

## **FOOD CONSUMPTION AND LESSONS IN ANIMAL HUSBANDRY: VERTEBRATE REMAINS FROM THE ST. BONIFACE INDIAN SCHOOL**

SUSAN ARTER  
SAN DIEGO ZOOARCHAEOLOGY LABORATORY  
SAN DIEGO NATURAL HISTORY MUSEUM

*Zooarchaeological remains associated with the boarding school's early period (1890-1920) reflect consumption of livestock, domesticated fowl, and limited wild fauna. Included were a number of hand-sawn meat cuts. These finished cuts exhibit considerable variability in the width of individual steaks, many having been cut diagonally rather than perpendicularly to the bone length, some with asymmetrical saw striations. The cuts are indicative of nonprofessional butchers, undoubtedly evidence of the students themselves learning, among other vocational training offered, how to butcher domesticated fauna.*

The St. Boniface Indian School was established in 1890 by the Bureau of Catholic Indian Missions in Riverside, California, within the district of Banning and just north of Beaumont (Figure 1). The school site was chosen for its proximity to a number of Indian reservations within a 70-mi. radius. One of the main goals was to provide vocational training for Indian students. The boarding school opened its doors on September 1 to 125 students, 90 percent of whom were full-blooded Indian children (Hoover et al. 2005:47). While the majority of students came from surrounding reservations, St. Boniface eventually accepted students from Santa Barbara, Arizona, New Mexico, and Mexico. Over time, Anglo and African-American children joined the student body (Bell 2011).

Over its 88-year history, the St. Boniface Indian School taught close to 8,000 students. In addition to basic academics and catechism, students were taught domestic activities, practical trades, art, music, drama, and sports. Students also helped produce *The Mission Indian*, a bi-monthly school newspaper produced on campus in the print shop set up by Father Hahn during his 23-year tenure at St. Boniface (Bell 2011).

Activities specific to girls included general housekeeping, baking, dressmaking, and fancy needlework. Boys were taught blacksmithing, shoemaking, and carpentry. They also learned about farm work during the fall and early winter months under the guidance of experienced farmers hired to oversee cultivated lands and orchards (Hoover et al. 2005:49).

The property included 260 acres with irrigated fields and orchards containing 1,000 productive pear, apricot, and plum trees (Figure 2). St. Boniface produced olive oil and grapes for wine, and domesticated livestock. In addition to general farm work, boys were “taught how to care for the orchards as well as the animal husbandry of cows, chickens, horses, sheep, rabbit and hogs” (Hoover et al. 2005:50). The St. Boniface campus remained in use until 1969, when a new school was built in Beaumont, California.

### **ARCHAEOLOGICAL RESEARCH**

An archaeological survey was initially conducted on-site in 1980 by Paul Chace (Chace and Laylander 1980), and again in 1990 with inclusion of shovel test pits by Philip de Barros and Paul Farnsworth of the Chambers Group (de Barros and Farnsworth 1990). The latter study revealed two significant middens, one near the school's lunch area and the other at the site of the pig pens where foundations for three pig enclosures were identified. Proposed development on the school grounds resulted in further archaeological research in 2005 by L & L Environmental, Inc. (Hoover et al. 2005). The latter initiated shovel test pits and excavated a number of 1-x-1-m units, including 12 focused on the middens identified by the Chambers Group.



Figure 1. Location of St. Boniface Indian School (© 2013 Google-Maps).



Figure 2. Overview of St. Boniface School grounds.

All matrix excavated in 2005 was sieved through ¼-in. hardware mesh. The majority of vertebrate remains were recovered just south of the enclosures where the hogs were fed (de Barros and Farnsworth 1990:3-12). It is assumed that the food refuse from this midden had been tossed to the pigs. While few specimens retained evidence of pig, carnivore, or rodent gnawing, the assemblage was highly fragmented (Arter 2007:2), likely due to pig trampling.

### **VERTEBRATE REMAINS**

Fauna recovered from the pig area midden reached a depth of 90 cm, with the majority of specimens concentrated between 30 and 60 cm. The specimens totaled 1,697 and weighed 1,232 g. Most identifiable remains were domesticated livestock and chickens. Cattle bones were predominant, followed by pig, caprine (lamb and possibly goat), chicken, and turkey. Deer, jackrabbit, gopher, unidentified rodent, snake, and fish elements were infrequent, accounting for a small proportion of the assemblage (Figure 3, upper). Unidentified large and medium-sized mammal and bird remains also reflect the predominance of cattle, among other domesticates (Figure 3, lower).

