

BOOK REVIEWS

Uncorking the Past: The Quest for Wine, Beer, and Other Alcoholic Beverages, by Patrick E. McGovern. 2009. University of California Press, Berkeley. xv + 330 pages. \$29.95.

If you like botany, wine, and beer, this book is a must. Despite its omission from the title, there is a lot of botany in this book, and it's good, drinkable botany.

In the first chapter, McGovern introduces two hypotheses: The drunken monkey hypothesis proposes that alcoholism is rooted in the evolutionary history of primates, who had a powerful incentive to overindulge in fermented fruits and high-sugar resources that were available only in season. The Paleolithic hypothesis proposes that hunter-gatherers went beyond an unconscious craving for fermented fruit to a "more conscious, intentional production and consumption of a fermented beverage." After presenting these hypotheses and commenting on the human benefits of alcohol, McGovern takes us on a world tour of fermented beverages. Some highlights follow.

Starting with China, McGovern discusses his analysis of residue in ancient pottery of the world's earliest known alcoholic beverage, made around 9,000 years ago. The ingredients were rice (*Oryza sativa*), grapes (possibly *Vitis amurensis* or *V. quinquangularis*), hawthorn fruits (*Crataegus pinnatifida* and/or *C. cuneata*), and honey. Neither beer nor wine, the beverage is described as a mixed fermented beverage, or grog.

On to the Near East, we learn about the earliest known wine made with Eurasian grapes (*V. vinifera*), which also had resin of the terebinth tree (*Pistacia atlantica*). This information comes from McGovern's analysis of residue in jars from Iran that were 7400–7000 years old. Also from Iran, a jug around 5,500 years old containing calcium oxalate (beerstone) provides chemical evidence of the earliest beer made from barley (*Hordeum vulgare*), the most widely consumed beverage in Mesopotamia.

McGovern identifies Scotland as the site of the earliest known fermented beverage made from grain and honey in Europe. Vats dating from the mid-fourth millennium BCE contained pollen of cereal, meadowsweet (*Filipendula ulmaria*), and heather (*Calluna vulgaris*). McGovern suggests this may have been a "Nordic grog" with added herbs such as cloudberry (*Rubus chamaemorus*) and lingonberry (*Vaccinium vitis-idaea*)—two of my own favorite fruits from Newfoundland, where they are known as bakeapple and partridgeberry, respectively. We then get a fascinating survey of ancient fermented beverages in Europe and western Asia made with diverse ingredients including mugwort (*Artemisia vulgaris*), cranberries (*Vaccinium oxycoccos*), bog myrtle (*Myrica gale*), and saffron (*Crocus sativus*).

Moving to South America, McGovern discusses the domestication of maize (*Zea mays*) in Mexico around 6,000 years ago. Humans' first taste of it may have been wine made from sugary juice squeezed from its stalks. Chicha, beer made by fermenting the kernels, apparently came later. Similarly, the juicy, fermentable, sugary pulp in the fruit of the cacao, or chocolate, tree (*Theobroma cacao*) probably led to its domestication in Mesoamerica. There also is archaeological evidence of large amounts of wine made from drupes of the Peruvian pepper tree (*Schinus molle*) in southern Peru around 600 CE.

In Africa south of the Sahara, the king of beers is made from fermented grains of *Sorghum bicolor*. Domesticated about 8,000 years ago, sorghum in the form of beer currently provides much of the caloric intake for hundreds of millions of Africans. In western sub-Saharan

Africa, beer is made from malted sorghum grains and clarified with bark of the raisin tree (*Grewia flavescens*) and okra (*Abelmoschus esculentus*).

McGovern concludes that the available evidence suggests the initial domestication of grains was motivated by a desire to increase alcoholic-beverage production. Similarly, beverages made from the sweet fruits of grapes, figs, dates, and cacao probably prompted the domestication of these fruits. With his detailed account of the human consumption of fermented beverages over the past 9,000 years in different parts of the world, McGovern gives a strong argument for considering alcohol as a driving force for plant domestication, and thus civilization.

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Benjamin Smith Barton: Naturalist and Physician in Jeffersonian America by Joseph Ewan and Nesta Dunn Ewan (edited by Victoria C. Hollowell, Eileen P. Duggan, and Marshall R. Crosby). 2007. Monographs in Systematic Botany 100. Missouri Botanical Garden Press, St. Louis. xxvi + 1134 pages. \$55.00.

The husband/wife team of Joseph and Nesta Ewan has long been familiar to Philadelphia naturalists and bibliophiles. They have spent many fruitful years in Philadelphia museums and libraries where they have plucked many "plums" that have enhanced our appreciation of colonial and early 19th century American natural history. Now we finally have their lengthy biography of Benjamin Smith Barton, Professor of Botany and Natural History in the Medical School of the University of Pennsylvania from 1790-1815.

The book is not a light read. To me it is an archive crammed full of unpublished documents with a wealth of information to be distilled by curious readers. There are 95 pages of illustrations, which include some outstanding botanical drawings and paintings in the archives of the American Philosophical Society. Of particular appeal to me are nine paintings by the talented French artist Pierre Jean François Turpin. These are among "at least fifty 'indigenous plants' Turpin drew for Barton." We can also appreciate the art of William Bartram and Frederick Pursh among these illustrations.

Barton had diverse interests, but his legacy is botanical. The Academy houses what remains of much of his herbarium with plant collections made by him and other well-known botanists of the day. He authored the first American textbook of botany in 1803, which Catherine the Great ordered translated into French for her gratification. We continue to appreciate the accomplishments of his protégés: Frederick Pursh, Meriwether Lewis, and Thomas Nuttall. Without Barton's support, Frederick Pursh would not have produced his classic *Flora Americae Septentrionalis* where he described and illustrated plants collected by Meriwether Lewis. Without his "crash course" in botany from Barton, we assume that Lewis would have been ill prepared for collecting and preserving botanical specimens. Today these specimens in the herbarium of the Academy of Natural Sciences are the most significant extant natural history artifacts of the Lewis and Clark Expedition.