metal, therefore preventing corrosion (Figure 1).

The first mason jars were constructed with zinc, glass, and occasionally a milk glass liner (Figure 2). Zinc lids were fundamental to the construction of mason jars and were used for several decades without much innovation to the material itself. On the other hand, milk glass is a unique material that has gone through many changes in terms of its production process and uses. Opaque milk glass, sometimes called porcelain, is made from tin oxide. Semi-opaque milk glass is produced via the incorporation of calcined bone ash. It was first produced as decorative ware in eighteenth century England and became popularized in the United States from 1870 to 1880 (Kovels n.d.). In the late 1800s, semi-opaque milk glass began to be used to line jars and preserve contents. A disc of milk glass was made to line the inside of the lid, forming a barrier between the zinc and canned goods. It is worth noting that milk glass liners were closely associated with home canning, possibly even more so than commercial sales (Lindsey 2020).

In the Harrison assemblage, there are Ball Perfect Mason Jars, Hazel-Atlas jars, Hero Fruit Jars, and a Whitney jar, as well as many unidentified glass and lid fragments. Typically, lids were only disposed of when they were no longer usable, which often obscures precise dating techniques based on strictly formal



Figure 1. A corroded zinc mason jar lid. Although archaeologists have uncovered many milk glass fragments during excavation, this is the only one to contain a complete liner inside.



Figure 2. Two milk glass liners found at Harrison's homestead. Originally, they sat inside mason jar lids to preserve foodstuffs.

characteristics (Lindsey 2020). Lids could have been used well after their original sale and only disposed of years later when broken or corroded. The site's several unmarked jelly jars (Figure 3) and tumblers were popularly sold by Ball and Hazel-Atlas. Whereas mason jars were sold with or without contents, jelly jars were for sale already filled. In the early Sears Roebuck catalogs, jelly tumblers were sold filled with currant, strawberry, raspberry, quince, apple, peach, plum, or grape jelly (Sears, Roebuck and Company 1968).



Figure 3. Three jelly jars found at the site. Unlike mason jars, these were sold already filled with popular fruit jellies and jams.

Therefore, both types of jars could have potentially been bought or gifted already filled with contents, which would not serve as evidence for canning behavior at the site. On the contrary, milk glass liners were strong indicators of home canning practices because liners were primarily intended for reuse and resale beyond their original contents.

It is particularly difficult to ascertain which companies produced the mason and jelly jars found at the site. Not all jars and lids had logos embossed on them, and lids could have easily been used with jars other than the one they were originally sold with. Most of the lids fit a variety of jars at the site, so we can only speculate about the companies that produced them. Doug Leybourne, author of a series of self-published books on fruit jars, explained that the complete lid and milk glass liner in the Harrison assemblage was a generic model that could have been used and reused with a variety of mason jars (D. Leybourne, personal communication 2019). Although it is impossible at this point to identify their maker, mismatched lids on different vessels found at the site further support the hypothesis of reuse and home canning because their original state has been altered.

Based on historical and artifactual information, it is highly likely that Harrison—an African-American pioneer in the nineteenth century who was born a Kentucky slave—canned at his hillside homestead. Visitors to the property, who brought him food inside mason jars in exchange for his celebrated hospitality, might have augmented these goods. Beyond store purchases and other forms of exchange, it would have been important for Harrison to produce and store foodstuffs that were desired but not necessarily available year-round. This economic self-sustainability was a key component of maintaining his liberty in the Old West (Figure 4).

With regard to the specific produce that could have been canned at the Harrison site, there was only partial correspondence between the site's artifacts and the many historical accounts. While written documents indicated the presence of a rich orchard full of varied fruit trees, the archaeological findings only confirmed



Figure 4. Harrison seated in front of his cabin on Palomar Mountain. According to historical documents and archaeological evidence, he planted a variety of fruit trees in a nearby orchard. Photo courtesy of the Nathan "Nate" Harrison Historical Archaeology Project, Kirby Collection.

three species with certainty. First, there is an extant pear tree located in the southwest corner of the current cabin excavation area that continues to grow and produce fruit. Although the tree was severely burned in 2007 during the region's catastrophic Poomacha fire that scorched much of the original Harrison homestead acreage, it rebounded with multiple seasons of new growth and an ample harvest. In 2017, a local orchardist examined the tree and concluded that it was over 100 years old, supporting the notion that it dated to Harrison's tenure on the property.

