Jim Rock Historic Can Collection

Southern Oregon University's Digital Collection Celebrating Jim Rock's Contributions to Tin Can Archaeology

RESEARCH FILE

by Shana Sandor and Chelsea Rose

THE ORIGIN of the tin can dates to as early as 1300 A.D., when whitesmiths tinplated iron for the first time in Bohemia. For hundreds of years, Europeans used tinplate for a variety of purposes, including canisters. The canning process, however, was not invented until 1809 after Napoleon Bonaparte issued a challenge to find a reliable method for preserving the large amount of food needed to feed French troops. Within ten years, canning made its way to American shores.[1] This new ability to preserve food in cans aided Western expansion in the United States during the nineteenth century by making possible the transportation of perishable goods over long distances.[2] Canned food grew in popularity throughout the twentieth century, and by 1922 the "litter of tin cans along the roadway" in U.S. cities was advertised as a defining feature of the country's "Tin Can Civilization."[3] Jim Rock, a prominent archaeologist with the U.S. Forest Service, pioneered the study of tin cans in the United States by establishing, and subsequently advocating for, their use in providing temporal, cultural, and contextual information in archaeological investigations. The Jim Rock Historic Can Collection online database at Southern Oregon University (SOU) is a valuable educational resource for the rich history that those often-overlooked artifacts provide.

Rock spent much of his career in the section of southern Oregon and northern California known for the 1941 State of Jefferson secession movement — a region scattered with cans from its long history of extractive industries — and wrote a history of that movement in 1985.[4] He assembled the can collection now housed at SOU during a time when many archaeologists did not consider the tin can a *bona fide* artifact due to its late age and perceived lack of diagnostic value. The so-called "can dumps" that Rock

ARCHAEOLOGIST JIM ROCK traveled across the country with a suitcase containing his collection of tin cans wrapped in wool socks. A selection of Rock's collection is displayed here in one of his suitcases. The entire Jim Rock Historic Can Collection and Rock's publications are available online at the Southern Oregon Digital Archives (SODA). All images are courtesy of the Southern Oregon Univeristy Laboratory of Anthropology and made available by Southern Oregon University Hannon Library.

unearthed during his career are a common material product of transient labor groups and short-term occupations associated with widespread logging, mining, and railroad construction. As those industries came and went, the rusty piles of tin cans left behind are often the only traces of the complex rural infrastructure that helped build the West. Rock spent years gathering tin cans wherever he could find them — antique stores, international markets, and archaeological sites — attempting to find examples of numerous styles and phases of development. His collection of over 200 tin cans (along with a sizable collection of glass bottles) was used not only for his own study and analysis, but also to educate. He became a can activist of sorts, spread-

ing awareness about the tin can and its usefulness as a cultural resource. He even transported his collection, carefully wrapped in wool socks and packed in suitcases, to trainings and workshops in different parts of the country, where he shared his findings about cans and their historical background and importance.

As a result of those exhibitions, Rock realized the considerable need for a field identification guide for tin cans. He compiled information on typologies and dating techniques utilizing assorted physical features of the cans, including seam, solder, closure, material composition, opening method, shape, and size. His first publication was *A Brief Commentary on Cans* (1987), which was later expanded into *Tin Canisters: Their Identification* (1989). Rock acknowledged in his introduction that even though his book "identifies many of the technological and tin canister type changes that have occurred in the United States," the guide was "neither complete or comprehensive."[5] One significant addition Rock included in *Tin Canisters* was several lists of identification marks, lithographed symbols, embossed symbols, and body marks that manufacturers applied to date a can's production or identify the plant where it was fabricated. While other researchers focused on one particular type or brand of tin can, such as those for condensed milk or tobacco, Rock consolidated attributes for an assortment of diverse can types into his publications. Doing so revealed a complicated history of the canning industry, in which almost every new alteration reflected an innovation or breakthrough in tin-can design or canning practices. In many cases, those changes were diagnostic and corresponded to a fixed period or point in time. Each new modification also provided valuable historical information about the period and the societal conditions under which it was conceived.

