

IVORY
AN HISTORICAL SURVEY

AN ANNOTATED BIBLIOGRAPHY
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CONSERVATION ANALYTICAL LABORATORY

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Methodology & Apologia

Deciding on a subject that currently has, to my knowledge, three bibliographies to its credit, was my first mistake. After reading the bibliographies on ivory by Hawks/Williams and Melissa Carr, I found that the subject of ivory and its conservation was lacking the historical background information that I believed to be the first step in understanding any material used within the context of an artifact. Thus, I attempted to cite sources that are not easily available through conventional channels, i.e. unpublished manuscripts.

A preliminary search was done at CAL with the help of Ann N'Gadi. Much of the information found was contained in previous bibliographies. What was not contained in those bibliographies were articles written in foreign languages. I decided against pursuing these sources for time and content reasons. I myself do not read German or French and therefore they would require a translation. I would have no definitive way of assessing the content of these articles without said translation and therefore do not wish to risk their inclusion. One article that was found, cited three American companies as the world's largest consumers of ivory. This became the focus of my research.

It just so happens that two of the companies were located in Connecticut, Ivoryton and Essex. I was able to contact the town historian, Mr. Donald Malcarne, who was kind enough to share his knowledge of the history of the ivory trade. My next inquiry, was at the Connecticut River Museum, which has in its collection, the Cheney-Downing papers. A wonderful collection of primary documents. I also learned that the Ivory Museum, which was once in Essex, CT had closed its doors and the contents were loaned to various institutions including the Smithsonian. I contacted Mr. David Shayt and Mr. Craig Orr from the Museum of American History in an attempt to gain access to the collection. Both gentlemen were helpful and the results of my inquiry are forthcoming. I will be adding this information to my work at a later date.

Other searches were done at local libraries and colleges. I found some useful information, principally, recent articles debating the resumption of the ivory trade. The remainder of my searches were done at the G.W. Blunt White Library at the Mystic Seaport Museum Inc., where I searched the general library for information. The stacks are closed but I found the staff very helpful and they did allow my access. I also searched the manuscripts library, where I found great primary documents that gave excellent accounts of the ivory trade.

In addition, I did include entries for scrimshaw in the

bibliography. I did so because I saw an overlap in the use of materials (whale tooth, whale bone, and elephant tusk) in the production of certain objects, i.e., combs, buttons, toothpicks, etc.

Areas in the literature that need further investigation are ships logs (particularly Salem, Ma and New York, NY based ships), the company records of the three American manufactures, musical instrument manufacturers and the sources for ivory used in miniature portrait painting.

Anon, "The Working of Ivory," The Working of Ivory Unknown, n.d.
pp. 105 110-112.

The basic tools for working ivory are described. Methods are described for the working of ivory in Japan, China, and India. Recipes are included for whitening, softening and polishing ivory. Also included are methods for dyeing ivory red, blue, violet, green, etc. Could be a useful reference if dealing with an Asian ivory artifact that is suspect of being dyed.

Burack, Benjamin, Ivory and its Uses, Charles E. Tuttle Co., Rutland, Vermont, 1984.

An encyclopedia-like treatment of all the known uses of ivory. Offers detailed information on the development of ivory art and craft from prehistoric to present. Included are sections discussing the sources of ivory, possible ivory substitutes, cutting, cleaning, carving, and various methods (simple and sophisticated) of testing for true ivory. The information contained in the cleaning and chemical testing section is written for the laymen, thus may be of little use to the conservator. A chart, however of the different sources of ivory and their reflected UV color is included. A good introductory book for a new comer to the subject of ivory.

Brooks, John, F., Letters, copy books, Coll. 157, Vol 7, 14, 15, G.W. Blunt White Library, Mystic Seaport, Mystic, Connecticut.

