Reflective Essay

"All Because of a Cup of *Qahwah*" was written as a term paper assignment for PLB 143 (Spring 2016). This assignment required students to identify the origin of a chosen crop using genetic, linguistic, archaeological, botanical, and historical evidence. The required format of the paper was a scientific review paper, utilizing at least 20 sources, with ~7 Internet sources, ~7 book sources, and ~7 primary literature/scientific article sources.

For my paper, I chose to write about the *Coffea arabica* species. To gather background information on coffee and the *Coffea arabica* species, I used the Google search engine to find various websites like the Specialty Coffee Association of America, the Fairtrade Foundation, or the International Coffee Organization. Other websites used included legitimate .org, .gov, or .edu websites. The introduction of the paper included general information about the crop, where it was grown, its uses, its nutritive value, etc.—all of which was cross-checked between multiple websites to ensure their accuracy. I used numerous web sources for the introduction in order to obtain a broad and complete range of background information. FAO and FAOSTAT were the recommended web sources used to gather statistics on the world production of coffee. To avoid any biases that might be present in popular articles, I double-checked their facts or numbers with more reliable sources like the Oxford English Dictionary (OED) or the Food and Agriculture Organization of the United Nations (FAO). For example, when I was tracing the linguistic origins of the word *coffee* in "The Stimulating History of Coffee," I verified the author's cognates with those found in the OED.

For the Results and Discussion section of my paper, I consulted multiple library databases and books. Book sources were mostly found by looking up search terms like "the origin/history of coffee" on Google Scholar; other book sources were stumbled across during searches for other types of evidence. To expand my primary literature and book sources, I also surveyed the references listed at the back of the publications. If the books I needed were not available online, I would look them up in the UC Davis Harvest catalog and check their availability. Some books I could conveniently find on a shelf at Shields Library (*The world of caffeine*), others I had to place a hold request for (*Uncommon Grounds*), and still others I had to use the interlibrary loan service (*Coffee: botany, biochemistry and production of beans and beverage*). To gain access to all these books before the assignment due date, I started my research process about a month or two in advance and placed book requests early on.

The primary library database I used to find scholarly articles was Google Scholar, but I also used PubMed, Web of Science, OED, and Scopus. Through the library's VPN, I was able to access many primary literature articles I would otherwise need subscription for. When searching for the different evidences required, I used the scientific name of my crop in order to narrow my search. To gather a vast amount of literature for each evidence section, I had to be flexible and creative in my search terms. In the beginning, for each type of evidence, I would type in specific phrases like "genetic evidence for the origin of *Coffea arabica*," or some variation of that, and click on relevant sources. Then I would try broader searches like "*Coffea arabica*" or "origin of *Coffea arabica*" to find even more sources. To my surprise, simple terms such as the above yielded very specific results for my botanical and genetic evidence section. Once I found a few promising

scientific articles, I employed more precise search methods, such as filtering for articles with certain authors (i.e. Anthony and Lashermes were two authors that conducted a lot of different molecular analyses on wild and cultivated *Coffea arabica*), molecular techniques (i.e. RAPD vs. AFLP analysis), keywords (i.e. domestication, dispersal), and so forth.

Besides going through a very tedious research process to collect an extensive list of resources, I also encountered a complication that many researchers face: a gap in knowledge. After various searches on Google and Google Scholar, I realized that archaeological remains of coffee plants were scarce. Unlike other crops, not much research has been done to look at coffee seeds, pollen, or phytoliths. This may be for an assortment of reasons, such as lack of preservation (for seeds to be preserved, they may need carbonization or fossilization). To overcome this barrier, I consulted books such as *Uncommon Grounds* to see what evidences or materials they used to trace back the history of the *Coffea arabica* plant. A strategy that Pendergrast and other authors used to track the dispersal of coffee plants was to look at the spread of coffee consumption. Thus, instead of trying to find archeological remains of the plant itself, I decided to follow the history of the utensils used to consume coffee, and that led to me to porcelain coffee cups. By redirecting my search to look at coffee consumption and coffee cups, I was able to find a thesis paper (Bouzigard 2010) that provided me with more information about the origin and spread of these tiny cups. Bouzigard's paper allowed me to refine my search even further to track the style of these cups, in order to infer their spread from the Middle East to Europe.

When compiling my historical evidence, I read through multiple narratives and historical accounts to gain a broader viewpoint regarding the spread of coffee. Moreover, I made sure to identify any overlap between stories to establish credibility. In the same manner, I looked for congruence between primary literature articles to support the overall story told by genetic evidence. To retrieve articles utilizing the latest molecular techniques, I searched for more recent scientific articles (Silvestrini *et al* 2007, Anthony *et al* 2002). Finding more recent articles for botanical and genetic evidence allowed me to gain new perspectives and additional support for theories suggested in older articles (Meyer 1965, Vavilov 1992).

In summary, the aims of this paper were to provide a comprehensive review of the various types of evidences used in validating the origin of *Coffea arabica* and develop these evidences into a cohesive argument. My paper was able to pinpoint Ethiopia as the center of origin for *Coffea arabica* and Yemen as the center of domestication by building upon evidence found at multiple levels within the same evidence type, and merging together the results of several different evidence types.