Skeletal element representation and butchering scars among identifiable livestock remains and unidentified large and medium-sized mammal bones reflect on-site processing of entire carcasses, Euro-American-style, with handsaws. This may have included dairy cows past their milk-producing prime. However, it is probable beef cattle were acquired and processed on-site, since the 14 ageable cow specimens represent animals culled prior to four years of age but over nine months (Arter 2007:4).

Among the cow and large mammal bones, 38 percent of all specimens were non-meat-bearing butchery offal, including head and foot bones. The remaining 62 percent were meat-bearing limb, pelvic, and vertebral elements. Among pig and caprine remains, 58 percent of pig bones and 31 percent of caprine remains were butchering waste (Figure 4).

### **EURO-AMERICAN BUTCHERING METHODS**

Historically, the Euro-American butchering tradition involved the use of handsaws and large cleavers or axes to halve a suspended carcass longitudinally down the spine and quarter it transversally across the spine into primary sections. Meat-bearing elements were secondarily cross-sawn into finished bone-in roasts and steaks, leaving few whole bones (Flower et al. 1982:201; Schulz et al. 1987:39). Handsaws were used prior to the mechanization of saws in the late 1920s, and until the 1930s in the western U.S. (Langenwalter 1988:23). Scar striations produced by handsaws are distinct from those produced by mechanized saws (Figure 5). Mechanized saw striations are uniformly parallel, maintaining a consistent depth. Striations produced with a handsaw are less uniform in both aspects, particularly when produced by less-experienced butchers.

Sawn bones from Old Town San Diego's José Antonio Aguirre Adobe provide a frame of reference for the St. Boniface saw cuts. Finished beef cuts from the household of this wealthy landowner and shipping merchant date largely to the 1860s. They appear to be hand sawn by an experienced butcher (Arter 2001:6-17). The earliest butcher shop known to have serviced Old Town clientele dates to 1853 (Flower et al. 1982:189, 193). The Aguirre meat cuts include a significant number of high-quality steaks. The saw striations exhibit uniformity in the distance between striations, their depth, and parallel orientation as evidenced on the round steak beef cuts shown in Figure 6 (upper).

The width of steaks cuts produced by experienced butchers is more uniform or standardized. The cuts often range from ½ in. to 1 in. thick, with the through-cuts on either side of steak bones parallel to each other and generally perpendicular to the axis of the bones from which they were cut (Figure 6, lower). Of 101 beef, pork, and caprine steak cuts from the Aguirre household, 84 are consistently ½ in. to 1 in. thick (Figure 7).