On the basis of the fruit alone, it is difficult to determine if the tree was grown from seed at the site or planted as a sapling. During the late nineteenth century, there were few pear trees in the area, and historical peddlers of young fruit trees often sold saplings without correctly identifying or knowing what exact variety of fruit would be produced. At the start of excavations in 2004, there was a standing apricot tree approximately 100 feet south of the buried foundation of the Harrison cabin. This particular tree was not as resilient as the nearby pear tree and fell during the Poomacha fire. Student archaeologists uncovered several peach pits at the site, suggesting that Harrison was consuming and canning peaches as well. Although there was no documented mention of peach trees on the property, peaches were one of the most popular fruits for canning and their value greatly superseded that of most other canned goods (Bitting 1912:39).

Oral histories and written documents detailed that Harrison maintained grape, currant, gooseberry, corn, potato, apricot, apple, pear, and quince on his property. In these accounts, fruit and vegetable varieties were broadly referred to as an orchard or garden, with occasional mentions of specific crops. With regard to past produce, the taphonomic break in the archaeological record was most apparent with regard to apricots. Although the nearby apricot tree stood for nearly a century, and despite the fact that in the early twentieth century apricots were produced almost exclusively for canning, no apricot pits were found at the site (Bitting 1912:38).

For Harrison, mason jars were an invaluable innovation. They made it possible to safely and effectively preserve produce and store it for future use without having to rely on outside resources. While Harrison engaged in a well-honed self-deprecating minstrel act that welcomed all visitors to his property and put them at ease, the ethnic volatility and strife in late nineteenth century California made every interaction potentially



Figure 5. Harrison photographed with his cooking supplies, including jars, pots, and pans. He was certainly equipped to harvest and prepare food without leaving his homestead. Photo courtesy of the Nathan "Nate" Harrison Historical Archaeology Project, Kirby Collection.

life threatening for non-whites like Harrison. Any activity that could enhance self-reliance was a keen addition to his already intricate survival strategy, which had been carefully honed through his years as a slave and miner (Figure 5).

In order to perform canning at home, Harrison would have required several tools and pieces of equipment. In her book on successful canning practices, Powell (1917) highlighted several utensils that aided in the process. First, Harrison would have needed to wash the fruits and vegetables he wanted to can. The washing process calls for strong-bristled brushes, water bowls, and a draining pan, in addition to a reliable water source. Next, he would have needed knives for peeling, scoring, and cutting produce. Powell (1917) advised canners to use glass or aluminum containers for measuring liquids because tin utensils were known to discolor fruits. In terms of cooking, it was essential to have a large pot to accommodate a wire canning basket filled with jars. After filling the jars with fruits or vegetables, they would be submerged in boiling water to ensure an airtight seal. Harrison also would have likely needed a jar lifting tool to remove jars from the boiling water without being burned (Powell 1917:36-40). Some of these items, like knives and large pots, have been verified in the historical photographs of Harrison and the recovered archaeological artifacts, although these particular items were used for many tasks and were hardly exclusive to the canning process.

This research can be extended well beyond jars and the canning process. It is part of the analysis of foodways at the site, examining the totality of food production and consumption by Harrison over a period of at least a half century on his Palomar property. However, tying these practices only to Harrison is inherently limiting. As a result, the analysis proposed here also seeks to examine the multicultural ethnobotany of the Harrison property. The natural flora and fauna on the mountain in the immediate vicinity of the Harrison cabin is remarkably diverse and Harrison's close ties to local indigenous populations as well as generations of Spanish and Mexican ranchers can prove especially insightful on a much broader analytical level. It may also hold the key to a diachronic perspective on a site whose primary deposits were mixed due to later landscaping activities. Lastly, this food-based research might also be used to decipher how daily life changed for Harrison from 1865 to 1920.

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