Letters, Copy books 1876-1877, kept by Matthew Bartlett and his partner, John F. Brooks merchants of Boston Mass. Importers and exporters in West Africa and European trade. Letters concern cargo palm oil, tobacco, rum, ivory, molasses, and hides. Orders to shipmasters and advice with instructions to Peter Strickland, Capt. H.O Skinner in West Africa. Vessels owned by M. Bartlett were: Barks *ROEBUCK*, *LA. PLAIA*, *ZINGARELLA*, *WHEATLAND*, and *SEAGULL*. Books are indexed such that each company or person is entered alphabetically, which cross references the entry number.

Feb 28th 1888 Entry 499- Lists a "request from a client for 2000 lbs. of prime Zanzibar ivory in tusks 80-100 lbs. average weight. He requires it for piano keys. He has been obtaining his ivory of Geo. Ropes, but Ropes has started a factory for cutting ivory. He thinks he can buy & cut himself to more advantage"

Feb 28th 1888. Letter from John F. Brooks suggests that Cheney (Arnold, Cheney, & Co.) is out of the ivory market, getting it from New Zealand and Australia.

Great primary documents that give first hand accounts of the business of ivory.

Burr, Christina, Eskimo Ivory Carvings in the Rochester Museum, Rochester Museum and Science Center, Rochester, New York, 1972.

The catalog presents carved ivories in the Museum collection. Including personal ornaments, household articles, and hunting tools. Descriptions of items include size, location, and use. Included is a bibliography for further information on Eskimo ivories and art.

Carr, Melissa, H., Bibliography of Ivory and Bone, Smithsonian Institution Furniture Conservation Training Program, August 1990.

Cheney, George, A., Diaries, Steven Library, Connecticut River Museum, P.O. Box 261 Essex, Connecticut.

Pocket diaries of George A. Cheney owner of Comstock, Cheney & Company, Ivoryton, CT. Diaries included in this collection are for the years 1856, 1857, 1860-1900, and five miscellaneous notebooks. The diaries are very hard to read and as a result, I did not find them useful.

Cheney, George, L., Steven Library, Connecticut River Museum, P.O. Box 261 Essex, Connecticut.

Correspondences received by George L. Cheney (1894-1907). Included are price lists of ivory in New York and London, issues of availability, quantity of ivory being shipped, and types of ivory available. Excellent primary source of information. Letters are both hand written and typed. Most are easily read. Also included in this collection are 14 volumes of letters (in book form) from George L. Cheney to business associates from May 25, 1892- February 1932. A valuable collection of documents that will give the reader a precise account of the ivory business and trade.

Conniff, Richard, **"When the Music in Our Parlors Brought Death to Darkest Africa,"** Audubon, Vol 89, July 1987, pp. 77-92.

A fascinating article that traces the industry of ivory from its inception to its conclusion in Ivoryton/Essex, CT. The article begins with the invention of the ivory cutting saw by Phineas Pratt in 1798. The author then continues with accounts of factory workers being able to grade ivory and list items made from that ivory, principally among them, piano keys. The process of getting ivory from the tusk to the keyboard is also outlined.

Two companies, Pratt, Read & Co. and Comstock, Cheney & Co. were the worlds largest consumers of ivory. Zanzibar was the origin for most of the ivory being shipped. The history of getting the ivory from the African jungle to Zanzibar is told. Griping accounts of the slave trade that fueled the fire of the ivory trade are explored. Two books cited, Ivory -the Scourge of Africa by Ernst Moore and History of Middlesex County by J.B. Beers help to define the history of the trade.

Most interestingly, George Reed and Julius Pratt were abolitionists and the author tells of their part on the underground railroad. Throughout the entire text, the lack of concern for how the ivory made its way to their companies seems to prevail.

A must read article for anyone who wishes to understand the ivory trade in America. Also a great place to start if one is to research the subject of ivory's history further.

Crosby, Everett, Susan's Teeth and Much About Scrimshaw, Tetaukimmo Press, Nantucket Island, Massachusetts, 1955.

The text explores the subject of scrimshaw. Includes excerpts from ships logs that describe the use of ivory, particularly whale bone and teeth. A historical perspective supported by excellent photographs of the products made by whales. Included are busks, knitting needles, swifts, jaggig wheels, canes, rolling pins, and knife handles.