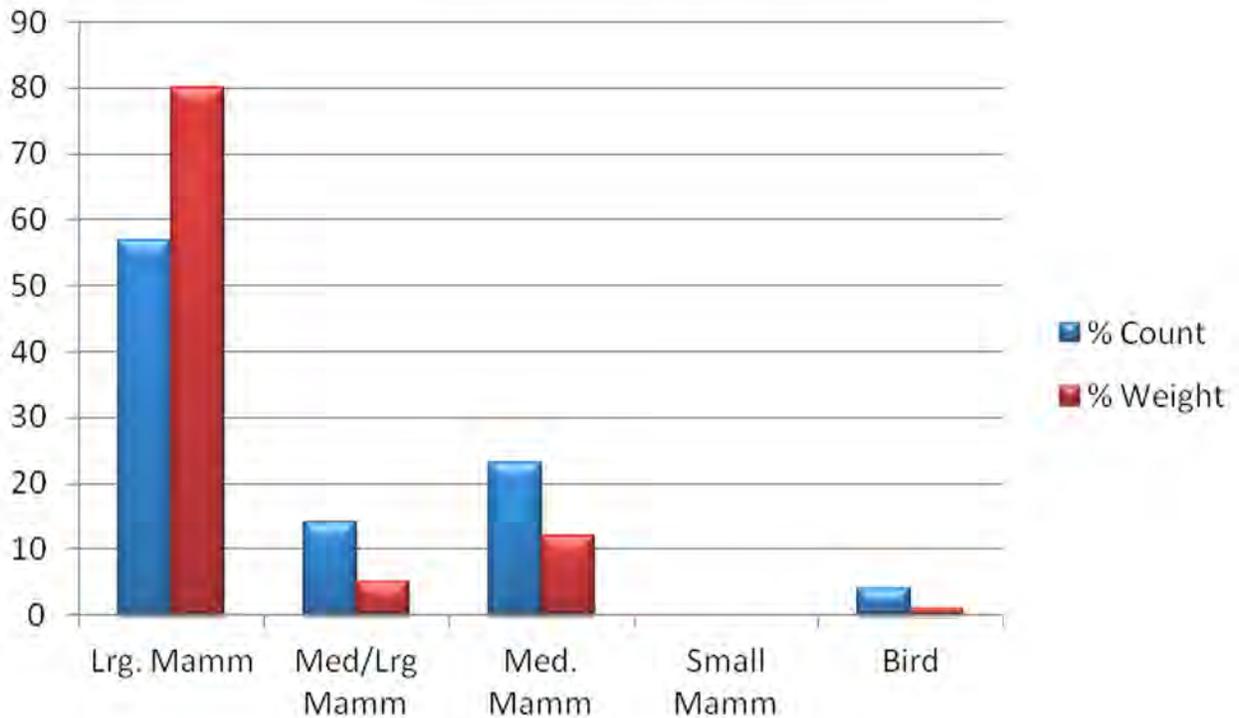
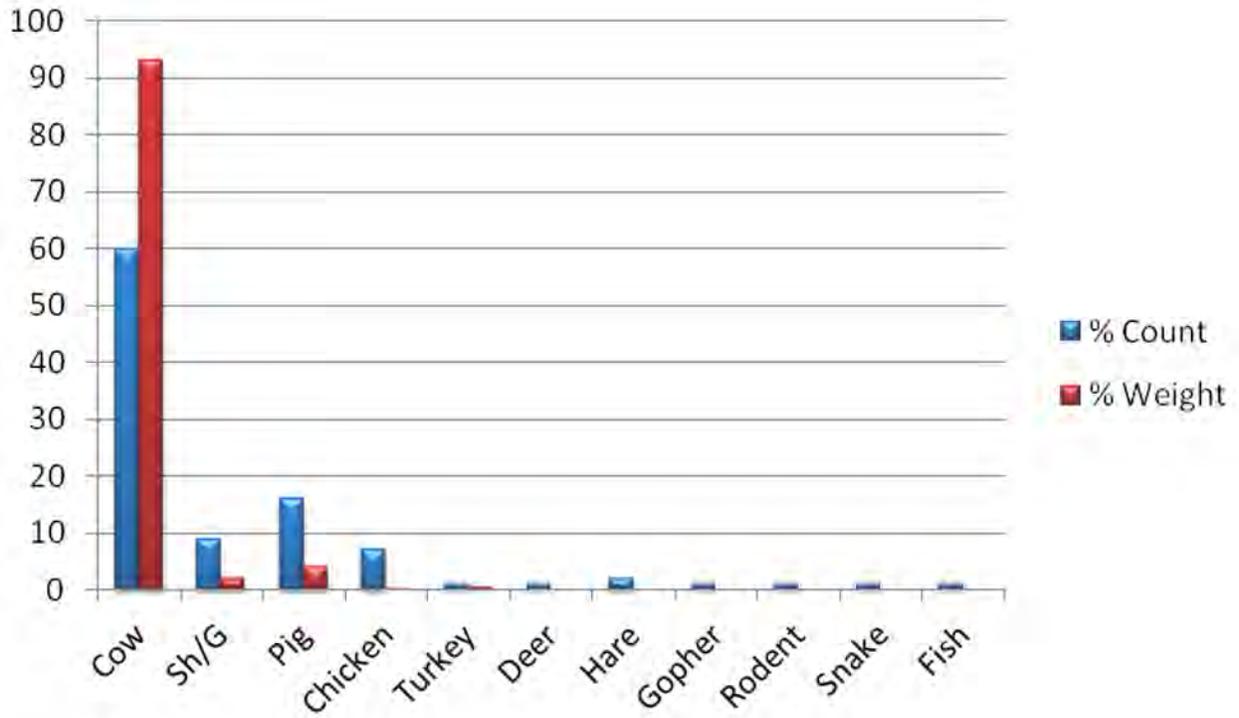


Figure 3. (upper) Relative frequency of identifiable specimens, by count and weight ( $n = 151$  specimens weighing 4,104 g). (lower) Relative frequency of unidentifiable specimens, by count and weight ( $n = 1,536$  specimens weighing 2,924 g).

