Journal of Undergraduate Research in Anthropology

Volume 1
Spring 2017

Journal of Undergraduate Research in Anthropology
Volume 1, 2017

Contents

From the Editors

Welcome!

The following group of articles represents the first volume of the Journal of Undergraduate Research in Anthropology (JURA). One of the goals of this journal will link to a long term collaboration of University of Central Arkansas (UCA) with the Faulkner County Museum. The objective of the collaboration is the evaluation, management, and research of historical and archaeological resources in Faulkner County and the pedagogical projects that develop from this project. A second goal is more directly associated with course offerings at UCA and other institutions as a forum for student publication of their final theses.

The first three articles of the Thematic Section: Faulkner County Survey Project reflect one of these goals. As editors and project developers, we introduce the project and our long term objectives tied to management, pedagogy, and research. This introduction is followed by two contributions from UCA students. The published examples of their work were part of the Archaeology of North America course that was held in the fall of 2014 and 2015. Subsequent courses in archaeology will continue to encourage and support the publication of papers in JURA.

The section entitled, "Articles" represents a second goal of the journal. Five students from the fall 2016 and spring 2017 UCA Seminar course have submitted their final theses for publication. These articles demonstrate a level of academic scholarship achieved in their senior year as anthropology majors and the culmination of their undergraduate experience at UCA.

While this first volume is composed of current and former UCA students, we invite undergraduate students from other institutions. Articles in this first volume received an internal peer-review process (largely by us as editors and peer students). Subsequent issues will seek an editorial board and a process of external peer-review.

We hope you enjoy contributions in this first volume.

Duncan P. McKinnon and Lynita Langley-Ware

Vol. 1, 2017 Editors

Duncan P. McKinnon, PhD
Assistant Professor
Dept. of Sociology, Criminology, and Anthropology
University of Central Arkansas
Irby Hall 306
Conway, Arkansas 72035
dmckinnon@uca.edu

Lynita Langley-Ware, MA, RPA
Director
Faulkner County Museum
801 Locust Street
Conway, Arkansas 72034
fcm@conwaycorp.net
501-329-5918

Information for Authors

Articles should not exceed 10,000 words in length, including references.

Please submit the following to dmckinnon@uca.edu

- a PDF file of the complete submission (following American Antiquity style)
- OR a Word file containing the complete paper (i.e., including abstract, tables and figures)
- OR a Word file containing the text, references, table and figure captions, plus an individual file of each figure (600 dpi) and/or table.
- Excel file of tables is preferred.

An Introduction to the Faulkner County Survey Project: Mapping, Evaluating, and Documenting Historical and Archaeological Resources

Duncan P. McKinnon, *University of Central Arkansas*
Lynita Langely-Ware, *Faulkner County Museum*

Introduction

Faulkner County is located in the center of Arkansas and is host to a wealth of historical and archaeological resources. The abundance of these resources and the history of land use in the area are directly related to the location of the county within a diverse ecotone that transitions between four distinct and highly productive biomes in the region. The Arkansas River floodplain dominates the landscape in the southwestern portion of the county. To the north, rolling uplands slowly expand into the more northerly Ozark Mountain region. Portions of the Ouachita Mountains are present to the south as elevated bluffs, ridges, and eroded landforms. To the east are the transitional beginnings of the broad Mississippi Alluvial Plain that characterizes much of eastern Arkansas.

The boundaries of what we know today as Faulkner County were created from parts of Conway and Pulaski counties in 1873, 37 years after Arkansas Territory became a state. The county is named after Colonel Sanford 'Sandy' Faulkner who is largely associated with the story of "The Arkansas Traveler" (Ross 1955). Today, it is the fifth most populous county in the state.

In the context of this research, it is important to highlight the rate of growth in the county over the last several years. The 2010 census lists the county population at 113,000, with 50 percent of that number living in the largest city, Conway. Population growth has averaged just less than 40 percent between censuses and 30 percent overall growth since the 1970 census.

In comparison, the 2010 census reports that Benton and Washington Counties (2nd and 3rd most populous counties) each had a population around 200,000 with an overall growth of 22 percent for Benton County and 38 percent for Washington County.

Faulkner County is growing and growth will likely continue at the current rates, or increase. In fact, the Conway Chamber of Commerce reports that a 2013 Census lists the county as the 72nd fastest growing county in the Nation (Conway Chamber of Commerce 2014). This is primarily because of the location of Pulaski County to the south, the most populous county in Arkansas, and the location of Little Rock, the most populous city in Arkansas. More so, census data illustrate that the population rates of Pulaski County are actually decreasing while the surrounding counties are increasing as development migrates northward.

With the growth in central Arkansas in mind, a long-term collaborative project between researchers at the University of Central Arkansas (UCA) and the Faulkner County Museum (FCM) is underway to map, evaluate, and document historical and archaeological resources in Faulkner County. Broadly speaking, we are working to define the spatial and temporal aspects of the historical landscape of the county. We are in the very beginning stages of this project – building a spatial dataset, evaluating current sites, developing landowner contacts, and organizing and prioritizing goals and milestones.

This article and accompanying papers on student-led research at Cadron Settlement Park serve as an introduction to the project. Herein, we discuss the questions guiding this project that are organized into three integrated themes or applications: site administration and management, pedagogy and public archaeology, and research. Following this, two student papers are included that highlight the importance of integrating these themes into a positive service-learning experience for students.

Site Administration and Management

The first theme is related to site administration and management. We are evaluating the nature of sites, site types, and distribution. In other words, what types of historic and prehistoric sites are in the county and how long ago were they recorded and/or visited? Important to this, and in prioritizing sites to evaluate, is an understanding of potential site impacts and in documenting the state of those sites that have already been impacted by growth.

At present, there are at total of 307 sites recorded in the Arkansas Archeological Survey Automated Management of Archeological Site Data in Arkansas (AMASADA) database (Figure 1). Sites are fairly distributed throughout the county, although there are identifiable patterns that likely reflect project or CRM based survey work. The most obvious cluster is within the Camp Robinson boundary.

For project management purposes, we organized the county into nine areas, arbitrarily designated using

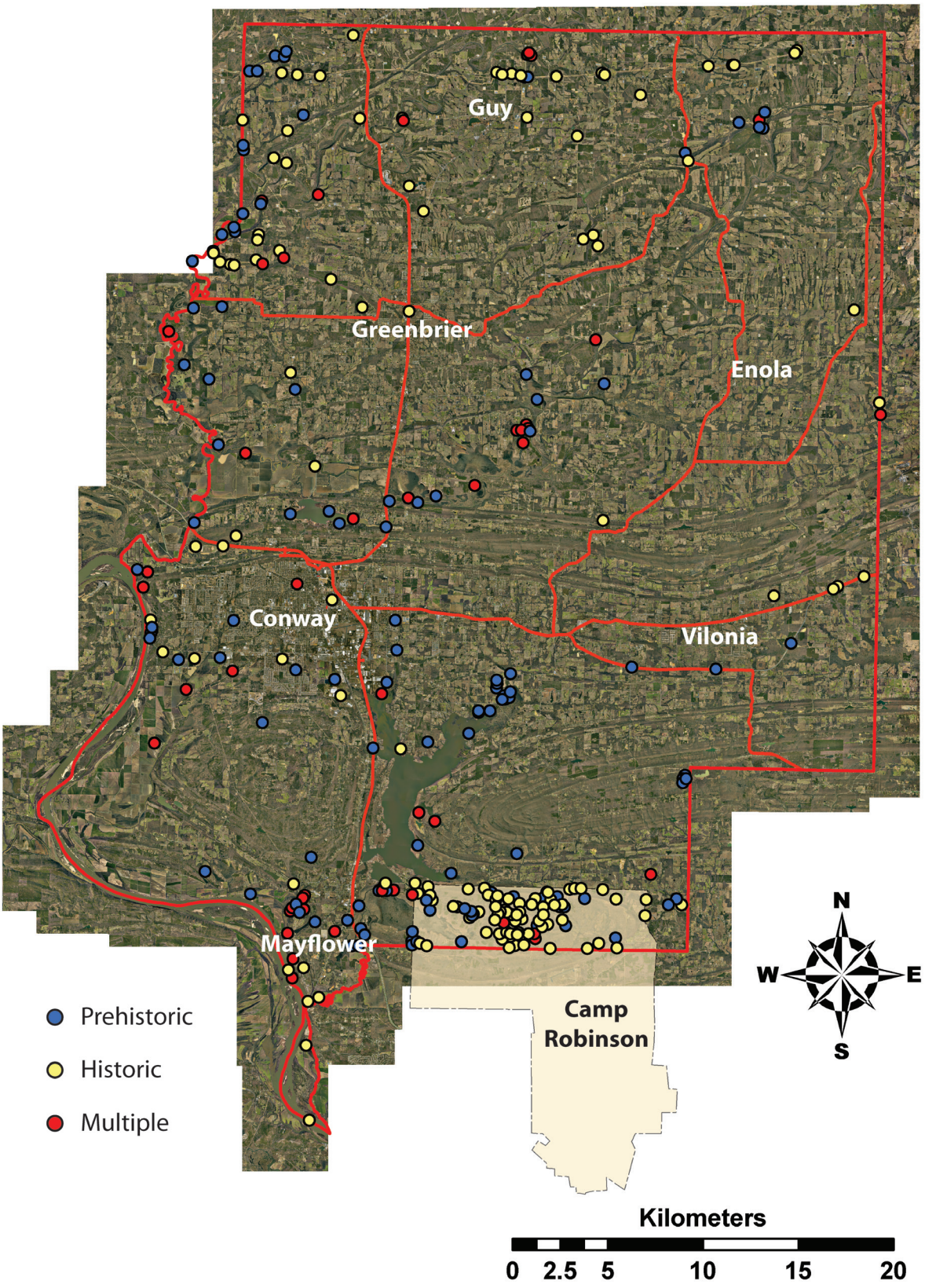

Figure 1. Distribution of sites in Faulkner County as recorded in the AMASADA database.

highways as area boundaries (see Figure 1). At this early stage, Camp Robinson is excluded from the project. Archaeological and historical resources in Faulkner County span a significant time depth from a variety of cultures and occupational groups. A preliminary sorting based on site cultural affiliation classification in AMASDA reveals that 120 sites contain a prehistoric component with no historical components identified. Prehistoric sites in the county are classified variably in AMASDA as Early and Late Archaic, Dalton Period, Early, Middle and Late Woodland, Baytown Period, Coles Creek Period, Mississippian, and several sites listed simply as prehistoric.

