# Identification and Dating of Japanese Glass Beverage Bottles

Douglas E. Ross

**ABSTRACT**

Japanese overseas migrants imported a variety of consumer goods from home, goods which have been recovered from Japanese, Chinese, and other archaeological sites. One class of imports granted only limited attention in the archaeological literature is glass beverage bottles, which are easily confused with their North American counterparts. Historical and archaeological data on identification and chronology of Japanese beer, soda, and sake bottles enhance their usefulness in dating sites and interpreting migrant lifeways.

## Introduction

Accompanying the arrival of Chinese and Japanese migrants to North America and elsewhere, beginning in the late 19th century, was a diverse range of imported consumer goods that appears in abundance on archaeological sites. Ceramic table- and storage wares typically dominate the Asian components of these assemblages, but they also include beverage containers, smoking paraphernalia, pharmaceutical bottles, gaming pieces, coins, and articles associated with grooming and personal hygiene, among others. Existing archaeological literature addresses many of these artifact classes in depth, but one class receiving only limited attention is Japanese glass beverage bottles. In part, this may be a product of difficulties in distinguishing these vessels from bottles produced in Europe and North America, with which they share common morphology and manufacturing technology. In fact, in mixed assemblages or on sites without obvious Asian components, bottles of Asian origin may easily be confounded with their non-Asian counterparts. Nevertheless, in many cases it is possible to identify and date Asian specimens based on morphology and makers' marks, and to determine the bottles' probable contents. The following discussion outlines the manufacturing history and distinguishing characteristics of these vessels in an effort to enhance identification and interpretive potential for archaeologists working on overseas Asian and non-Asian sites.

Although the archaeological literature on Japanese migrants and their descendants is still very modest, archaeologists have reported Japanese beer, soda, and sake bottles from sites in British Columbia, the western United States, and the Pacific Islands (Armstrong 1979; King and Parker 1984; Copp 1987; Costello and Maniery 1988; Tamir et al. 1993; Burton 1996; Greenwood 1996; Schaefer and McCawley 1999; Muckle 2001; Dixon 2004; Slaughter 2006; Ross 2009). This diverse range of sites is associated with Chinese and Japanese domestic and commercial deposits in urban and rural contexts, an urban neighborhood landfill, and World War II military fortifications and internment camps. In fact, most Asian-made beverage bottles found on Chinese sites are Japanese in origin. China did not industrialize as early as Japan and continued to ship most indigenous beverages in ceramic containers, manufacturing few Western-style beverage bottles until well into the 20th century (Godley 1986; Yang 2007).

Research for this report was conducted in conjunction with a study of Chinese and Japanese labor camps associated with an industrial salmon cannery (1885–1930) on Don and Lion islands along the Fraser River in British Columbia (Ross 2009). Before describing these bottles in detail, however, it is important to understand the history of alcohol and soft-drink production and consumption in Japan.

## Alcoholic and Carbonated Beverages in Japan

Prior to the Meiji period (1868–1912), the dominant alcoholic beverage in Japan was sake, fermented from rice (14–16% alcohol). A stronger alcoholic beverage (25% or greater), known as *shochu*, distilled from a variety of materials including rice, barley, and sweet potatoes, was also common (Laker 1975:48; Perez 2002:195). Despite

the rise of large urban sake-brewing firms in the Tokugawa and Meiji periods, small-scale rural production for local consumption, including home brewing, remained widespread (Tanimoto 2006). Both before and during the Meiji period, brewers shipped sake in large wooden casks to urban shops, and customers purchased it in ceramic bottles, often bearing the name and address of the merchant (Kanzaki 1989:68–69; Kondo 1996:50; Gauntner 2002, 2004). The first glass sake bottles did not appear on the market until 1879, but the common 1 *sho* (1.8 L) bottles, usually sealed with lightning-type ceramic closures, began replacing wooden casks by the turn of the 20th century. By the end of the Taisho period (1912–1926) however, only a small proportion of sake was sold in glass bottles, and as late as 1940 only about 40% was bottled (Laker 1975:v; Gauntner 2004; Izumi 2005:27).