Cullatta, Elizabeth, "Ivory Identity Crisis Still Unsolved," in Science, Vol. 267, March 3, 1995, pp. 1264.

With the ban on the ivory trade in place, its affect on East African nations has been positive. Ivory prices have decreased and so has poaching. In South Africa, wildlife managers are killing elephants to keep their numbers in check and watching the stockpile of ivory grow. A clear need to establish legal ivory from illegal ivory is sought. Two pilot programs suggest that isotopic composition of ivory could pinpoint its source. The elephants pick-up this isotopic finger print from their habitat. Levels of carbon, nitrogen, and strontium are measured and reflect that of their habitat. To date, the studies are inconclusive and the technology is not ready to support the resumption of the ivory trade. Important for being aware of current research, but lacks any direct bearing on current conservation issues.

Espinoza, Edgard, O., Mann, Mary-Jacque, Identification of Ivory and Ivory Substitutes, World Wildlife Fund, Washington, D.C., 1991.

An extremely useful handbook developed by the United States National Fish and Wildlife Forensic Laboratory for the sole purpose of developing a visual and nondestructive means of tentatively distinguishing legal ivory from illegal ivory at ports of entry. The methods are simple and require no sophisticated scientific instruments. The handbook describes the sources of ivory and ivory substitutes, includes tables that chart the preliminary identification, summarizes class characteristics of selected commercial ivories and ivory substitutes, includes appendixes for step-by-step identification, and equipment for use in preliminary identification. The strength of the handbook lies clearly in accomplishing its goal of simplicity while stressing the need for further scientific methods for positive identification. Bonuses are the glossary of terms and the bibliography. A useful reference for conservators.

Fish, Milton, Journal, Log 549, G.W. Blunt White Library, Mystic Seaport, Mystic, Connecticut.

Journal kept on board Brig. *VICTORIA* Milton Fish, Commander. Bound on a whaling and trading voyage to the Arctic Ocean 1858.

Sunday, July 25th "Traded today for about 200lb. of ivory and the same of whale bone. Trading done with local Indians."

Thursday, Aug 16th "Traded for some ivory & whale bone"

Assumes here that ivory is whale teeth.

Fontana, Ester, "The Manufacture of ivory Corretti," The Galpin Society Journal, Vol. 36, 1983, pp. 29-36.

A brief commentary on ivory, as a material. Followed by information about the German centers of ivory processing in the seventeenth and eighteenth centuries. Included are descriptions of the tools used by the ivory craftsmen, the way in which the tusk was processed, polished, and finally the tusk requirements to produce a wind instrument. A useful article from a historical perspective on the ivory craft.

Hawks, C.A. and Williams, S.L., Deterioration of Bone and Ivory: An Annotated Bibliography, AS Mammologist, Fairbanks, May 1989.

Low, M.J.D.; Baer, N.S.; Chan, J. "**The microstructure of calcined ivories,**" Material Resource Bulletin, Vol. 15, 1980, pp. 363-372.

Ivory may not have the off-white creamy appearance normally thought of as the color ivory. The development of color (browns, black, blues) may be caused by deliberate or accidental heating. Authors studied the effects of heating on the texture of ivory. The results indicated that samples became black at temperatures approaching 600 C. The samples lightened as temperatures approached 800 C. Samples remained intact below 300 C but became progressively checked above 600 C. At this point samples became friable and easily crumbled by finger pressure. SEM observations and absorption data provide information about the micro texture. A good paper to be aware of. Color may appear for other reasons besides the addition of dyes or the effects of light.

Malcarne, Donald, "**Ivoryton, Introduction & History,**" Unpublished documents, 10 South Cove Road, Essex, Connecticut.