In contrast, 135 sites contain an historic component with no prehistoric component identified. Historic sites in the county are classified variably in AMASDA as Pioneer Settlement, Pioneer Agricultural Settlement, Developed Settlement with Tenant occupation, Rural Developed Agricultural Settlement, Afro-American, Anglo-American, European, French, and several listed as Historic. Fifty sites have a combination of either multiple prehistoric or historic components, or a combination of both prehistoric and historic components. Two sites have no cultural affiliation listed.

The initial area of interest and focus of this project is the central and southwest portions of the county. We are gathering historical data, such as maps, images, and photographs, and landowner information regarding ownership and cultural narratives about the areas. The southwest portion of the county is important for two reasons: First, it is proximate to UCA and the FCM. It is also the residential area of many visitors and local landowners to the museum (as is also the central portion). Second, it is the high growth area of the county with increases in development throughout.

The Conway Western Loop Study best illustrates this increase in development (Federal Highway Administration et al. 2010; Smith 1999). The project has been in the exploratory stages for about 20 years with the development of four possible routes through this portion of the county. While some work is underway where Interstate 40 connects, the project is largely lacking in funds to complete at present. Tab Townsend, Mayor of Conway, was quoted in 2010 as saying "The whole project will be a long-term project. It won't ever be completed in one fell swoop; it'll be completed phase by phase as money is available and need is shown" (Lamb 2010).

Cultural Resources Services in Memphis, Tennessee conducted a cultural resources literature and records review as part of the Western Loop Study (Smith 1999). As quoted from the report introduction, "most of the potentially affected area has not been surveyed for sites. Additional sites should be expected on and adjacent to the Arkansas River floodplain along the creeks in the study area, and along the old Military Highway" (Federal Highway Administration et al. 2010:J-5; Smith 1999:3) The study area is more or less the same boundaries as our delineated area in the southwest corner of the county.

Fifteen sites are listed in the 1999 report as being within the southwest portion and potentially impacted by the proposed bypass routes (Federal Highway Administration et al. 2010:J-14-J-15; Smith 1999:12-13). Site descriptions in the report range from a small site with a few flakes reported to sites with prehistoric lithic and ceramic material, to historic house sites, to the National Register site of Cadron (see also Ross 1957; Smith 1974). A comparison of sites identified in the 1999 report within the study area reveals that 38 recorded sites are not included (Figure 2). Several sites fall along the proposed routes, particularly to the north. This, of course, does not include the numerous unrecorded sites, several of which we have already identified and are evaluating. For example, it should be noted that Alternate Route D that circles around Round Mountain to the south is roughly the location of the historic old Military Highway.

The central portion is the location of Camp Halsey, a 1930s Civilian Conservation Corps (CCC) camp that has seen no systematic research. The site is located east of Greenbrier, which has seen an increase in growth in the last few years. In fact, it was only recently recorded as a site (3FA313). The camp represents the first Soil Conservation program in Arkansas and the workers at the camp built Lake Bennett reservoir at Woolly Hollow State Park. The camp has several intact features, including chimneys, a message board, and numerous foundations. The landscape will serve as a long-term location for UCA students.

Results of this initial investigation into site administration and data management underscores the necessity of this project as Faulkner County continues to grow and develop in this area.

Pedagogy and Public Archaeology

The second theme is related to pedagogy and public archaeology. The FCM has an established relationship with both UCA and Hendrix College and a series of collaborative efforts integrating history students, service-learning teaching activities, and internships. Using this experience as a model, this project will allow for a program in public archaeology using anthropology students from UCA as part of the newly formed undergraduate major in anthropology in the Department of Sociology, Criminology, and Anthropology.

In the initial stages student-centered public archaeology will largely be accomplished through the UCA courses where a portion of the courses utilize some aspect of service-learning pedagogy to facilitate

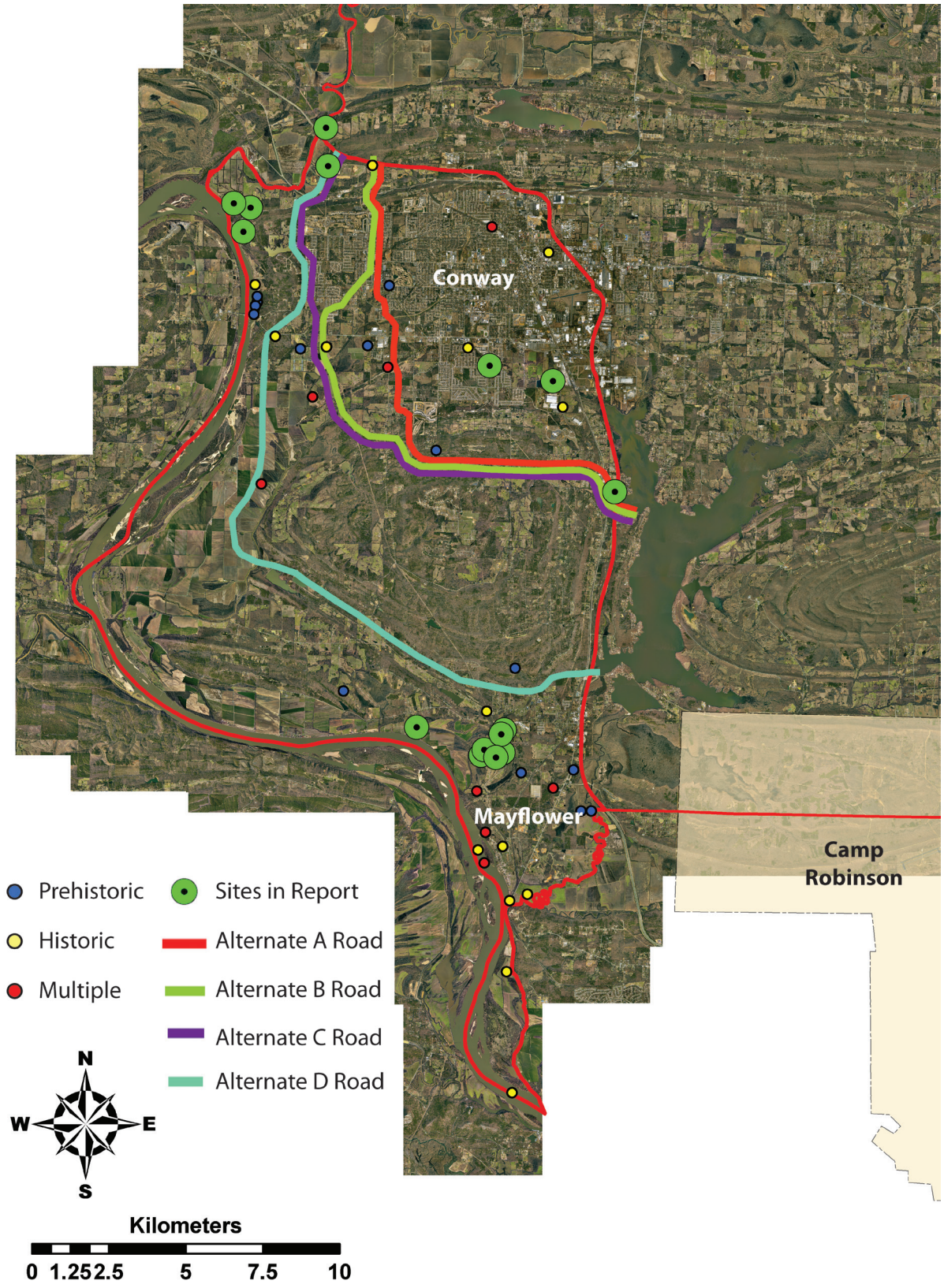

Figure 2. Distribution and comparison of site types in the southwest portion of the county..

hands-on learning with archaeological materials in the lab. Service-learning is a teaching and learning strategy integrating community service with instruction and student reflection – the goal of which is to enrich the learning experience, teach civic responsibility, and strengthen communities (McLaughlin 2010).

We have rolled out student-centered learning as public archaeology with some success and some take-a-ways to improve the student experience and foster an interest and visibility into cultural resources within the county. In Fall 2014 and 2015, students examined and researched surface collection materials from Cadron Settlement Park that are housed at the museum. While in the lab, topics covered archaeological methods, artifact analysis, and curation protocol. Students developed research questions, wrote a final research paper, and presented those results as an end of the semester mini-conference where interested public was invited to listen to presentations by students. Several students were selected to present at the annual Arkansas Sociological and Anthropological Association Student Symposium.