Production and consumption of beer and soda in Japan are a product of Meiji industrialization and Westernization. They are closely related to the broader processes through which Western foods were introduced and accepted into the Japanese diet in the late 19th and early 20th centuries. Laker's (1975, 1980) study of the role of entrepreneurs in the development of individual brewing companies between the 1870s and 1930s offers an abundance of valuable data. Unless otherwise noted, the following discussion relies exclusively on Laker's work, including Table 1, which provides a chronology of the major companies and brands of Japanese beer.

The first commercial brewers in Japan were an American and a German operating out of the Yokohama foreign settlement at the beginning of the 1870s. These and other foreigners were responsible for teaching local merchants how to brew beer and helped them open their own breweries. Brewers imported virtually all machinery, barley malt, yeast, and hops from Germany and the United States in these early years and for a long time afterwards; they even used empty beer bottles and wine barrels from imported beverages, along with cork stoppers strapped to the bottle with wire. Beer companies also purchased locally produced porcelain and glass bottles from a range of factories. In fact, development of glass manufacturing in Japan is closely tied to the rise of the beer industry. In the early years, the market for Japanese beer increased slowly and the product was largely a luxury item enjoyed by the rich (Laker 1975:30–40, 50–92, 246–247).

By 1906, the market for beer had increased significantly in Japan, due to a higher quality, standardized product sold at a lower cost and backed by extensive marketing. The earliest beers in Japan were English-style ales which were easier to brew, but joint stock companies increasingly turned to German-style lagers, which had a longer shelf life. Longevity was an asset for a developing industry that produced more than it could immediately sell. An attempt to monopolize the industry led to a merger of the three largest companies in 1906, which became the Dai Nippon Beer Company, later expanded by further mergers. By 1913, there were only four major firms left: Dai Nippon, the Kirin Beer Company, Kabuto Beer, and the Teikoku Beer Company. Dai Nippon dominated the Japanese beer industry until 1949, when American occupation authorities forced it to split into two companies, Asahi and Nippon. It was after 1906 that beer gained widespread popularity in Japan and companies approached self-sufficiency. They achieved this by sending technicians abroad and gaining increased control over the production of machines, bottles, and raw materials (Laker 1975:42–45, 156–177).

Two key problems associated with bottle manufacture were finding a low-cost means of mass production and a more efficient closure to replace the labor-intensive cork-and-wire method. Over the years breweries relied on a combination of imports and a series of local glass companies to supply their needs. Dai Nippon was a leader in expanding and reorganizing the bottle industry through purchase and consolidation. Starting in 1911, the company also introduced semi-automatic and automatic bottle-making machines from Europe and America. In that same year, it became the first Japanese company to introduce crown closures on its bottles, and others soon followed. In 1920, Dai Nippon purchased Nippon Glass Kogyo Company, founded in 1916, whose owner was the first to acquire machines and patent rights from the Owens Bottle Machine Company of Toledo, Ohio. By the 1920s, Dai Nippon was using either Graham or Owens machines in all its plants. Bottle sizes were not standardized until 1944, but beer was typically marketed in two sizes, with the larger size modeled after the London Bass Beer Company's 630.8 ml bottle, and the smaller size of half that volume. Laker notes that Dai Nippon often used different sizes of bottle at different breweries. By the 1930s, companies were even