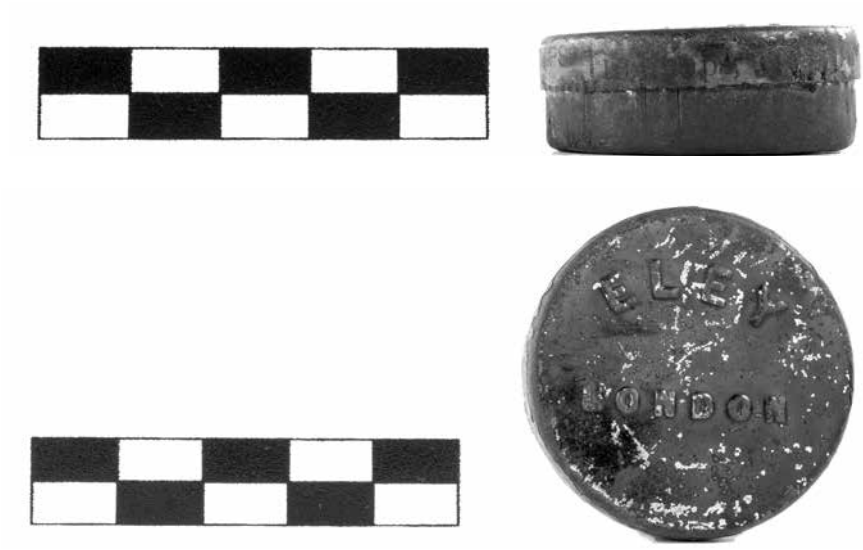
Until the 1850s, food manufacturers heavily favored the hole-in-cap can, because air was thought to cause product spoilage. This can permitted excess moisture and air to escape when cans were heated before sealing. The act of heating also killed bacteria, which Louis Pasteur eventually exposed as the real danger, further revolutionizing canning techniques.[6] In time, new can linings, lacquers, and coatings were developed to prevent corrosion and discoloration of products, as well as to extend shelf life. Those developments also allowed manufacturers to can previously problematic commodities such as beer, soda, and other acidic and chemically reactive goods. Bessemer steel was invented in 1856, yielding a less-expensive, better-quality can, and steel replaced iron in the tinplating process.[7] Soon after, steel for cans became even thinner, and numerous alternatives to the original "hammer and chisel" can-opening technique were conceived, including multiple early manifestations of modern-day can opening devices.[8] Such advancements were characteristic of the decades following the Industrial Revolution, leading into the Technological Revolution. The can was a shining example of how simple concepts could be systematically

enhanced during a period of great human ingenuity and expansion. Many cultural events influenced the history and development of the can in the United States, including the American Civil War. When the U.S. government invested in Borden's condensed milk products for distribution to the Union troops, the general public was finally convinced that the safety and nutrition of food in cans was not as compromised as it once had been.[9] In the early 1890s, the McKinley Tariff all but ended tinplate imports from Europe for several years, to the benefit of the American tinplate industry.[10] As national demand for cans grew, U.S. manufacturers continued to perfect production practices, and by 1900 the United States had achieved a product technically superior to any other in the world.[11]

The synergistic relationship between the tin can and American culture and development also extended to other aspects of the can's evolution. As mechanization in manufacturing increased, can measurements became more standardized, but they could still be found in an assortment of dimensions. A can's shape or size could be determined by what best suited the product, customer convenience, ease of packing and shipping, or simply to make a product appear unique. Cans were even crafted to hold non-food products, such as those for dispensing medicinal powders, transporting kerosene, or keeping tobacco in your pocket. Labeling also progressed beyond early minimalist and archaic techniques, and manufacturers made use of inventions like lithography and the offset press to keep up with an escalating number of cans. Those inventions also inspired manufacturers to employ labels as a form of advertising, which amplified competitiveness through brand recognition and loyalty. Labels were sometimes even used to make false claims about a product's curative powers, until the Pure Food and Drug Act of 1906 made those practices illegal.[12]

THIS BORDEN'S CONDENSED MILK can from about 1910 is an example of American tinplate products produced after the 1890s. Borden's condensed milk was distributed to Union troops during the American Civil War, which convinced the general public that canned food was safe for consumption.

This emerging "Tin Can Civilization" generated an abundance of



THE OLDEST ARTIFACT in Rock's collection is a small blasting powder can made in 1841 by Eley Percussion Caps of London. The can is only one-and-a-half inches in diameter, and both the side and top views are pictured here.