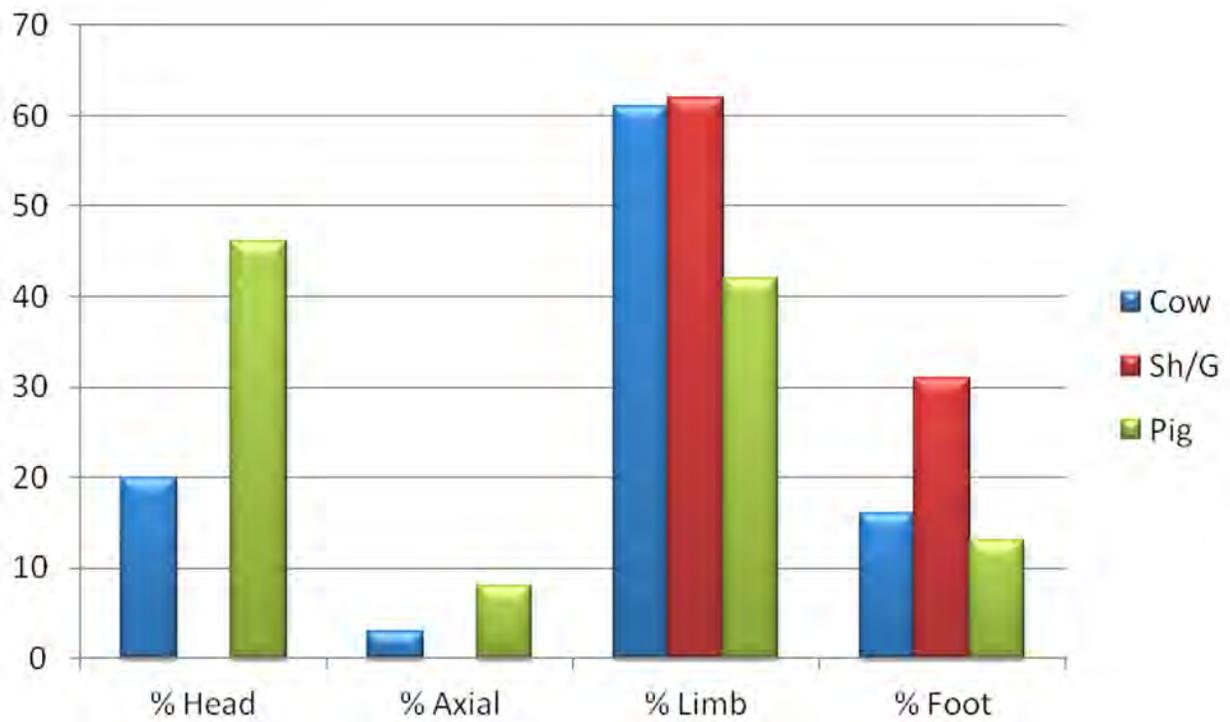


Figure 4. Relative frequency of cattle, caprine, and pig skeletal remains (n = 1,363 specimens).