Research

The third theme is related to scholarly research. We are interested in questions such as, how and why has the Faulkner County cultural landscape changed over time? What is the nature of land use throughout the expanse of time in which we have archaeological data? How are changes in land use influenced intra-regionally or inter-regionally?

These are broad questions. As the project is ongoing, milestones will be assessed and re-evaluated throughout the duration. Initial milestones are to gain access to sites through communication with community landowners, determine if sites are listed as an archaeological site, and evaluate stability and impact. Longer-term milestones are focused on understanding landscape change over time and develop a better understanding of site preservation and management within Faulkner County.

Closing

In order to illustrate the three integrated themes of this project, two student papers accompany this introduction. The papers highlight the importance of integrating site administration and management, pedagogy and public archaeology, and research into an educational learning experience for students and the subsequent growth of archaeological and historical knowledge about Faulkner County. For example, in her article, "Subsistence and Security: A Fur Trading Economy at Cadron", Cecily Freeman evaluates the importance of Cadron within the broader economic developments in territorial Arkansas. She presents historical information about Native American and Euro-American trading networks and uses archaeological artifacts from Cadron to integrate settlers into larger economic processes and developments. In her article, "Gonorrhea at Cadron: An Examination of Medicine in Early Arkansas", Breanna Wilbanks explores the use of medicine in frontier Arkansas and how early residents coped with the territorial environment and access to pharmaceutical goods in rural Arkansas. She evaluates select glass sherds collected at Cadron to suggest ailments present, the treatments sought, and implications regarding those administering treatments. Both of these articles underscore the value and importance of student-centered public archaeology and research and highlight the goals of the Faulkner County Survey Project.

References Cited

Conway Chamber of Commerce
2014 Conway's Fast-Growing Population Fueled by Strong Economy. http://web.conwaychamber.org/news/newsarticledisplay.aspx?ArticleID=112

Federal Highway Administration, Arkansas State Highway and Transportation Department, and City of Conway
2010 Final Environmental Impact Statement: Conway Western Arterial Loop.

Smith, Gerald P.
1999 Cultural Resources Investigation of the Conway Western Arterial Loop, Faulkner County, Arkansas: Literature and Records Review. Cultural Resource Services, Memphis, TN.

Lamb, Joe
2010 'Western Loop' project gets more funding. Log Cabin Democrat, January 10, 2010.

McLaughlin, Erin
2010 The "Real-World" Experience: Students' Perspectives on Service-Learning Projects. *American Journal of Business Education* 3(7):109.

Ross, Margaret Smith
1955 Sanford C. Faulkner. *Arkansas Historical Quarterly* 14:301-315.
1957 Cadron: An Early Town That Failed. *Arkansas Historical Quarterly* 16:3-27.

Smith, Samuel D.
1974 *A Survey and Assessment of the Archeological Resources of Cadron Settlement, Arkansas*. Research Report No. 1, Arkansas Archeological Survey, Fayetteville, Arkansas.

Subsistence and Security: A Fur Trading Economy at Cadron

Cecily Freeman, *University of Central Arkansas*

Introduction

During the Historic Period throughout the southeastern United States, the intersection of people with diverse lifeways created social and economic relationships of dependence on the frontier (Usner 1992:6-8). Developments from these relationships were the establishment of informal and formal trade networks between Indians and Europeans, especially during the mid-seventeenth through the beginning of the nineteenth century (Polechla 1987:69-71; Usner 1992:6-8;).

Euro-American contact with indigenous peoples of the region during this expansion and before had long-term ramifications for all involved. Ultimately, the relationships that formed and later fractured were significant to the cultural developments following the early frontier time period (Usner 1992:149-190). Varying subsistence strategies previously practiced by Native populations were eventually mixed with the lifeways of Euro-Americans to create what Usner (1992) refers to as the frontier exchange economy. Cadron Settlement was likely influenced by and participated in these exchanges.

In this paper, I evaluate material aspects and social consequences of the Indian and Euro-American trading networks by examining selected artifacts collected from the Cadron Settlement site. Cadron was an early town engaged in informal and formal economic and social exchange throughout the seventeenth and nineteenth centuries along the Arkansas River in what is today Faulkner County. I first begin by providing historical context followed by a brief summary of the frontier fur trade economy that existed in Arkansas Territory. I then discuss several artifacts recovered from Cadron Settlement that further demonstrate the region's participation in the frontier exchange economy.

Cadron Settlement

The current Cadron Settlement Park rests on the intersections of previous townships, five miles northwest of Conway, Arkansas. The park is situated at the highest point of a cove at the end of the main road near the Arkansas River. Four townships existed in the area, but the original Cadron town is thought to be in the East Section (T5N, R15W, S1) (Smith 1974:2). It is believed by Smith (1974) that John McElmurry, the first documented occupant, built his blockhouse in the same cove as the current park. At the beginning of the nineteenth century, McElmurry settled at Cadron as a fur trader and participant in the burgeoning fur trade economy. He was accompanied by as many as one hundred hunters (Clayton 1959:4). The southeast portion of the cove composes the main body of Cadron Ridge. The northern ridge parallels Cadron Ridge, both of which are characterized by exposed bluffs (Smith 1974:4).

The area was first inhabited by Osage Indians, then French hunters and trappers, and finally Euro-Americans migrating westward after the Louisiana Purchase (Clayton 1959:3). Several early documents identify the area of Cadron as a trading post referred to as "El Quadrant" (Ross 1957:3-4; Smith 1974:60). Margaret Ross reports the name Cadron may have been derived from the word "Quadrant", which may describe the geographical orientation of Cadron's notable cove and possibly an original trading post at the site (Ross 1957:3-4). Samuel Smith also suggests the area referred to as "Quadrant" was probably the same locale as the current Cadron Settlement Park (Smith 1974:60).

Thomas Nuttall, British naturalist and explorer, gave a description of Cadron Settlement and the surrounding area in his journal in 1819 (Nuttall 1999:124). He described the site as uneven, only blotted with patchy areas of level ground, making it less suitable for an agricultural settlement, but a more efficient exchange point (Nuttall 1999:125). Nuttall makes mention of the practicality of McElmurry's location by pointing out it was a good "landing for merchandise" (Nuttall 1999:124). At the time of Nuttall's travels, Arkansas Territory was to be surveyed and sectioned for sale by the United States. He recalls McElmurry living in the cove with several families residing in outlying plots (Clayton 1959:4; Nuttall 1999:124). Nuttall also prepared a sketch of the settlement that has been frequently referenced over the years (Nuttall 1999:126; Smith 1974:5-6).

Previous archaeological work has been done at the site to determine a timeline of occupancy. Samuel Smith conducted an extensive survey and assessment of Cadron in 1974 based on excavations near where the Army Corps of Engineers had previously laid out proposed parameters for the park (Smith 1974:22). The artifact sample analyzed in Smith's study consists of a variety of items. They include a range of early nineteenth century European ceramics, glass beads, glass sherds, firearms material, trapping parts, tobacco pipe fragments, nails, metal pieces, and faunal remains (Smith 1974:38-57). Smith mentions the significance of glass beads in early Arkansas River trade where they were often carried

on expeditions and accepted as payment for goods (Smith 1974:46). Hunting and trapping not only provided materials that were in high demand for export to foreign markets, but also assisted in goods for private bartering as a part of the frontier economy (Schorger 1951:182-183; Smith 1974:27; Watson and Bleed 1991:234). Prehistoric Indian artifacts and other miscellaneous materials, such as organics, stones, and contemporary textiles were also collected (Smith 1974:38-57).

In addition, historical research, such as the work of Margaret Ross (1957), is important in establishing Cadron's historical context. She uses postal records to understand the rising significance of Cadron as well as its decline. By 1816 a postal route was situated at Cadron that continued southward to Hot Springs, Arkansas and further to Natchitoches, Louisiana (Ross 1957:10). By the next year, Cadron was part of the northern postal route that led from St. Louis to Arkansas (Ross 1957:11). St. Louis was a substantial trading center, established nearly half a century prior (Usner 1992:118). Over the next decade Cadron remained an important stop along these routes, but by 1824 the post office was moved to Point Remove, Arkansas (Ross 1957:11).

Ross (1957:6-7) also presents a timeline of the political events influencing Cadron's development at the time. Proprietors were selling town lots at Cadron beginning in the early nineteenth century. McElmurry, a proprietor, was also running the town's tavern (Ross 1957:9). In early 1820, the first General Assembly gathered at Arkansas Post to decide permanent locations for the Territorial Capital and for the seat of justice of Pulaski County (Ross 1957:12). By mid-1820, discussions between opposing sides of the issue had decided that the Pulaski county seat be moved to Cadron from Arkansas Post (Ross 1957:12). There were plans for a courthouse and county jail to be built, but such plans were not realized (Ross 1957:18-19). After changes in legislative personnel, debating interests introduced Little Rock as the Territorial Capital and seat of justice of Pulaski County instead of Cadron. The courthouse and jail were never built at Cadron and a year had passed when the General Assembly met again (Ross 1957:19). By the end of 1821 Little Rock was the designated county seat (Ross 1957:21). In 1825 Cadron became the Conway county seat, but it was transferred north of the Arkansas River to Lewisburg in 1831 (Ross 1974:23). The second loss of a political seat was part of the collapse of Cadron. Over the next few decades the town's population steadily declined (Ross 1957:24-25).