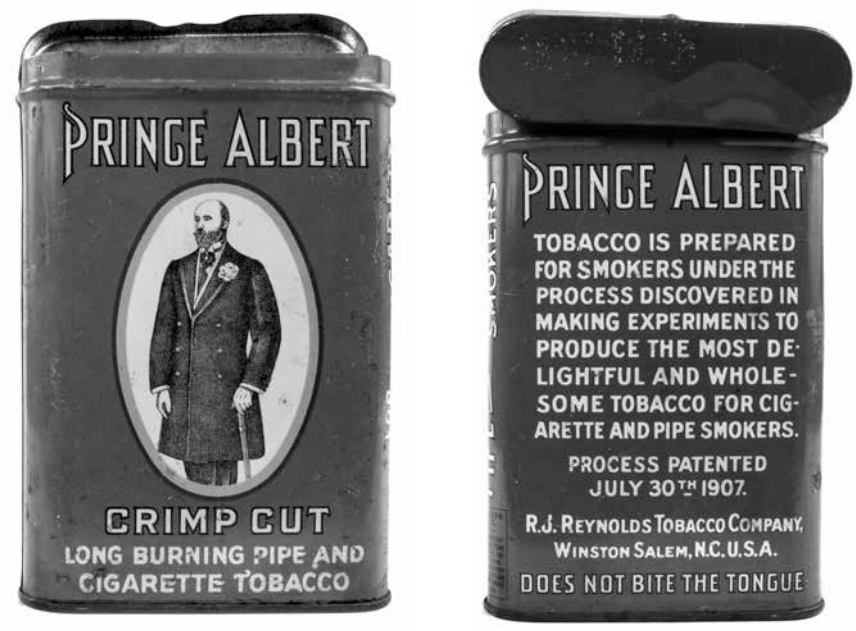
cans, due to frequent modifications and social impacts, and gave rise to a proliferation of cans found at archaeological sites in the United States and around the world. By examining can dumps and noting the variations in can technology, the volume of containers found in a single location, the types of canned goods found, and the sizes and quantities of each type, archaeologists can reach a number of conclusions. Can dumps often help determine the nature of archaeological sites, whether they were family settlements or larger industrial operations, when they were inhabited, and for how long. The cans also reveal evidence of those who populated these sites, including ethnicity, diet, and health, and even their preferences and quality of life.[13] In a broader context, the information gathered about these sites provides a critical perspective on many influential societal shifts of the nineteenth and twentieth centuries, such as the growth of industry and capitalism, immigration patterns, and the settling of the West.

The oldest can in Jim Rock's collection is a small primer can created for Eley Percussion Caps of London, England, in 1841. These small round one-and-a-half-inch diameter cans were designed to hold exploding blasting powder for rifles, pistols, and shotguns. They were considered to be a vast improvement over the

fuse or powder trail that had been used previously, and Henry Deringer, inventor of the derringer pistol, would go on to convert his famous guns so that they used only those new percussion caps.[14] Some cans in the collection are identifiably specific to earlier days in history and provide a snapshot of the lifestyles of that time. One such instance is the Vaporole Aromatic Ammonia tin from about the 1930s, which still contains three small, unopened capsules of smelling salts. Another example is an opium can, the only example in the collection made of brass; these can types are ubiquitous on sites associated with the Chinese migrant diaspora, such as mining and railroad camps.[15]

Other cans present an interesting timeline in the history of a single brand, such as the Prince Albert Tobacco upright pocket tins and packages. There are thirteen distinct versions of this packaging in the collection, spanning eighty years of production. Each variation in the cans' styles gives a clue to the year they were manufactured, such as the change from tinplate to iron to paper, or the fact that the image of the man in the Prince Albert coat appears on both the front and back of the tin, or even that the lid was altered to be an internal friction hinged lid.[16] The collection also has quite a few international tins, including cigars imported from Europe through Canada, and a can of Russian sprats (a small,

THIS VAPOROLE AROMATIC AMMONIA tin from the 1930s provides a snapshot of lifestyles from an earlier time. The tin contains three small, unopened capsules of smelling salts.