**Table 1.** Major Japanese Beer Companies and Brands.

| Company | Years Active | Brands (First Year) | Trademarks | Previous/Later Incarnations |
|---|---|---|---|---|
| Mitsuuroko Beer | 1874–1901 | Mitsuuroko (1874) | | |
| Hakkosha Fermentation Company | 1875–1893 | Sakurada (1879) | | Renamed Sakurada in 1890; became Tokyo Beer Company in 1893 |
| Kaitakushi | 1876–1886 | Kaitakushi (1876)<br>Sapporo (1886) | | Sold to Okura in 1886, then to Sapporo in 1887 |
| F. M. Beer Company | 1881–1888 | Tegata (1881) | | |
| Asada Beer | 1885–1910 | Asada (1885) | | |
| Japan Brewing Company | 1885–1907 | Kirin (ca. 1885) | Kirin | Sold to Kirin in 1907 |
| Marusan Beer | 1887–1906 | Marusan (ca. 1887)<br>Kabuto (ca. 1900) | Helmet | Renamed Nihon Daiichi, then Kabuto |
| Sapporo Beer Company | 1887–1906 | Sapporo (1886) | | Merged into Dai Nippon in 1906 |
| Hinode Beer | 1890–1913 | Hinode (1893) | | Sold to Dai Nippon in 1913 |
| Osaka Beer Company | 1887–1906 | Asahi (1892) | Sun rising from sea | Asahi name purchased from another brewer who had used it from ca. 1884; merged into Dai Nippon in 1906 |
| Nippon Brewing Company | 1887–1906 | Yebisu (1889) | | Merged into Dai Nippon in 1906 |
| Tokyo Beer Company | 1893–1907 | Tokyo (ca. 1893) | Cockscomb | Sold to Dai Nippon in 1907 |
| Tsingtao (China) | 1903–1916 | Tsingtao (ca. 1903) | | Anglo-German brewery, sold to Dai Nippon in 1916 |
| Dai Nippon Beer Company | 1906–1949 | Sapporo (1886)<br>Asahi (1892)<br>Yebisu (1889)<br>Kabuto (ca. 1900)<br>Tsingtao (ca. 1903)<br>Union<br>Season<br>Vitamin<br>Munchen | Sun (circle and dot) | Merger of Sapporo, Osaka, and Nippon in 1906; divided into Asahi and Nippon in 1949 |
| Kirin Beer Company | 1907– | Kirin (ca. 1885) | Kirin;<br>KB monogram | Formerly Japan Brewery Company |
| Kabuto Beer | 1907–1921 | Kabuto (ca. 1900) | Helmet | Formerly Marusan, then Nihon Daiichi; merged into Nihon Beer Kosen in 1921 |
| Teikoku Beer Company | 1912–1929 | Sakura (1913) | | Company renamed Sakura in 1929 |
| Takasago Beer Company (Taiwan) | 1919–1939 | Takasago (1920) | | Sold to Dai Nippon, Kirin, and Sakura in 1939 |
| Nichi-Ei | 1920–1923,<br>1929–1934 | Cascade (1920)<br>Chiyoda<br>Oraga (1930) | | Sold to Dai Nippon in 1934 |
| Nihon (Nippon) Beer Kosen Company | 1921–1933 | Kabuto (ca. 1900) | | Merger of Nihon Seibin, Kabuto, and Teikoku Kosen in 1921; merged with Dai Nippon in 1933 |
| Sakura Beer Company | 1929–1943 | Sakura (1913) | | Merged with Dai Nippon in 1943 |

Source: Laker 1975.

grinding competitors' names off empty bottles and reusing them (Laker 1975:88, 247–262).

In addition to dominating the Japanese market, Dai Nippon created subsidiary companies in Korea and parts of China, occupied as a result of Japanese military expansion. As a result, export booms occurred during World War I and through the 1930s in Southeast Asia and the Pacific Islands. In 1916, following Japanese occupation of the German enclave in China, the company purchased the Tsingtao (Qingdao) brewery. This Anglo-German brewery had been operating since 1903 in the city of the same name. Dai Nippon and other beer companies also expanded into production of soft drinks and other non-alcoholic Western beverages, which began appearing in Japan in the 1870s. In 1907, the Teikoku Kosen Company established itself in Osaka with equipment purchased from the Apollinaris Soft Drink Company in England. It produced two soft drinks in dark green bottles with crown closures, Mitsuya (Three Arrows) and Kujaku (Peacock). Mitsuya cider became Japan's most popular soft drink. In 1921, the company merged with Kabuto Beer and the Nihon Bottle Manufacturing Company to become the Nihon Beer Kosen Company. It later merged with Dai Nippon in 1933 and became the largest soft-drink producer in the country. Dai Nippon had already introduced its own soft drinks: Ribbon Citron (1909), Ribbon Tansan (soda water) and Ribbon Raspberry (1914), and the orange-nectarine flavored Napolin (1923). In 1928 to 1929, Kirin brought out Kirin Lemon, Kirin Citron, Kirin Cider, and Kirin Tansan, although only the lemon sold well. The Teikoku Beer Company (later Sakura) produced Miyoshino Lemon and Miyoshino Cider from 1920 (Laker 1975:179–204).