The early period of contact between Indians and Europeans was important to Cadron's economy and function within larger trade networks. Considering Cadron within a larger network provides comparative information for making inferences about exchange. This research focuses on material, found from a surface collection housed at the Faulkner County Museum, that are common indicators of fur and pelt trade. The materials, in context with historical records, suggest furbearing was a cornerstone to the frontier economy and exchange at Cadron and along the Arkansas River.

Establishing Exchange on the Frontier

Numerous scholars have assessed written and material records specific to the expansion of the frontier to understand the subsequent cultural and economic systems (Bleed and Watson 1991; Polechla 1987; Usner 1992). Considerable archaeological and ethnographic evidence documents tribes of the Southeast trading important commodities with European colonists (Polechla 1987; Nuttall 1999; Usner 1992). The need for food and materials created relationships of reciprocity to secure territory for further Euro-American expansion and form alliances against other competitive interests, while still facilitating practical concerns (Usner 1992:6-8). For instance, the French relied upon political strategies to uphold good relations with Indian nations in order to offset their English competition (Usner 1992:78). A brief history of commerce in the colonial Southeast along with the establishment of trade in proximity to Cadron emphasizes the importance of the trapping industry along the Arkansas River.

There is significance in considering the social context of the time period and identifying the varying factors that created this scene. The frontier had become a conglomerate of diverse peoples in search of subsistence and security. Indigenous populations had existed in the area for a large amount of time. A large number of people were prompted to migrate from Europe, during and after the Seven Years' War. (Usner 1992:109). A large number of the population was born in the Colonial region, who at the time were encouraging large-scale immigration to maintain power and promote commerce with newly established colonial governments and between Natives (Usner 1992:108-109).

La Salle claimed the Mississippi Valley for France in 1682 in hopes to expand the established Great Lakes Indian commerce and France's claim in North America (Usner 1992:14). At this time he and his party traveled south down the Mississippi River and attempted to establish alliances with the Quapaw, Taensa, and Natchez villages (Usner 1992:15). Indians were also seeking alliances for security and expansion in the region. Before his fur enterprise could be firmly established in the south, La Salle was assassinated (Usner 1992:14). Despite the loss, his interests generated enthusiasm and the development of a fur trade economy in the Mississippi Valley into the end of the seventeenth century (Usner 1992:14).

Arkansas Post was established in 1686, marking the start of formal trade between Europeans and Indians along the Arkansas River (Smith 1972:7). Smith (1972) reports the La Harpe Expedition at the beginning of the eighteenth century was possibly the first European contact at what was to become the site of Cadron. Cadron was en route along several tracts that connected established trading posts and fur factories throughout the Southeast and certainly participated in the frontier exchange economy.

Usner (1992) mentions several accounts of exchange in and around Arkansas. The St. Francis River Basin, located in Missouri and Arkansas, became a regional center by the 1720s for those settlements further to the south (Usner 1992:174-175). The drainage areas of the St. Francis, White, and Arkansas rivers provided lavish resources of wild game that fueled the expansion of the trapping industry in the region (Usner 1992:174). Native groups within and proximate to Arkansas, such as Choctaw, Osage, Chickasaw, Tunican, and Quapaws, to recognize a few, were fully involved in trade with other participants in the area (Usner 1992:176-178).

Clayton (1959) mentions trade in the area between Europeans and Indians as early as the 1720s. Ross (1954) comments on evidence from a primary source from Antion Cruzat, Spanish commander of the St. Louis Post in 1777, suggesting exchange in the Cadron area. Osage Indians were going to "El Quadrant" (the original trading site mentioned above) in search of guaranteed trade goods (Ross 1957:4). Smith (1972) also recognizes this transaction. He uses the report from Cruzat, mentioning the size of the Osage tribe and their significance to the St. Louis trade. The Osage were said to have a mass of 800 individuals that produced significant products for St Louis (Smith 1972:7-8). Trade west of the Mississippi River was largely funded by St. Louis (Schorger 1951:186). This gives insight to the possible quantities of goods traded.

The beginning of the nineteenth century was the most abundant time of trade in the area. As fur trade began to increase west of the Mississippi River, the U.S. began building official trading posts called factories (Polechla 1987:69). The U.S. Factories were built to foster trade relations and further westward expansion (Magniahi 2013; Polechla 1987:69-71). The factories also became official places for hunters to bring their catch and helped to better preserve the materials and combat price fluctuations (Polechla 1987:69). Three factories were positioned in Arkansas by the federal government: Arkansas Factory-Arkansas Post, (1805-1810), Spadra Bayou (1817-1822), and Sulpher Fork (1818-1822) (Magnahi 2013). The factories provided a government-patrolled arena for trading furs, meats, oil, and tallow, as well as equipment. Often, hunters were advanced items like pots for oil, traps, and food for hunting expeditions. In return, they paid their debts with skins, meats, tallow, and oil (Usner 1992:175).

Clayton (1959) reports on a map from the Pike expedition (1805-1807) that shows French hunters living all along the river in the region. In 1807 Pyeatt's Road opened to connect Arkansas Post and Cadron and ran along the north side of the Arkansas River (Smith 1972:8). Clayton (1959) mentions that by 1810 John McElmurry is listed as already being settled at the mouth of Cadron Creek with an established trading house. Both European and Indian hunters accompanied him as an agent of Notre Be to obtain furs and peltries for European markets (Clayton 1959:3).

Frontier Hunting and Trapping Technology

The examination of frontier trade technologies and the neighboring cultural processes assists in the interpretation of the nature of the frontier exchange economy in Arkansas. In the beginning of frontier trade, Europeans and Indians trapped animals using different processes. Eventually European firearms, metal tools, and mercantile goods made their way into Native hands (Bleed and Watson 1991:234; Schorger 1951:181). Archaeologists at Indian residential sites have found frontier exchange assemblages, which suggests quick assimilation (Bleed and Watson 1991:242). Indians ordinarily used snares, deadfalls, bows and arrows to capture their quarry (Polechla 1987:70). European hunter-trappers used hand forged, long-spring, steel jawed traps and flintlock rifles to take game (Polechla 1987:70; Schorger 1951:78). After a time, guns and other materials were traded amongst Europeans and Indians so frequently that their methods and cultural customs were quickly interspersed in the frontier exchange economy.

Firearms were an item for utility and trade and for subsistence and security. Guns were used to hunt animals, as well as protect individuals and alliances. Firearms also enabled people to more efficiently execute livestock raids and contraband exchanges (Usner 1992:133-134). Accounts of Euro-Americans offering guns and ammunition to Indians in the midst of colonial rivalry and the amalgamation of cultural network processes has been documented, providing further understanding of how such technologies were infused into Indian cultures (Usner 1992:16-19).

The introduction of these technologies motivated social change in the way of disorganization and formation of old and new alliances amongst all involved. For example, an account east of the Mississippi Valley documents several hundred Alibamon warriors attacking a Mobilian village, which was then retaliated by a French, Mobilian, and Tohome alliance (Usner 1992:20). The direct and indirect effects of introducing munitions caused

groups to either organize or disconnect with other groups. Statistics provided by Usner (1992:260) show firearms materials in an annual supply list of an Indian village comprised 51 percent the total merchandise value being collected in the list. A disproportionate amount of assets were being used to secure guns and ammunition.

Bleed and Watson (1991) analyze how Indians adopted European materials. They examined materials from contact period sites in the Great Plains. The focus in their research is on civilian possession of the gun rather than hostile or wartime use, though they were undoubtedly used for both occurrences. Based on specific gun part assemblages found at Indian residential sites, Bleed and Watson (1991) suggest gun pieces were recycled into the Native domestic tool kit. Compared to Euro-American sites, Native sites held a significant majority of gun barrels, rather than other parts. After guns broke, barrels could have been repurposed and used as scrapers and other tools (Bleed and Watson 1991:242-243).

Spring traps are documented all over the United States during the time period and not just for fur trade (Schorger 1951:177-183). Traps were essential tools to obtain meats and oils necessary for survival on the frontier. White tailed deer and black bear were abundant and in high demand for these reasons (Polechla 1987:70). Exchanges facilitating subsistence on the frontier quickly motivated the integration of Euro-American and Indian food ways (Usner 1992:206-210). Euro-Americans quickly adopted corn and the use of animal oil, mostly bear, in cooking and curing (Usner 1992:206).

Nuttall's journal (1999) acknowledges the types of game present during his time at Cadron. While in the prairie he encountered mostly deer, wild cats, wolves, and some bison (Nuttall 1999:131). An analysis by Polechla (1987) of trade records at the Arkansas Factory describes an index of game hunted in the region. Deer and bear made up the primary supply of skins for formal trade at the Arkansas Factory. Records show about forty thousand deerskins (shaved and unshaved), twelve hundred black bear skins, and few hundred beaver, otter, and raccoon pelts (Polechla 1987:70). Deer and bear were used not only for their hide, but also for their meat and oils (Polechla 1987:70). Smaller animals in demand included beaver, otter, raccoons, fox, wolves, and other animals of similar size (Polechla 1987:70; Schorger 1951:178). The animals were skinned and their peltries processed for trade. When enough furs were gathered, carriers would take the goods along the river to points of exchange. Furs were easily transportable in long distance travel along the waterways (Polechla 1987:71).

Mechanics of Frontier Technologies

Schorger (1951) reports on changes to traps used during contact period sites while giving details about manufacture and function of each design. The development of the steel trap was a product of various refinements of trap designs used since the Middle Ages (Schorger 1951:172-176). Traps made mostly from iron are possibly very old. The English developed a rat trap design similar to those used on the frontier where the trap was first made to capture large game such as bear and was further manipulated to sufficiently take small game (Schorger 1951:176-177). Schorger (1951) mentions these traps were commonly used among Euro-American hunters in the eighteenth century.