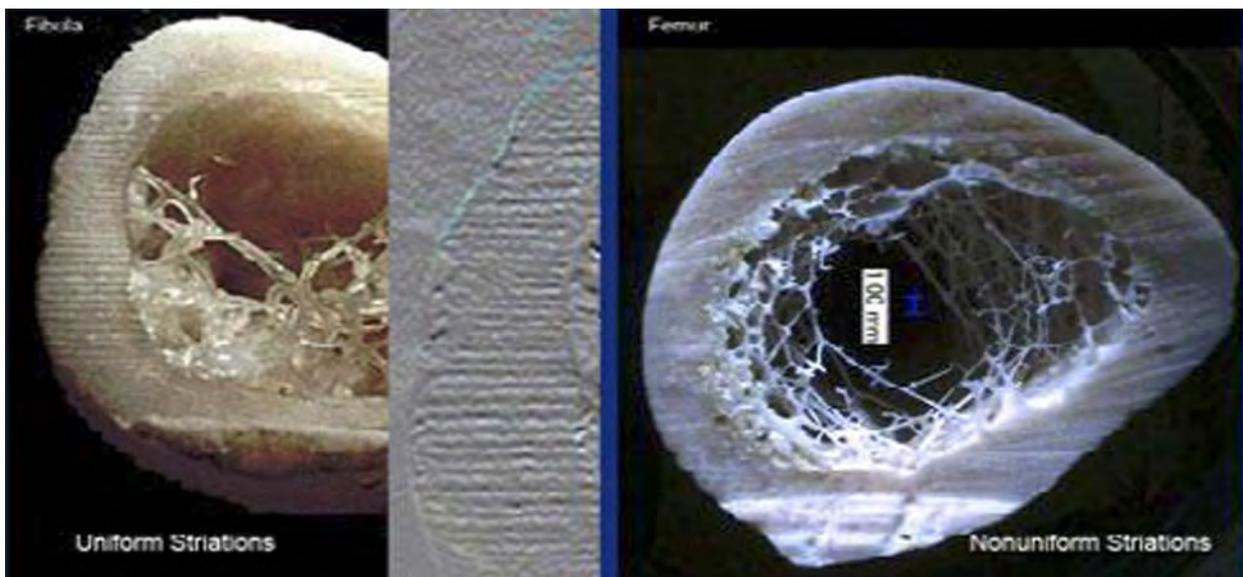


Figure 5. Machine-cut vs. handsaw-cut striations (from Symes et al. 2010).



*Figure 6. (upper) Hand-sawn round steak beef cuts from the Aguirre Adobe. (lower) Aguirre household finished caprine cuts with uniform widths sawn perpendicular to the bone axis.*

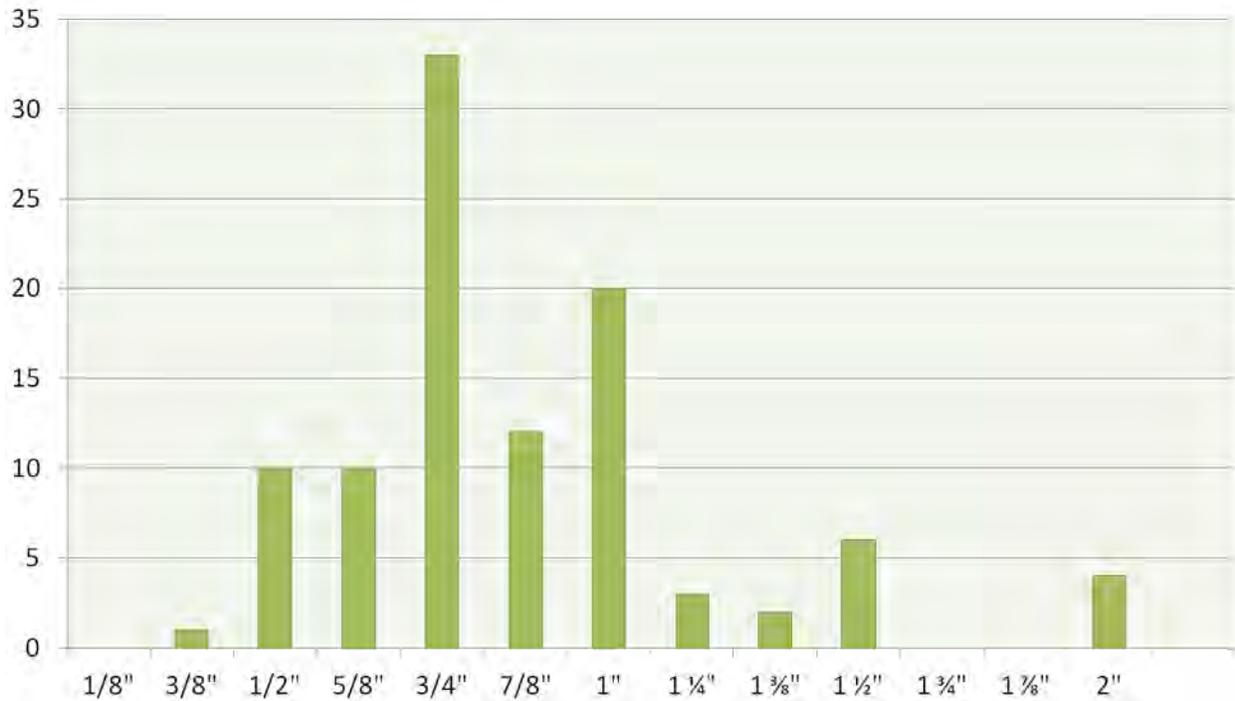


Figure 7. Aguirre household beef, pork, and caprine steak cut widths (n = 101).