## Japanese Bottle Morphology

By combining archaeological and historical evidence, it is possible to provide a basic description of some of the most common Japanese beverage bottles. Morphological terms used here generally conform to those used on the Historic Glass Bottle Identification & Information Website (Society for Historical Archaeology 2009). In terms of size, the large and small Japanese beer bottles correspond to the range for quart-sized (22–30 oz., 650–887 ml) and pint-sized (11–16 oz., 325–473 ml) beer bottles in North America. For sake it is the smaller size (4 *go*, 720 ml) that corresponds to the North American quart bottle, and which is common on archaeological sites.

### *Sake Bottles*

Many glass sake bottles found on North American sites are deep aqua blue in color, and have a champagne body style, with a ring finish and dimple holes for a porcelain lightning-type stopper, or a club sauce-like finish (Figures 1, 2). Some sake bottles also contain vertical embossed lines and makers' marks on the body and shoulder. A bottle recovered from a Japanese logging camp in the Seymour Valley in British Columbia displays the name of the Hakutsuru (White Crane) sake brewery founded in Osaka in 1743 (Muckle 2001; Hakutsuru Sake Brewing Co., Ltd. 2008). A lightning-type stopper from the Japanese fishing camp on Don Island, British Columbia is marked *Otsuka Seijou* (Otsuka Vintage) in blue transfer-printed characters, a sake brewery about which further details are needed (Ross 2009) (Figure 3). Slaughter (2006) identified remains of at least 20 glass sake jugs from Hawaiian breweries during a surface survey of Camp Amache, a Japanese internment camp in Colorado. They were typically clear, aqua, or green gallon jugs with small round handles on the shoulder and makers' marks embossed on the bases.

Merchants also shipped sake in cylindrical stoneware bottles, known as *saka-bin*, similar in shape to non-Asian champagne-style glass bottles with a bluish white or bluish grey exterior glaze (Stoltie 1995; Schaefer and McCawley 1999) (Figure 4). Such vessels are commonly associated with commercial establishments, and often have calligraphic, printed, or stamped marks of the sake brewer or retailer (Cort 1979:212; Jahn 2004:302). Some examples recovered from Mugu Fish Camp in California had remains of lead seals similar to those found on wine bottles (Schaefer and McCawley 1999). Remains of at least 152 *saka-bin*, in both large and small sizes, were recovered during salvage excavations in Walnut Grove, California (Costello and Maniery 1988:25). Japanese-style vessels known as *tokkuri* were also used, and consist of cylindrical or bulbous bottles of stoneware or porcelain with slender necks and a flaring rim, some with faceted or fluted sides (Stoltie 1995; Schaefer and McCawley 1999). Porcelain specimens generally function as domestic serving vessels.

**Figure 1.** Japanese beverage bottles from North American sites (*left* to *right*): Mitsuya Cider (turn mold, height 23.8 cm); Teikoku Beer (three-piece mold, height 29.9 cm); Dai Nippon Beer (Owens machine, height 28.7 cm); Hakutsuru Sake (three-piece mold, height 30.6 cm). (Photo by author, 2008.)