This type of trap included a spring, rings, a turning pin, and jaw of teeth to secure the prey (Schorger 1951:176). Putting tension on the long spring sets the trap. Traps can have just one spring or one on each side. When the spring is set the jaws are opened above the bridge to await the prey. The trap is secured in place by an attached chain and ring that are set into the ground.

Flintlock guns originated in Europe, but were brought to America during European exploration. They were introduced in the early seventeenth century and phased out by the introduction of newer technologies in the mid nineteenth century, around the time of the Civil War (Hickson and Noland 2009:33-34). The flintlock is the ignition system for the gun (Hickson and Nolan 2009:36). A jaw screw holds the flint in place. When the hammer is drawn, pulling the trigger will spark the flint and ignite the gunpowder, then firing the bullet.

Hickson and Nolan (2009) report on the ammunition used in flintlock guns. Flintlocks used small round lead bullets that are often found at Historic Period sites. Both rifles and pistols could use the same lead ball making them very versatile. The bullets could have been acquired commercially or hand forged (Smith 1974:48). This type of molding was often a part of a hunter's tool set. Smith found similar items from his excavations at Cadron, such as lead balls that were possibly used in "Indian Rifles" during fur trade (Smith 1974:48-49). His research suggests misshapen balls of lead are evidence of being used. Those that were still cylindrical were unused and likely dropped or lost by hunters (Smith 1974:48).

Hickson and Nolan (2009) explain how the lead balls were used. The shooter would have poured gunpowder down the barrel of the gun, wrapped the lead ball in a covering for added stress, and shoved it down by the powder. They could have been fired in muskets, rifles, or pistols (Hickson and Nolan 2009:35-36; Smith 1974:48-49). The flintlock munitions were easily accessible and bullet molding was a common skill among

hunters, which allows them to appear in many frontier firearms assemblages (Hickson and Nolan 2009:35; Smith 1974:48).

Analysis of Cadron Materials

The materials analyzed in this paper came from a surface collection housed at the Faulkner County Museum in Conway, Arkansas. Access to the artifacts and the accession catalog were provided by the museum for further examination as a part of University of Central Arkansas Service Learning program and the course Archaeology of North America. Firearms material and other iron objects were chosen for analysis. The artifacts collected at the Cadron and surrounding areas indicate a large time span of occupation from prehistoric Indian up to the twentieth century Euro-American. The findings pertain to gear used in frontier trapping and trading.

Figure 1. Iron Trap Spring

The first item analyzed is a lightweight (less than one kilogram) piece of iron approximately fourteen centimeters long (Figure 1). At one end are two parallel circles; one circle is two centimeters in diameter and the other about two and a half centimeters. The widest point of the opposite end is two centimeters in width. The item is thought to be a spring to a hunter's trap.

Based on the size and material of the spring and common fauna of the region it was likely used in a trap for medium to smaller game. Deer was a primary staple hunted for pelt and meat. Five of the six faunal remains found by Smith (1972) were from deer. Animals such as wolves, big cats, fox, beaver, raccoon, and otter may have been captured with this equipment (Polechla 1987:70). Schorger (1951) acknowledges several accounts that explain the majority of traps made during this time were designed specifically for small-scale trapping. Schorger (1951) provides comparisons of spring traps to determine possible date ranges of the spring. Reviewing early designs of traps and the use of steel traps in the United States, I was able to determine these types of iron-spring traps were used from A.D. 1600 to 1900.

The second artifact is interpreted as a piece to a flintlock gun. The item is made of iron and weighs less than one kilogram (Figure 2). It is 10.5 centimeters long and from 1-2 centimeters in width.

Figure 2. Piece to flintlock gun

The item is believed to be part of the actual firing mechanism or lock plate of a flintlock gun. It seems it is part of the metal contraption housing the flintlock, frizzen, pan, sear, and springs. These individual pieces are unidentifiable due to wear and erosion, though the shape and structure of the artifact allow identification of some components. The artifact is worn likely due to natural erosion from the close proximity to the Arkansas River. The piece is missing the flint, hammer, upper jaw, and jaw screw. A table of firearms materials from references of contact period sites is used in this study to make general suggestions about flintlock assemblage date ranges (Table 1). Dates for both gun pieces and flints are provided for comparable evidence. The date ranges for the piece found at Cadron are likely from sometime between A.D. 1630 to 1860.

Items	Site	Date	Reference
cock	Kurt Stevens	mid/late 1700s	Hickson and Nolan 2009:35
gunman's cache	Malta Bend, MO	1730-1775	Hickson and Nolan 2009:35
36 forms of round lead balls	Cadron Settlement	late1600s- 1800s	Smith 1972:48
honey colored flint	Cadron Settlement	late 1700s- early 1800s	Smith 1972:49

Table 1. Table of comparable firearms assemblages from references used in this study

Two cylindrical lead balls were found in the collection. The two lead balls are less than one centimeter in size. They are round, free from any firing depressions or scrapes and a mix of white and grey in color. The

colors are a result natural oxidization (Hickson and Nolan 2009:44). The lack of damage suggests they were not fired and possibly dropped or lost.

Smith found similar small lead balls at Cadron (1974). Comparisons of the artifacts and further research suggest these were ammunition for guns using the flintlock system. This type of ammunition would have been used in the region during the same time period as the previously noted materials, A.D. 1600-1900.

The materials in context with frontier exchange occurrences all around the region contribute to evidence of Cadron's participation in the furbearing industry. Hunters and trappers would have had spring traps, guns, ammunition, and comparable furnishings always on hand. Fur traders collected hundreds of pounds of furs and peltries for trade, but the animals also provided food. Meats could be processed for food storage and oils saved for future use.

Discussion

Excavating and analyzing material from contact period sites allows anthropologists to further understand how the frontier developed. Being in a practical location along trade routes, Cadron's economy likely heavily relied on hunting and trapping to assist social and individual necessities. Hunters and trappers had similar equipment and their methods blended between European and Indian groups. Because both Europeans and Indians were involved in the frontier exchange, either group may have used the items from the Cadron site.

Smith's (1974) report and the present research argue that Cadron was a noteworthy locality of trade during frontier expansion. To the north was St. Louis, which had already been an established trading locale. To the south, fur was probably exchanged with the Natchez at Arkansas Post (Usner 1992:28). McElmurry is documented as being a hunter specifically associated with Arkansas Post. To the west was Spadra Bayou, a Factory near present day Clarksville, Arkansas. Trading furs and peltries must have been a frequent enterprise, especially with the opening of Pyaett's Road in 1807 (Smith 1974:8). With known exchange points in every direction and documentation of McElmurry's work for Arkansas Post, those individuals residing at Cadron likely collected a significant amount of furs and pelts.

For McElmurry to have a hunting party of one hundred trappers strong, the required inventory may have been a significant amount. Polechla's (1987) work on the inventory of the Arkansas Factory gives comparable evidence to suggest a considerable amount of inventory may have come from those at Cadron. As previously stated, hundreds of skins flowed through the Arkansas Factory. Figure 3 refers to established trading posts in relative proximity to the Cadron site. These places hold significance because they provide a relative comparison for the volume of trade experienced at the Cadron site and the larger Arkansas River area.

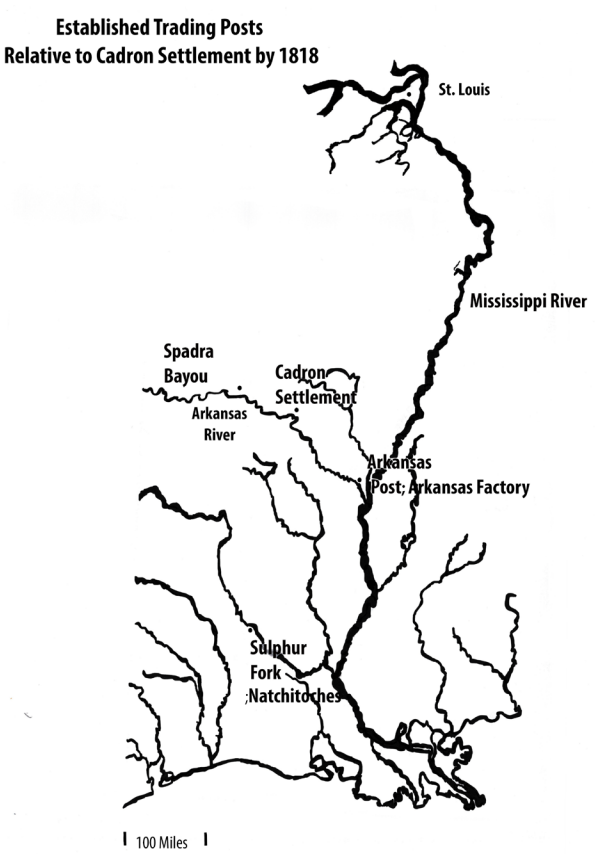

Figure 3. Map of established exchange points relative to Cadron Settlement (after Usner 1992:113).

The items found at Cadron were examined to understand the site's significance within Arkansas River trade and its connection to the greater frontier exchange system. Spring traps, flintlock guns, and their ammunitions are common items in frontier assemblages. The evidence from the selected items found at Cadron, and other references, supply some understanding into broader discussions about life on the frontier. Inferences are made about the significance of trapping and trading and its consequences within the social backdrop of the era. Hunters and trappers would have been constantly collecting furs and interacting with individuals of other groups. Their routine probably revolved around maintaining traps, forging firearms material, processing the animals, and making connections to transfer goods and protect surplus.