Upon his death, Aguirre’s widow donated their multiroomed adobe in the heart of Old Town San Diego to Father Ubach, who opened the St. Anthony’s Industrial Indian School. Examination of the St. Anthony’s School fauna previously analyzed by Mitchell (2005) indicates that these cuts were also hand sawn by experienced butchers. They, too, reflect uniformity in the distance between striations, in their depth and orientation, and in the width of the cuts (Figure 8).

Unlike the Aguirre steaks, finished cuts from St. Boniface Indian School reflect treatment by experienced as well as inexperienced butchers. A number of beef, pork, and caprine cuts do appear hand-sawn by fairly experienced butchers, likely the farmers hired to work with students while managing fields, orchards, and livestock (Figure 9, upper). Other specimens were produced by less experienced butchers, likely by the students as part of their animal husbandry training. Saw striations on beef steaks pictured in Figures 9 (lower) and 10 are less uniform in the depth and distance between striations. The saw scars are also less parallel to each other. In addition, steak cut widths represented in Figure 11 are more varied compared to those from the Aguirre household, which are more standardized (Figures 6 and 8).

The thicknesses of 76 St. Boniface beef, pork, and caprine steaks are plotted in Figure 12. They range from 1/8 to 2 in. thick. It should be noted that specimens wider than 2 in. are considered roast cuts and are not included in the graph. The majority (72 percent) fall between 3/8 and 3/4 in. as compared to those from the Aguirre household, where 84 percent of steak cuts fall between 1/2 and 1 in., a more standardized steak width (Figure 7). Among the Aguirre steaks, 95 percent fall between 1/2 in. and 1 1/2 in., while 25 percent of St. Boniface steaks fall outside of this range. In addition to the likelihood that students were responsible for the variability of St. Boniface steak widths, the smaller widths may also reflect efforts to economize by producing thinner steaks, as 74 percent of specimens were 3/4 inch thick or less.



Figure 8. (left) St. Anthony's School sawn beef round steaks  $\frac{1}{2}$  to 1 in. thick with uniform striations. (right) St. Anthony's School beef blade steaks with uniform cut widths.

## CONCLUSION

The greatest quantity of bone refuse generated during test excavations conducted by L & L Environmental came from the midden adjacent to the pig enclosures. These bones likely represent meat consumed by students and school staff. Beef and pork parts ranging from head to toe, and sheep parts from the neck to carpals and tarsals, reflect on-site culling and meat preparation.

Meat cuts were processed with handsaws according to Euro-American butchering methods. Some of the St. Boniface steak cuts are comparable to those from the Aguirre Adobe, which were clearly processed by experienced butchers. However, a number of St. Boniface specimens exhibited variability in the distance between striations, their depth, and orientation. Less standardized widths with less parallel through-cuts were also evident on many of the St. Boniface steak cuts. The data suggest that livestock butchering and meat preparation may well have been included among the farm work and animal husbandry lessons provided by professional farmers at the St. Boniface Indian School.

## ACKNOWLEDGEMENTS

The author would like to thank Leslie Irish, L & L Environmental, for kindly allowing reexamination of the St. Boniface bone assemblage. Thanks also to Dennis Gallegos for arranging and San Diego Old Town Trolley Tours for allowing, reexamination of vertebrate remains from the Aguirre Adobe assemblage, including zooarchaeological material from St. Anthony's Indian School.



*Figure 9. (upper) St. Boniface School beef steaks ½ to 1 in. thick with uniform striations. (lower) St. Boniface School ½-in.-thick beef steak with less uniform striations.*



Figure 10. (upper) St. Boniface School 1/2-in. caprine steak or pork cut with less uniform striations. (lower) St. Boniface School 1/2-in. caprine steak with less uniform striations.



*Figure 11. (upper) Variability in St. Boniface caprine steak cut widths from  $\frac{1}{2}$  to  $1\frac{3}{8}$  in. (lower) Variability in St. Boniface beef steak cut widths from  $\frac{3}{8}$  to  $1\frac{1}{4}$  in.*



Figure 12. Variability in St. Boniface beef steak cut widths from 1/8 to 2 in. thick (n = 76).

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