A series of unpublished papers that define in detail the history of Comstock, Cheney & Co. Sections include Samuel Merritt Comstock, Apprentice, Artisan, Entrepreneur. The Collaboration; George A. Cheney, Entrepreneur. The subject of the "Company Town" is explored. A valuable document that attempts to define the social, economic, and physical growth of Ivoryton as well as place the community within the context of Essex, Middlesex County, CT and the world.

Moore, Ernst, D., "**Ivory, The Pearl of the Forest,**" in Scientific America, January, 1931, pp. 9-12.

A useful piece that defines the use of ivory in the historical sense, its supply origin, its interdependence on the slave trade, and its final destination; its use for piano keys. The article is brief but significant information lies in the fact that three American companies were the worlds largest consumers of ivory. Two in Connecticut and the other in New York.

Mystic Seaport Museum, Inc., General Scrimshaw Bibliography, Mystic, Connecticut.

The bibliography contains three sections. The first: books on the subject of scrimshaw that include entries about whaling, scrimshaw as folk art, care of collections, and forgeries. Listed next are entries for sources for documenting vessels depicted on scrimshaw. These include ship registers and enrollments for the towns of New Bedford, MA, New London, CT, Newport, RI, and Warren, RI. Finally,

a section of articles written about scrimshaw's history. A valuable resource for curators and conservators that have scrimshaw in their collections. The bibliography lacks entries that deal with the care and conservation of ivory.

Satchell, Michael, "**Save the Elephants: Start Shooting Them,**" in US News & World Report, Vol 121, Nov 25, 1996, pp. 51-53.

An interesting article that exposes both sides of the debate. Should the ivory trade be allowed to return? Cites Zimbabwe's CAMPFIRE program where villagers are allowed, under strict controls, to sell permits to big game hunters and cull the animals for hides, horn, and meat. At least eleven southern African nations support a limited trade of ivory. Japan, a major ivory consumer, would "positively consider" supporting a renewed tusk trade. Botswana, a nation the size of Texas, supports 80,000 elephants. Reported that Africa's elephant population is 600,000. Currently, an estimated 500- 600 tons of ivory are said to be in government stockpiles. Western animal protection groups mount the biggest opposition. Legal export sales of ivory was outlawed by CITIES, The United Nations Convention on International Trade in Endangered Species. Human Societies in the U.S. suggest birth control as the only human alternative. The west's lack of moral conviction and capitalism drove the trade in the 19th century, now it is the west's moral stance and suppression of the ecoimperialism that stales the ivory trade of the 20th century. How ironic.

Sexton, Francis, William, Accounts and Letter Copy Book, Mis Vol 368, G.W. Blunt White Library, Mystic Seaport, Mystic, Connecticut.

SARAH ELIZABETH (Brig) accounts and letter copy book 1834-1840. Kept by Francis William Sexton, agent. J. Worcester, Master. Many entries like the following were found.

"Invoices of Ivory to be shipped on board Brig SARAH ELIZABETH, J. Worcester, Master. Bound for New York, 1835. 5272 lbs. ivory"

"Invoices of cargo landed at Ambriz, South West Coast of Africa at different times in the month of June, July, August, Sept, and Oct., 1836. From Brig SARAH ELIZABETH, Capt. Worcester, Norfolk island to be bartered for ivory gum copal, bird's eye peper, peanuts, peanut oil.

- beads
- chains
- crockery
- dry goods
- looking glasses
- muskets

-powder

Great primary document of the trade that existed from Norfolk Island (off the coast of Australia) to the coast of Africa. The accounts, most of which list weights of the items traded and amounts received, are easily read. The letters, however, are not as easily decipherable.

Reynolds, Mark, E., **"Its not Ivory, Its Artek,"** in Yankee, November, 1995, pp. 134-136.

Artek Reproductions in Jaffery, New Hampshire, is known for fine reproductions of ivory. The author states that Artek has made reproductions for the Metropolitan Museum of Art, Boston's Museum of Fine Arts, and others. Artek does custom work for craftsmen, clockmakers, gunsmiths, and basket makers. Included for its possible resource for conservators considering use of an ivory substitute.