Consequences from contact and cultural appropriation created dependencies among groups for equipment and subsistence on the frontier. The social organization of the region undoubtedly transformed as alliances were broken and created as goods and power were sought out. European technologies were quickly picked up by Native groups and incorporated into their everyday toolkits. Hunting and trapping provided both financial capital and subsistence for every day. As the demand for furs increased, people at Cadron likely adapted their customs to facilitate such needs. If hunting were a great enterprise, residents could have obtained a significant amount of product and secured a source of financial and social stability. The furbearing industry provided subsistence and security as food and a commodity for trade along the Arkansas River.

References Cited

Bleed, Peter, and Daniel Watson
1991 Frontier Flintlocks: A Fault Tree Analysis of Firearm Use at Contact Period Sites of the Great Plains. *Great Plains Research: A Journal of Natural and Social Sciences* 1(2):233-248.

Clayton, Louise
1959 *Cadron. Faulkner Facts and Fiddlings* 1(1):3-13.

Hickson, Robert N., and David J. Nolan
2009 Half-Cocked: An Archaeological Perspective of Frontier-Era Flintlock Firearms in Rural West Central Illinois. *Illinois Antiquity* 44(3/4):33-38.

Magnaghi, Russell M.
2013 Factory System. The Encyclopedia of Arkansas History and Culture. http://www.encyclopediaofarkansas.net/encyclopedia/entry-detail.aspx?search=1&entryID=4907

Nuttall, Thomas
1999 *A Journal of Travels into the Arkansas Territory During the Year 1819*, edited by Savoie Lottinville. University of Arkansas Press, Fayetteville, Arkansas.

Polechla, J. Paul, Jr.
1987 Fur Trade Records From Arkansas Factory Arkansas Post, Louisiana Territory, 1805-1810. *Proceedings Arkansas Academy of Science* 41:69-72.

Ross, Margaret Smith
1957 Cadron: An Early Town That Failed. *Arkansas Historical Quarterly* 16:3-27.

Schorger, A. W.
1951 A Brief History of the Steel Trap and its Use in North America. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 40:171-199.

Smith, Samuel D.
1974 *A Survey and Assessment of the Archaeological Resources of Cadron Settlement, Arkansas*. Research Report, No. 1. Arkansas Archaeological Survey Fayetteville, Arkansas.

Usner, Daniel, Jr.
1992 Indians Settlers and Slaves in a Frontier Exchange Economy. *University of North Carolina Press*.

Gonorrhea at Cadron: An Examination of Medicine in Early Arkansas

Breanna Wilbanks, *University of Arkansas*

Introduction

Cadron Settlement is a small city park located a few miles northwest of Conway, Arkansas. The site is situated along the Arkansas River and was once a settlement for early Euro-Americans migrating into Arkansas Territory as early as 1810, and perhaps earlier (Ross 1957:5). Prior to 1808, Osage Indians occupied the area until the United States government forced them to sell their land and move westward into Indian Territory (Smith 1974:9). Several families resided on the land surrounding Cadron after it was purchased, yet occupation was sparse and the area fairly under utilized. For example, a ferry company raised concerns in 1859 regarding whether Cadron should be considered a town due to its incredibly small population size (Smith 1974:18). However, at its height, the area consisted of several buildings, such as a small general store, a number of homes, a warehouse, gristmill, and several outbuildings, all of which have been destroyed or torn down. The park was continuously occupied by Euro-Americans from its initial early nineteenth century settlement period up to 1951 when the last residents left the area (Smith 1974:18). Currently, Cadron Settlement Park contains a reconstruction of the original blockhouse based on the sketch from 1819 made by Thomas Nuttall during his travels through Arkansas (Peterson 2015).

The Cadron occupation period of interest for this research is the early twentieth century based on the glass artifacts examined. The occupants at Cadron left behind a number of artifacts that tell the story of the people who lived there and their daily lives. For example, medicine was a necessary and mundane aspect of the lives of the people who occupied Cadron. Modern medicine, as it is known today, was not fully established in Arkansas until after World War II, with practices lagging behind in exchange for behaviors thought to be harmless, such as substantial alcohol consumption, unhealthy eating habits, and extensive tobacco usage that were common in Arkansas at the time (Dougan 2015). New technologies were met with reluctance, a trait common in early Arkansas culture, causing a disparity in treatment styles between Arkansas and the rest of the United States at that time (Dougan 2015).

The materials analyzed in this research were excavated in 1973 when the park began to expand its sidewalks under the direction of the U.S. Army Corps of Engineers, who took ownership of the site in 1964. Samuel Smith conducted formal excavations on behalf of the U.S. Army Corps of Engineers (Smith 1974). Some of the artifacts excavated by Smith ranged from historic ceramics, glass, beads, firearm materials, tobacco pipe fragments, nails of all shapes and sizes, miscellaneous metal objects, faunal remains, prehistoric Indian remains, and miscellaneous materials such as pieces of sandstone, plastic, and quartzite (Smith 1974:39-57). The artifacts discussed in this article are from a sidewalk expansion project and are currently housed at the Faulkner County Museum in Conway, Arkansas.

An analysis of these artifacts is vital to an understanding of the intimate lives of Arkansas consumers. The materials of focus for this research are glass sherds that can be compared to pharmaceutical products. This research sheds light on how early twentieth century Arkansans were coping with their new territorial environment and the lengths they went to cure their ailments in the Arkansas frontier. Based on artifacts found, this research seeks to understand ailments that were present at Cadron and how occupants were attempting to cure these every day, or peculiar, diseases. This research builds upon the current understanding of what specific medicines were used during this time period in the region, as well as a more in-depth view of what the people of Cadron would have used for medical purposes.

Early Medicine

Early medicine in frontier Arkansas was conducted in a number of ways. Due to the limited number of doctors or medically trained individuals, there was often a shortage of modern medical knowledge available to settlers. As such, many often turned to using treatments found in general stores, folk remedies, and, when available, treatments from doctors. Medicine use during the earliest occupations at Cadron would not have been heavily influenced by urban modern medical practices. The use of treatments of dubious origins and superstition may have been more commonly used.

However, some of the artifacts analyzed in this research extend into a time of progress in Arkansas medicine. For example, in the 1930s change was occurring in Arkansas medicine with doctors rushing to profit on the booming pharmaceutical industry. Although this was during the Great Depression, more than 3.5 billion was spent on medical services and commodities (Tomes 2001:526). There are distinctions in Arkansas

medicine throughout the twentieth century, evidenced not only by the artifacts analyzed in this research but by the perception of medicine perceived during the time. Seeking aid from doctors would have occurred at a higher frequency later in time after modern medicine arrived in Arkansas. Medicine would have been administered either at home using a traditional healing method that was passed down through families, from a local pharmacy or general store, or directly from a doctor, who would often carry their own remedies to patients during house visits. Arkansas had established a Medical Society by November 21, 1870, which was the acting medical model for the state by 1878 (Dougan 2015).

Despite having an established state entity by the late nineteenth century and progress toward unified medical standards by the twentieth century, Arkansas as a whole lagged behind most of the United States in health standards until after World War II, though there were some major improvements. For example, in 1909, the state began requiring a diploma to become a practicing physician (Taggart 2014:14). Hookworms, typhoid, and polio became treatable by the early 1900s. This progressive time in medicine coincided with the Cadron occupation time period discussed in this article. At that time, general stores were a commonplace to pick up your everyday medicines, where painkillers, tonics, and the latest in medicine could be acquired.

Analysis of Glass Artifacts

From the glass artifacts available, several pieces were identifiable by maker's marks and letters that were embossed on the bottles. These artifacts represent the remains of historic medicine bottles. In total, there were five sherds, with two sherds from the same original bottle (Table 1). In the following discussion, I examine each glass artifact separately with a short interpretation of its use.

Artifact #	Color	Size	Markings
A.1		Approx 2.5 x 5cm	K-in-keyhole, the number 4, and a suction scar
B.1	Clear glass with mother of pearl sheen coating the surface, clearly patina	5 cm along longest side x 2.5 cm	Letters "T, I, M,O,R,E"
B.2	Clear glass with mother of pearl sheen coating the surface, clearly patina	Less than 2 cm on any side	Unclear letters
C.1	Blue green glass	Approx 10 cm x 5 cm	No markings
D.1	Clear	Less than 2.5 cm on any side	Letters "P,I,N"

Table 1. Table listing the artifacts, their sizes, markings, and color

The first sherd (A.1) is the base of a bottle. It is 2.5 cm (1 in) in width and approximately 5 cm (2 in) along its longest side (Figure 1). A.1 is made from clear glass, with no signs of patina or other signs of damage beyond its fractured state. There is a clear suction scar on the edge, meaning it was a machine made piece and likely mass-produced (Lindsey 2010). This also indicates that this sherd is part of the base of the bottle, since the base is where suction scars appear. There are two markings

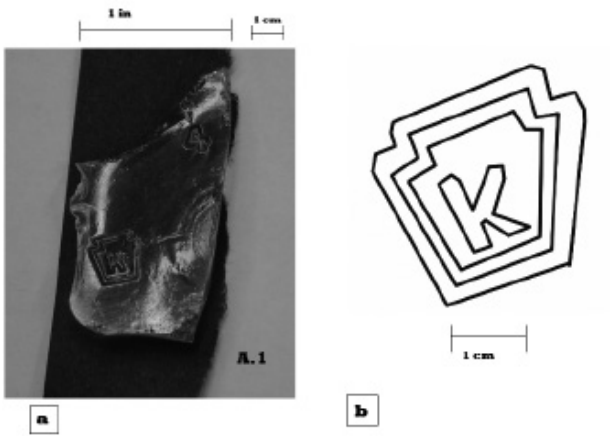

Figure 1. (a) Photograph of artifact A.1 and (b) a line drawing of the maker's mark.

that are visible. The first is a stamp of a type of keystone shaped with the letter "K" in the center (Figure 1b). The second is the number "4". There seems to be additional markings that would have been present along the rest of the base. However, they are incomplete and unreadable. The keystone with a K in the center is suggested to represent its production at the Knox Glass Bottle Company, of which this particular keystone of the letter K was one of their signature markers.