**Figure 2.** Machine-made Japanese *sake* bottle from Don Island with club sauce-like finish. (Photo by author, 2008.)


**Figure 3.** Porcelain lightning-type stopper from Don Island, marked "Otsuka Vintage." (Photo by author, 2008.)

*Beer Bottles*

Many Japanese beer bottles were mold blown in champagne or export body styles with mineral finishes, but after 1911 were also machine-made with crown finishes. Data from archaeological specimens suggest other manufacturing trends. Walnut Grove, California (Costello and Maniery 1988), Lovelock, Nevada (Armstrong 1979), and Don Island, British Columbia (Ross 2009) are pre-World War II Chinese and/or Japanese sites, and in all cases most beer bottles appear to be of the large size and amber in color. A Sakura bottle recovered from Walnut Grove has a champagne-style body, as does a complete mold-blown Dai Nippon bottle from the Asian American Comparative Collection (AACC) at the University of Idaho, and a similar Teikoku bottle in the reference collection at Simon Fraser University. One Dai Nippon specimen dating to the 1920s from the Seymour Valley logging camp, is machine made with an export body style (the Teikoku and Dai Nippon examples appear in Figure 1). Many bottles have embossed marks in Japanese or English on the shoulder and/or the body near the base, although marks on some fragmentary Dai Nippon bottles from Walnut Grove and Lion Island are acid etched (Costello and Maniery 1988; Ross 2009) (Figure 5, Table 2). Japanese bottle marks typically follow the pre-World War II convention of reading right to left, and characters presented in Table 2 conform to that practice.

The bottles from Chuuk (Truk) described by King and Parker (1984) are primarily machine-made with crown finishes, the majority coming from a Japanese World War II feature dating from 1941 to 1945. These bottles occur in both large and small sizes and in various shades of green and amber. Because the sample from earlier sites is so small, it is likely that pre-World War II bottles also vary in size and color. The two most common bottle types in the Chuuk assemblage are from Dai Nippon and Kirin, the

**Figure 4.** Stoneware *saka-bin* in the Asian American Comparative Collection at the University of Idaho, in one-liter (*left*) and half-liter (*right*) sizes (heights 28.5 cm and 21.7 cm). (Photo by author, 2006.)

**Figure 5.** Embossed (*top*) and acid-etched (*bottom*) registered trademark for the Dai Nippon Beer Company. (Photos by author, 2008.)

former with an export body style and the latter a champagne body. Dai Nippon bottles are embossed in English or Japanese with a logo of the sun (a circle with a dot in the center), a monogram of the letters *DNB*, and a five-pointed star on the base, whereas Kirin bottles are embossed in Japanese and have the monogram *KB* (Figure 6*a–c*). Both styles are similar to specimens from the earlier Seymour Valley site. The Sakura bottle from Walnut Grove has the name embossed in English and Japanese, accompanied by a cherry blossom logo.

*Soda Bottles*

Japanese soft-drink bottles appear to occur only in the smaller size. Mitsuya (Three Arrows) cider bottles are commonly green and turn molded with a crown finish and an embossed ring around the neck. They have the name "Mitsuya" embossed in Japanese on the base, and a logo comprised of the fletching from three arrows (Figure 6*d*). One example from the Chinese bunkhouse on Lion Island also has the letter *B* inside a circle in the middle of the base, while another is machine made with the logo located on the body near the base (Ross 2009). Another green soft-drink bottle from Lion Island, blown in a three-piece cup-bottom mold and without a neck ring, has the name "Hirone Mineral Springs Company" embossed on the base. It bears a cherry blossom and wave crest above the shoulder (Figures 6*e*, 7*a*).

In addition to the well-known stoneware liquor bottles, Chinese medicinal liquor was sold in green or amber,