ONE OF THIRTEEN Prince Albert tobacco containers in the collection, this upright pocket tin manufactured between 1913 and 1960 held crimp-cut tobacco used for pipes and cigarettes. The Prince Albert brand tins in Rock's collection span eighty years of production.

oily fish often mistaken for sardines) that Rock purchased and brought back from Leningrad (now St. Petersburg) in 1988. These examples provide significant global context for comparison with U.S.-made can technology, as well as insight into the various ethnic groups that may have transported cultural product preferences to settlements in the United States.

ROCK CONTINUED to use his collection to educate both professionals and the general public about the archaeological implications of cans even after his retirement in 2002. Following his death in 2010, his collection was donated to the Southern Oregon University Laboratory of Anthropology (SOULA). In early 2013, staff at SOULA and Southern Oregon University's (SOU) Hannon Library first discussed the idea of creating a digital version of Rock's collection for the Southern Oregon Digital Archives (SODA).[17] Having benefitted from a grant in 2001 to adopt digital technology, the Hannon Library already had in place the necessary infrastructure for constructing digital collections and helped to launch the first two SODA collections — the Bioregion Collection and the First Nations Collection — and a third, the Southern Oregon History Collection, was later added. Today, the three collections comprise over 3,000 text docu-

ments and continue to grow. After the success of the first three collections, Hannon Library staff began building photograph and image collections that further documented southern Oregon's history and culture. Most of the early image collections resulted from collaborations with local organizations such as the Oregon Shakespeare Festival and the Southern Oregon Historical Society. Hannon Library staff also cultivated partnerships with various departments at SOU, which led to collections co-developed with the Biology department (Bumblebee and Butterfly Collections), the Anthropology department (Dean and Mary Collins Collection), and the Math department (Geometry in our World). And so, they welcomed the opportunity to work with SOULA to create the Jim Rock Historic Can Collection online database that could serve as a portable resource for researchers nationally, thereby expanding the physical collection's reach and influence.

Production on the Jim Rock Historic Can Collection began in 2014 with the conversion of 168 physical artifacts into digital representations. Shana Sandor, Digital Projects & Electronic Resources Specialist, photographed multiple sides and angles of each can in an effort to capture a three-dimensional object in a two-dimensional format without losing any of its original integrity. Sandor gave special attention to distinctive features and characteristics that might assist in classifying and dating of similar cans. A centimeter scale was photographed with the cans to assist with visualizing size and proportion. Each can photographed differently, so white or black backgrounds were selected to enhance individual coloring, and lighting was constantly rearranged to avoid glare and minimize shadows. High quality, 600 ppi, images allow visitors to zoom in and out on the photos and examine fine details more closely. Finally, the images were carefully edited to ensure that the digital reproductions matched the physical can as closely as possible.

Operating under the direction of archaeologist Chelsea Rose, SOULA compiled metadata for each item that described key attributes in a comprehensive and searchable format. The metadata fields enable archaeologists to look up a can (or can fragment) using the diagnostic elements that Rock established, such as size, shape, material, or even label text. SOU anthropology student and SOULA intern Kyle Crebbin carefully measured each can and assembled descriptive information from Rock's publications and associated notes, including meticulously transcribing and recording diagnostic markings. International tins often required the most research to complete the metadata, whether it meant using online translators to discover the product they contained, or, for example, reaching out to a librarian at Portland State University who could interpret Chinese characters on a very rusty can lid. (The characters on the can were deciphered to mean 'army general,' and additional unsuccessful research to determine the can's contents turned a relatively straightforward rusty artifact into a cryptic clue.) By treating Rock's can collection as a database, rather than

just a compilation of images, archaeologists in the field now have the ability to identify and date artifacts on the spot. The database provides the tools to translate a pile of cans into an assemblage of analytical data and helps archaeologists draw conclusions about those who left the cans behind and when.

In addition to the can collection, Sandor also photographed one of Jim Rock's famous travelling suitcases with its contents, including forty note cards Rock created to accompany the cans during his presentations. His field identification guides, which continue to be essential reference materials on the subject of cans, were also scanned. Because these highly sought-after documents had been self-published in limited quantities, archaeological labs across the nation were using third, and fourth-generation photocopies. The new searchable PDF versions of his guides, scanned directly from Rock's original copies, are now freely available to anyone through the online collection. Rock's other publications were also scanned, including a chronology of the tin can, two documents detailing can anatomy and cylindrical can end types, and an article written for *Historical Archaeology* in 1984 that focused on dating archaeological finds in the American West. A short biography of Rock written by Chuck James and Jeff LaLande and published in *Current Archaeological Happenings in Oregon* after his death, was also included in the online database. And Rock's widow, Mary Ellen, kindly provided a photograph of the man himself, so that his face might also be associated with the unique story behind the original collection.