The Knox Glass Bottle Company was established by Roy Underwood in 1917 in Knox, Pennsylvania and flourished as one of the biggest names in glass production from its founding until its eventual fall at the death of its founder in 1951. The company was sold to Hunt Food & Industries, Inc. on October 15, 1965 (Lockhart 2008:1). While each glass container produced at Knox Glass contained a keystone mark, each manufacturing plant used a different letter. The most commonly used keystone was the letter K, which was first used in 1932 (Lockhart 2008:7). Yet, it was extremely common for most early Knox bottles to be embossed with the K keystone mark before more marks were added and assigned to additional production plants (Lockhart 2008). As a result, tracing the A.1 bottle fragment to a specific manufacturing plant is nearly impossible without more of the bottle to analyze. The Knox Glass Bottle Company produced bottles for a great variety of products, not the least of which was pharmaceuticals. While it cannot be determined for certain what was once held in the bottle it would not be remiss to say that this sherd could have been a part of a once whole medicine bottle. However, no definitive statements can be made on its contents without acquiring a complete base piece to analyze and compare.

Items B.1 and B.2 are likely two sherds from the same original piece (Figure 2) based on the same type

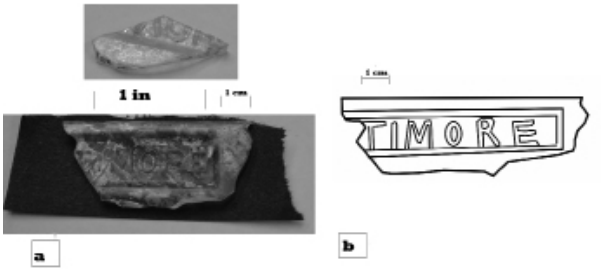

Figure 2. (a) Photograph of artifact B.1 and (b) a line drawing to clearly illustrate the visible letters.

of identification present, such as similar font size, shape, and texture. B.1 is the larger piece approximately 5.5 cm long (2.5 in) and 2.5 cm (1 in) wide. There are clear signs of patina, an oxidation process caused from prolonged exposure to the elements, giving it a mother of pearl sheen. The letters "T I M O R E" are clearly visible (Figure 2b). The second piece (B.2) is much smaller at approximately 0.6 cm (0.25 in) by 1.2 cm (0.5 in). There are letters on this sherd; however, they cannot be clearly discerned as they are too worn by patina and along the break to make a confident statement on what they could represent.

Based on the overall shape and the placement of the letters, the bottle matches the description of a bottle made in 1910 by Sharp & Dohme in Baltimore, Maryland (Fike 1987:167). The product that this bottle contained was called "methylets". This "medicine" was used to treat urethritis, specifically gonorrheal variants. As defined by the Centers of Disease Control and Prevention (CDC), urethritis is "characterized by urethral inflammation which can result from infectious and noninfectious conditions […] Symptoms, if present, include discharge of mucopurulent or purulent material, dysuria, or urethral pruritus" (Center for Disease Control [CDC] 2010).

However, it was discovered and investigated by the United States attorney of Minnesota that methylets produced by the Sharpe & Dohme were actually "snake oil" treatments (U.S. Government Printing Office 1929). The term "snake oil" means that a product was claimed to cure a particular disease or ailment despite the actual contents containing nothing that could cure ones affliction or contained medicinal properties unrelated to the specified disease (Merriam-Webster 2016). In the case of methylets, it was determined that it consisted of gelatin capsules containing a mixture of methylene blue, santal oil, copiba, and oil of cinnamon and was removed from production (U.S. Government 1920). Based on historical and legal evidence regarding the presence of methylets at Cadron, it is likely that an occupant, or perhaps a traveler passing through, was affected by gonorrhea between the time period of 1910 and 1920.

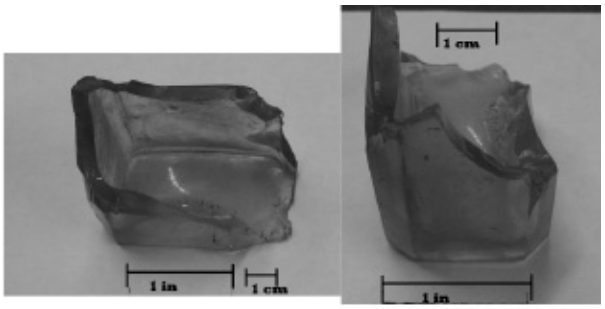

Figure 3. Photographs of artifact C.1

Item C.1 is an almost complete base to a medicine bottle (Figure 3). This piece is 10.4 by 5.5 cm (4.1 by 2.2 in) and is made of blue-green glass, which indicates that it was a cheaply produced bottle. The blue-green coloring was the cheapest to produce at the time. There is little indication of the manufacturer, since there are no identifying marks or unique design, despite it being a nearly intact base piece. However, some information can be discerned. The mold is a two-piece mold and has chamfered corners, which is distinct shape on glassware bases.

The presence of chamfered corners and overall size resemble a bottle that was used as a tablet container for aspirin. This particular design was used pre-1903, indicating that this piece was present during the height of Cadron occupation (Fike 1987:15). Aspirin tablets, a common household drug, were (and are) commonly used as a pain medication to alleviate headaches and bodily pains. The occupants at Cadron likely used aspirin for such a purpose. While it is difficult to determine the exact ailments being treated by the use aspirin, it is likely that the daily aches and pains of living in rural Arkansas would have been enough cause for the need of such a medicine.

Item D.1 is the smallest artifact at 2 cm on both sides, but much can be discerned from this small piece (Figure 4). The letters "P I N" are the only visible letters. Yet, this specific combination of letters, size of the font, and color of glass indicate that the sherd was once a part of a bottle that contained a medicine called "pineoleum". Pineoleum was an oil spray treatment that began in the 1800s to solve catarrh - a condition in which the nose and air passages become filled with mucus. The spray was a combination of menthol, eucalyptol, camphor, cinnamon, oleum dacrydium cupressinum and aromatics, with refined liquid petrolatum that was recommend as treatment for all forms of catarrh (American Druggist 1908:67). While widespread throughout the south as a treatment for allergies, pineoleum was not trademarked

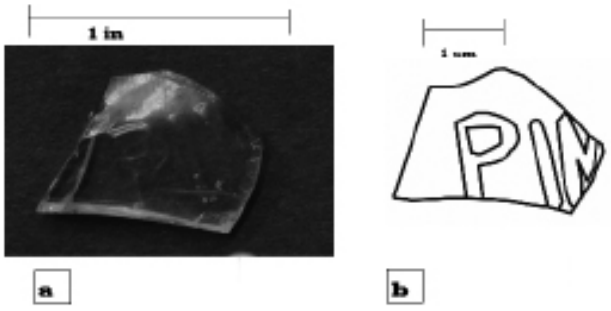

Figure 4. (a) Photograph of artifact D.1 and (b) a line drawing to clearly illustrate the visible letters.

until 1913 by The Pineoleum Company in New York City (United States Patent Office 1914:1387). Pineoleum would certainly have been common in Arkansas, which is filled with an abundance of pollen producing trees and plants. A widespread need for a relief from allergy symptoms reacting to pollen is an understatement. This bottle cannot be dated exactly, but The Pineoleum Company had the sole rights to this medicine and its distribution. This suggests that it could have been used no earlier than 1913 when the patent was created and could have extended until the end of the occupational time at Cadron.

Conclusion

Medicine was an important element in the lives of the people occupying Cadron settlement. Of the artifacts analyzed all were likely once part of complete medicine bottles. While the artifacts from this particular collection were small in terms of identifiable glass sherds, it is necessary to state that these data represent only a small portion if not the only the data available in the collections of the Faulkner County Museum and also of what is still available at the Cadron site. Much additional research and excavations at Cadron is necessary to more fully understand and appreciate the medical history. Additionally, further analysis should be conducted regarding the entirety of the collections within the Faulkner County Museum with specific focus on medical equipment and products. Given the extensive collections housed in the museum and elsewhere, a number of questions regarding the medical history at the site are unanswered. Considering the extensive occupational time span at Cadron, research into the archaeological and ethnographic record could provide an intensive look into medicine in central Arkansas more broadly.