**Table 2.** Japanese Bottle Marks from the Chinese Bunkhouse on Lion Island.

| Vessel | Color | Manufacture | Description | Mark | Translation |
|---|---|---|---|---|---|
| 1 | Amber | Indeterminate | Shoulder fragment | ルービ | Beer |
| | | | | 録登 (Toroku) | Registered |
| 2 | Emerald | Indeterminate | Base fragment | 会式株 (part of Kabushiki Kaisha) | Company |
| 3 | Amber | Turn mold | Base fragment | 造醸社会式 (part of Kabushiki Kaisha Jouzou) | Brewing Company |
| 4 | Amber | Turn mold | Base and partial body | 造醸社会式株酒麦本日大(Dai Nippon Bakushu Kabushiki Kaisha Jouzou) | Great Japan Beer Brewing Company |
| | | | | 標商録登+ sun (dot-in-circle) trademark | Registered Trademark |
| 5 | Amber | Mold blown | Base and partial body | ——KOKU BEER (Teikoku Beer) | Imperial Beer |
| 6 | Olive | Turn mold | Partial base | Part of Three Arrows trademark | (Mitsuya cider) |
| 7 | Olive | Indeterminate | Body fragment | 式株泉鉱(?) (part of Kosen Kabushiki Kaisha) | Mineral Springs Stock (Company) |
| 8 | Olive | Indeterminate | Shoulder fragment | 内宮 (Miyauchi) | Company name? |
| 9 | Emerald | Mold blown | Partial base | Three Arrows trademark, backwards "5" on base | (Mitsuya cider) |
| 10 | Olive | Indeterminate | Body fragment | Dot-in-circle trademark | (Dai Nippon Beer Company) |
| 11 | Emerald | Turn mold | Base and partial body | 矢ツ三 (Mitsuya) + Three Arrows trademark + *B* | Three Arrows (cider) |
| 12 | Olive | Turn mold | Base | 矢ツ三(Mitsuya) + Three Arrows trademark | Three Arrows (cider) |
| 13 | Olive | Three-piece mold | Nearly complete | 社会式株泉鉱根広(Hirone Kosen Kabushiki Kaisha) + waves and cherry blossom crest | Hirone Mineral Springs Company |
| 14 | Amber | Indeterminate | Partial base and body | 本日大 (Dai Nippon) + sun (dot-in-circle) trademark | Great Japan (Beer Company) |
| | | | | 標商録(part of Toroku Shyohyo) | Registered Trademark |

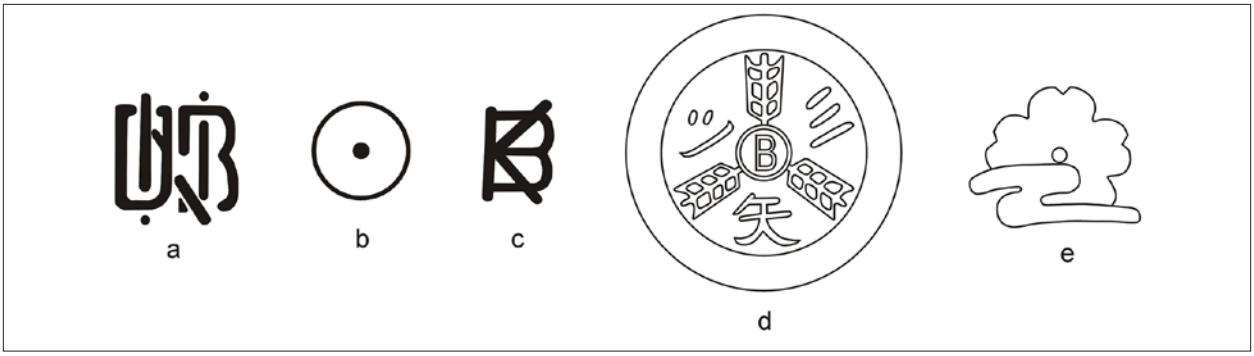


**Figure 6.** Logos on Japanese beverage bottles: (*a*) and (*b*) Dai Nippon Beer; (*c*) Kirin Beer; (*d*) Mitsuya Cider; (*e*) Hirone Mineral Springs Company. (Drawing by author, 2008.)


**Figure 7.** (*a*) Hirone Mineral Springs Company bottle from Lion Island (height 23.4 cm). (Photo by author, 2008.); (*b*) Machine-made Chinese glass liquor bottle from the Asian American Comparative Collection, embossed with the name "Wing Lee Wai." (Photo by author, 2006.); (*c*) Deep aqua blue Asian bottle from Lion Island (turn mold, height 23.2 cm). (Photo by author, 2008.)