The Jim Rock Historic Can Collection went live on December 23, 2014.[18] Since that day, the collection has had over 20,000 views, and the website has now been linked to a number of anthropological and archaeological societies and referenced in numerous scholarly works. Thanks to pioneers such as Rock, archaeologists now regularly use cans to date sites, track the availability of consumer goods to remote areas, estimate population based on the volume of food consumed, explore cultural identity through food preferences, and even identify past activities through the presence of non-food cans. Open and easy access to Rock's comprehensive gallery of historical cans allows researchers and can enthusiasts to identify even partial can fragments to a degree that provides useful information about the object and, potentially, its consumer. Although the Rock collection is complete and no more cans will be added in the future, an "Additional Resources" section online allows the collection to remain a living document. This page contains links to helpful resources that may assist researchers in dating and identifying cans, as well as other related subjects that may be of interest to anthropologists and archaeologists. Since Rock acknowledged that his research was only a starting point, recognizing those who are able to expand his findings was important to his legacy of education, so the page also contains links to documents where the Jim Rock

Historic Can Collection is referenced as a source.

At first glance, the digital collection is an archive of many examples of historic tin cans, detailing everything from their specific physical features to a broader contextual view. On closer inspection, however, researchers see beyond the rust to a deeper meaning — the significance that Rock understood long ago. The Jim Rock Historic Can Collection reveals a history of innovation and ideas, exposes the habits and values of previous generations, and tells a stunningly complex story of the American experience using a seemingly simple everyday object. It is a celebration of our Tin Can Civilization.

NOTES

The authors would like to thank Mary Ellen Rock for donating the collection to SOULA and the permissions needed to make this project possible. Thank you to Jeff LaLande for facilitating the transfer to SOULA, and to SOU students Kyle Crebbin and Mairee MacInnes, and Hannon Library staff Teresa Montgomery, Mary Jane Cedar Face, Kate Cleland-Sipfle, Jeffrey Gayton, Emily Miller-Francisco, and Paul Adalian. This project was funded in part by Sandy J. MacAllister.

1. Jim Rock, "Can Chronology" (1993), available online at http://soda.sou.edu/Data/Library1/History/ANTH02m_rock.93.01.pdf (accessed February 13, 2017).

2. Jim Rock, "Tin Canisters: Their Identification" (1989), 10, available online at http://soda.sou.edu/Data/Library1/History/ANTH02m_rock.89.01.pdf (accessed January 4, 2017).

3. "Vitafood. Our Tin Can Civilization," *Meriden Morning Record*, March 22, 1922, 13, available online at https://news.google.com/newspapers?id=RL9HAAAAIBAJ&sjid=8v4MAAAAIBAJ&pg=2723%2C4570258 (accessed January 4, 2017).

4. Jim Rock, *The State of Jefferson: The Dream Lives On* (Yreka, Ca.: Siskiyou County Museum, 1985).

5. Rock, "Tin Canisters: Their Identification".

6. Rock, "Tin Canisters: Their Identification," 50-51.

7. Rock, "Can Chronology."

8. Rock, "Tin Canisters: Their Identification," 207–215.

9. Rock, "Can Chronology."

10. Rock, "Tin Canisters: Their Identification," 14.

11. Ibid., 26.

12. Rock, "Can Chronology."

13. Rock, "Tin Canisters: Their Identification," 28–35.

14. Ibid., 150.

15. Chelsea Rose and Katie Johnson, "Rising From The Ashes: Jacksonville Chinese Quarter Site (35JA737) Data Recovery Excavations," unpublished research SOULA research report number 2013.09, on file at the Southern Oregon University Laboratory of Anthropology, Ashland.

16. Rock, "Tin Canisters: Their Identification," 167.

17. Southern Oregon Digital Archives, http://soda.sou.edu (accessed Feburary 13, 2017).

18. "Jim Rock Historic Can Collection," http://hanlib.sou.edu/cans (accessed February 13, 2017