Ritchie, Carson, I.A., **Modern Ivory Carving**, A.S. Barnes & Co. Inc., Cranbury, New Jersey, 1972.

A useful text that explores the craft of ivory carving. The book discusses the carving of ivory by American prisoners of war between 1812-1815 and American scrimshaw carving between 1800-1880. Also presents sections on ivory carving in Belgium, Russia, Germany, and England. Excellent photographs support the art historical perspective of the text.

Townsend, William, H., Journal, Log 579, G.W. Blunt White Library, Mystic Seaport, Mystic, Connecticut.

The journal kept by William H. Townsend on board the Bark *IMAUM* of Salem, Mass. Sanford Perkins, Master. A trans-atlantic and Oriental trading voyage. One significant entry found.

Tuesday, Nov 2, 1858 "The ivory is large elephant tusks and weigh from 75 to 200lb apiece." "Our total cargo is coffee - dates - Senna-skin of ?(unable to read)- gum hyrsh & copal, peper - cloves - ivory."

An entry such as this is completely expected since Salem was the major importer of ivory in the early 19th century.

Appendix

The following citations are the holdings at the Archives Center, National Museum on American History, Smithsonian Institution. I was unable to review these holdings myself but felt that their inclusion was critical. The descriptions of the individual collections are paraphrased summaries of the overview Mr. Craig Orr, Assistant Manuscripts Archivist wrote about each holding. Mr. Orr has done an excellent job of describing in great detail, the scope of each collection. In addition, I have cited each collection as directed by Mr. Orr.

Ernst Moore Collection, Archives Center, National Museum of American History, Smithsonian Institution.

The collection consists primarily of copies of records still in the possession of the Moore's family. Fore most among these are copies of his diary entries for the time he was employed overseas by Arnold, Cheney & Co. The collection also contains a great deal of information about the ivory trade. There are price lists from 1922, a small pamphlet about ivory published in 1921, and Moore's handwritten description of the characteristics and classifications of ivory. Also Moore's book, **Ivory, The Scourge of Africa**, in both typescript and published form.

The collection also contains copies of Moore's photographs. Most taken during his days in Aden, Mombasa, and Zanzibar. Most depict ivory poachers, transport of tusks, storage facilities in the trade compounds, and trade goods used to purchase ivory.

Otto Gerdau Collection, Archives Center, National Museum of American History, Smithsonian Institution.

Otto Gerdau founded Otto Gerdau Company in New York in 1872. He was the New York agent for the German firm of Heinrich Adolf Meyer. A firm that was co-founded in Hamburg, German in 1818.

The scope of the collection related to the German ivory importing firm of Heinrich Adolf Meyer. The collection contains a booklet on "ivory" published by the firm in 1889. A photostatic copy of the 1876 U.S. Centennial Exhibition catalog, photostatic copy of the notices of the awards it won at the Exhibition, and miscellaneous photographs.

Pratt, Read Company Records, Archives Center, National Museum of American History, Smithsonian Institution.

Pratt Read & Co. was the world's largest producer of ivory products. Beginning with the manufacture of small items such as combs, buttons, and toothpicks, the company moved on to produce piano key veneers. One of America's major suppliers to the piano industry, the company began to produce complete piano and organ keyboards and actions.

The records in this collection document Pratt, Read & Co; its early competitor and late partner, Comstock, Cheney & Co; and a number of predecessor, subsidiary, and related companies. The collection is extensive and the documents cover the time period 1839-1990.

Warshaw Collection of Business Americana -- Ivory Series, Archives Center, National Museum of American History, Smithsonian Institution.

The materials consist of bills/receipts, scattered correspondences on letterhead stationary, circulars, pamphlets, manufacturing advertisements, and distributors of products made of ivory. The material dates from 1843-1893 and includes ten different companies.

Wood & Brooks Company Records, Archives Center, National Museum of American History, Smithsonian Institution.

The records of the Wood & Brooks Company, 1890-1958 include correspondences, photographs and financial statements from the Buffalo based manufacturer of piano keys and actions.