pint-sized glass bottles with or without embossed neck rings, similar to those used for Japanese soda (Figure 7*b*). Ritchie (1986:195–198) argues that these bottles may have been an early-20th-century alternative or successor to their ceramic counterparts. This may be why they are not reported from sites dating between the mid- and late 19th century, although further work is required to confirm the date of introduction. Some are embossed or have paper labels with "Wing Lee Wai," the name of a Chinese liquor producer. Unmarked bottles are difficult to distinguish from their Japanese counterparts, however, and specimens without neck rings could be Chinese, Japanese, or non-Asian. For example, six fragmentary bottles recovered from Lion Island comprising intact crown finishes and neck rings, three olive colored and three a deep aqua blue, could be either Chinese liquor or Japanese soda (Ross 2009) (Figure 7*c*). Base fragments with embossed marks suggest the olive bottles may all be from Mitsuya Cider, but the aqua blue specimens are more ambiguous. A common feature of many mold-blown Asian bottles, however, is an abundance of air bubbles in the glass and a tendency for them to be slightly asymmetrical.

## Conclusions

Historical and archaeological data are providing important details on the functions and manufacturing histories of Japanese glass beverage bottles, which until now have received little attention in the archaeological literature. Further research in museums and archives in Japan will refine the interpretive potential of these Asian imports, especially the histories of individual companies and their manufacturing technology. Nevertheless, this brief overview offers a strong foundation for enhancing our understanding of the daily lives of Asian migrants in overseas contexts.

## ACKNOWLEDGMENTS

A complete set of acknowledgments associated with this research accompanies my Ph.D. dissertation, but here I would like to highlight the individuals who made significant contributions to this particular component of my study. They are Scott Baxter, Leland Bibb, Ross Jamieson, Dana Lepofsky, Trelle Morrow, Bob Muckle, Takashi Sakaguchi, and Priscilla Wegars, all of whom shared valuable research data and expertise, or aided in shaping the ideas found herein. This research was funded in part by a Social Sciences and Humanities Research Council of Canada Doctoral Fellowship.

## REFERENCES

Armstrong, Jane
1979 The Lovelock Bottles. In *Archaeological and Historical Studies at Ninth and Amherst, Lovelock, Nevada,* Eugene M. Hattori, Mary K. Rusco, and Donald R. Tuohy, editors, pp. 199–250. Nevada State Museum Archaeological Services, Carson City.

Burton, Jeffery F. (editor)
1996 *Three Farewells to Manzanar: The Archaeology of Manzanar National Historic Site, California*. Western Archaeological and Conservation Center, National Park Service, U.S. Department of the Interior, Publications in Anthropology 67, Tucson, AZ.

Copp, Stanley A.
1987 Excavation of the Marpole-Eburne Site (DhRs 25): An Urban Garbage Dump in an Early Vancouver Suburb. Report to the Heritage Conservation Branch, Victoria, BC, from Vancouver Community College, Langara Campus, Vancouver, BC.

Cort, Louise Allison
1979 *Shigaraki, Potters' Valley*. Kodansha International, Tokyo, Japan.

Costello, Julia. G., and Mary L. Maniery
1988 *Rice Bowls in the Delta: Artifacts Recovered from the 1915 Asian Community of Walnut Grove, California*. Institute of Archaeology, University of California, Occasional Paper 16, Los Angeles.

Dixon, Boyd
2004 The Archaeology of Rural Settlement and Class in a Pre-WWII Japanese Plantation on Tinian, Commonwealth of the Northern Mariana Islands. *International Journal of Historical Archaeology* 8(4):281–299.

Gauntner, John
2002 *The Sake Handbook*. Tuttle Publishing, Boston, MA.

2004 Sake in Glass Bottles. Sake World Sake e-Newsletter 53, John Gauntner's sake-world.com, Kamakura, Japan <http://www.sake-world.com/html/sw-2004_2.html>. Accessed 11 April 2008.

Godley, Michael R.
1986 Bacchus in the East: The Chinese Grape Wine Industry, 1892–1938. *Business History Review* 60(3):383–409.

Greenwood, Roberta S.
1996 Down By the Station: Los Angeles Chinatown, 1880–1933. *Monumenta Archaeologica* 18. Institute of Archaeology, University of California, Los Angeles.

Hakutsuru Sake Brewing Co., Ltd.
2008 Hakutsuru Sake. <www.hakutsuru-sake.com>. Accessed 22 May 2008.

Izumi, Sensuke
2005 *The Izumi Family: Seven Generations of Sake Making*. YS Publishing, East Setauket, NY.

Jahn, Gisela
2004 *Meiji Ceramics: The Art of Japanese Export Porcelain and Satsuma Ware 1868–1912*. Arnoldsche, Stuttgart, Germany.

Kanzaki, Noritake
1989 *Japanese Food: Customs and Traditions*. Understanding Japan No. 56, International Society for Educational Information, Tokyo, Japan.

King, Thomas F., and Patricia L. Parker
1984 *Pisekin Nóómw Nóón Tonaachaw: Archaeology in the Tonaachaw Historic District, Moen Island*. Center for Archaeological Investigations, Southern Illinois University, Occasional Paper No. 3, Carbondale.

Kondo, Hiroshi
1996 *The Book of Sake*. Kodansha International, Tokyo, Japan.

Laker, Joseph Alphonse
1975 *Entrepreneurship and the Development of the Japanese Beer Industry, 1872–1937*. Doctoral dissertation, Department of History, Indiana University, Bloomington. University Microfilms International, Ann Arbor, MI.

1980 Oligopoly at Home and Expansion Abroad: The Development of the Japanese Beer Industry, 1907–1937. *Proceedings of the Second International Symposium on Asian Studies, 1980*, pp. 313–324. Asian Research Service, Hong Kong.

Muckle, Bob
2001 The Seymour Valley Archaeological Project. *The Midden* 33(2):2–6.

Perez, Louis G.
2002 *Daily Life in Early Modern Japan*. Greenwood Press, Westport, CT.

Ritchie, Neville A.
1986 Archaeology and History of the Chinese in Southern New Zealand During the Nineteenth Century: A Study of Acculturation, Adaptation, and Change. Doctoral dissertation, Department of Anthropology, University of Otago, Dunedin, New Zealand.

Ross, Douglas E.
2009 Material Life and Socio-Cultural Transformation among Asian Transmigrants at a Fraser River Salmon Cannery. Doctoral dissertation, Department of Archaeology, Simon Fraser University, Burnaby, BC.

Schaefer, Jerry, and William McCawley
1999 A Pier Into the Past at Point Mugu: The History and Archaeology of a Japanese-American Sportfishing Resort. Report to U.S. Army Corps of Engineers, Los Angeles District, from ASM Affiliates, Encinitas, CA.

Slaughter, Michelle Ann
2006 An Archaeological and Ethnographic Examination of the Presence, Acquisition, and Consumption of Sake at Camp Amache, a World War II Japanese Internment Camp. Master's thesis, Department of Anthropology, University of Colorado, Denver.

Society for Historical Archaeology
2009 Historic Glass Bottle Identification & Information Website. Society for Historical Archaeology, University of Montana, Missoula <http://www.sha.org/bottle/index.htm>. Accessed 28 April 2009.

Stoltie, Bernard P.
1995 Tokkuri and Friends: A Salutation to the Japanese Sake Bottle. *Arts of Asia* 25(1):101–112.

Tamir, Orit, Scott C. Russell, Karolyn Jackman Jensen, and Shereen Lerner
1993 Return to Butte Camp: A Japanese-American World War II Relocation Center. Report to Bureau of Reclamation, Arizona Projects Office, from Archaeological Consulting Services, Ltd., Cultural Resources Report No. 82, Tempe, AZ.

Tanimoto, Masayuki
2006 Capital Accumulation and the Local Economy: Brewers and Local Notables. In *The Role of Tradition in Japan's Industrialization,* Masayuki Tanimoto, editor, pp. 301–322. Oxford University Press, Oxford, UK.

Yang, Zhiguo
2007 This Beer Tastes Really Good: Nationalism, Consumer Culture and Development of the Beer Industry in Qingdao, 1903–1993. *The Chinese Historical Review* 14(1):29–58.

**Douglas E. Ross**
Department of Archaeology
Simon Fraser University
8888 University Drive
Burnaby, BC Canada V5A 1S6