While the artifacts examined in this research could only be tentatively traced back to a few medicine bottles, additional glass artifacts in the collection, though lacking identifying markers, could also be fragments from medicine bottles. Based on the bottles that were examined, it is clear that the people occupying this area were in need of not only specialized medicines for specific ailments, such as gonorrhea, but also for remedies to cure common headaches and allergies. It can be hypothesized that the medicine was acquired by travelers to larger towns or from a visiting physicians. These medicines indicate not only the ailments of the occupants and visitors to Cadron but also what was available to them to use. In the case of the methylet tablets, a resident, or perhaps a visiting party, would have been afflicted with urethritis and used a medicine found at a general store or obtained by a prescribing doctor. What is most interesting is this medicine was not effective. Based on the chemical tests, the person using this treatment would not have been cured of their disease. What did that person do? What medical alternatives did they seek? These questions have yet to be answered but perhaps with further research answers may be discovered.

The occupants of Cadron, despite living in a rural area in a state seeking to catch up with the country in terms of modern medicine, still used a variety of time tested cures and products to ease their pains. This research shows how extensive the consumption of medicine was from just a few artifacts. While we can never know every ailment experienced by the inhabitants of Cadron, by looking through a bit of their "medicine cabinet" one can determine what they used to treat themselves and in some cases how effective they might have been.

References Cited

American Druggist Publishing Company
1908 *American Druggist and Pharmaceutical Record Vol. 52-53*. University of Michigan: American Druggist Publishing Company.

History of Medical Treatment of Gonorrhea
http://www.antimicrobe.org/h04c.files/history/Gonorrhea.asp, accessed December 9,2014

Centers for Disease Control and Prevention
2010 2010 STD Treatment Guidelines: Diseases Characterized by Urethritis and Cervicitis. Electronic Document http://www.cdc.gov/std/treatment/2010/urethritis-and-cervicitis.htm, accessed July 4, 2016.

Dougan, Michael
2015 Health and Medicine - Encyclopedia of Arkansas. Electronic Document http://www.encyclopediaofarkansas.net/encyclopedia/entry-detail.aspx?entryID=392 June 30, 2016.

Fike, Richard
1987 *The bottle book: A comprehensive guide to historic, embossed, medicine bottles*. Peregrine Smith Books, Salt Lake City, Utah.

Lindsey, Bill
2010 Historic Glass Bottle Identification & Information Website: Machine Made Dating, Society for Historical Archaeology and Bureau of Land Management. Electronic Document http://www.sha.org/bottle/dating.htm, accessed July 13, 2016.

Lockhart, Bill, Pete Schulz, Carol Serr, and Bill Lindsay
2008 The Knox Glass Bottle Company. Bottles and Extras, Electronic Document, http://www.sha.org/bottle/pdffiles/knox2_brg.pdf, accessed December 9, 2014.

Ross, Margaret Smith
1957 Cadron: An Early Town That Failed. *Arkansas Historical Quarterly* 16:3-27.

Smith, Samuel D.
1974 *A Survey and Assessment of the Archaeological Resources of Cadron Settlement, Arkansas.* Research Report, No. 1. Arkansas Archaeological Survey Fayetteville, Arkansas.

Taggart, Sam
2014 *The Public's Health: A Narrative History of Health and Disease in Arkansas*. University of Arkansas Press, Fayetteville, Arkansas.

Tomes, Nancy
2001 Merchants of Health: Medicine and Consumer Culture in the United States, 1900-1940. *The Journal of American History* 88(2):519-547.

U.S. Government Printing Office
1920 Notices of Judgment Under the Food and Drugs Act, Issue 7501, Part 8000 Vol. 7501. U.S. Government Printing Office, Washington, D.C.

United States Patent Office
1914 Official Gazette of the United States Patent Office Vol. 200, United States Patents and Trademark Office, Pennsylvania State University.

Including the Native Voice: The Importance of a Bicultural Perspective in Museum Exhibitions

Katelyn Trammell, *University of Central Arkansas*

Introduction

One of the issues surrounding modern museums is the concern of under-representation of indigenous peoples and the interpretation of such groups through a unilineal narrative of Western values. The traditional power of the museum to represent other cultures is being challenged by museum professionals, anthropologists, and Native peoples (Ames 1992:147). This research seeks to understand how the presentation of Native Americans as an "extinct" people was created, evaluate issues facing the interpretation of culturally sensitive objects and the presentation of Native cultures in modern museums, and present solutions on how to correct these issues with respect to Native American voice. A solution I propose herein is the utilization of a bicultural perspective which combines the knowledge of historians and ethnologists, as traditionally seen in museums, with how Native American groups understand, interpret, and present their own cultural history (Ames 1991:7-15).

Methods

Literature Search

By combing through the literature specific to Museum Anthropology, I discovered challenges currently facing museums concerning Native American voice. In order to understand how these problems formed, I searched for ethnographic and historical data relevant to the colonization of Native American cultures. Several articles include critiques of current museum practices, which I utilize throughout my argument, with repatriation as a suggested solution to these problems (e.g. Ames 1992; Kirshenblatt-Gimblett 2012; Grognet 2012). This led me to research the difficulties of repatriation including the creation of the Native American Graves Protection and Repatriation Act. While reviewing the critiques, I began to form a solution in accordance with the idea of bicultural interpretation (Ames 1991:7-15).

Interview

Although there were several critiques in the literature, I found few articles containing examples of museums that had succeeded in creating a bicultural interpretation. I provide a case study from the Historic Arkansas Museum, located in Little Rock, Arkansas in order to give a relevant example of how bicultural perspectives can be created and represented within an exhibit. The museum includes an impressive Native American exhibit that makes use of Native interpretation of Native history and use of the bicultural perspective.

In order to gain insight into the creation of the exhibit, I decided to go past examining the exhibit from an etic perspective by conducting an interview with the person responsible for its creation and constructing of the exhibit - Deputy Director and Chief Curator, Dr. Swannee Bennett. I contacted him via email and set up an appointment for an interview. We met face-to-face at the museum and the interview was conducted using previously formed questions which I elaborated and expanded during the interview. I recorded Dr. Bennett's answers and are the basis for the case study information.

Theory: Reviewing Historical Particularism and Cultural Relativism

The theory of historical particularism was first developed by Franz Boas. This theory emphasized that each culture has its own unique history that influenced the creation of culture and how these cultures changed over time (Boas 1920:317). Alfred L. Kroeber contributed to this theory by supporting equality among cultures. He claimed that the "uncivilized man does not exist" and that equality of different civilizations must be assumed by the researcher (Kroeber 1915:284-286).

Due to their independent histories, historical particularism states that culture groups should therefore be evaluated based on their own values rather than those of other cultures. This idea is known as cultural relativism, espoused by Boas, and defined greatly by his students (Brown 2008:364). Although cultural relativism has been criticized for overstating differences between cultures, the original concepts behind this theory are the reason for its discussion in this paper. Classical cultural relativism encouraged ethnographers not to judge other cultures using "a universal yardstick" and to practice "sensitivity to cultural context" (Brown 2008:365).

In accordance with these theories, I argue that museum professionals should allow other cultures to interpret themselves through their own cultural understanding rather than being filtered through a Western cultural lens. Without the Native interpretation of the cultures being represented, cultural histories, and objects associated with them, lose valuable meanings. Using a dominating Western interpretation within

the museum setting has led to under-representation, misinterpretation, and a lack of continuity in relation to Native American cultures.

Creating the Image of Native Americans in Museums

Historically, museums have had a reputation of deculturation and acting as the "final resting place for evidence of the success of missionizing and colonizing efforts" (Kirshenblatt-Gimblett 2012:202). This deculturation has caused many to view Native Americans as relics of the past; a people who have gone extinct. Often in exhibitions they are referred to in the past tense and the people themselves are presented as artifacts (McMaster 2012:378).

Ethnology itself created the illusion of disappearance (Kirshenblatt-Gimblett 2012:202). Boas helped to construct this decultured interpretation of indigenous peoples by gathering cultural information before creating any overarching theory of culture. Part of his work focused on the collection of Native American history. However, he was convinced that Native American culture was at risk of disappearing and advocated the practice of "salvage" anthropology to save as much cultural knowledge as possible. When discussing the proper arrangement of Native American objects in museums, Boas did not hesitate to assign Native groups to the fate of becoming exhibits (Boas 1887:127).

His idea of salvage anthropology added to the belief in the inevitable disappearance of Native Americans. Subscribing to this supposed disappearance has emboldened museums to present artifacts with authority, using Western ideologies and categories to organize cultural objects (Kirshenblatt-Gimblett 2012:202). Ethnologists and museum experts created for themselves the role of "savior" by accepting the idea that museums were, and are, places to house "rescued" items, giving themselves power over the objects they collected because the Native culture would no longer exist to give them meaning (Kirshenblatt-Gimblett 2012:202-203). Controlling how these items and the people who made them are presented is a display of social power over the Native culture (Ames 1992:54).

As a result of this self-proclaimed role of savior, museums have become testaments to imperialist nostalgia; the feeling of "mourning for what one has destroyed" (Rosaldo 1989:107). Anglo-Europeans use this feeling of nostalgia in an attempt to claim innocence from the domination and destruction of a culture that they themselves caused. Museums fall guilty to this imperialistic way of thinking through their creation of a romanticized image of Native Americans and how their culture was before colonization. Some museums use this image of past Native Americans to "capture people's imaginations and to conceal its complicity with often brutal domination" (Rosaldo 1989:108).

Understanding the origins of Native American representation in museums requires recognition of the fact that Native Americans have been colonized three distinct times. The first colonization occurred when Europeans arrived in the New World and began the practice of taking Native lands. Second, Native Americans were again colonized when Anglo-Europeans began taking their objects as part of the "salvage" effort to "save" their culture. It has been noted that the "removal of objects was one step in the process of stripping subjected peoples of their culture in order to "transform them in a grand rite of separation" (Kirshenblatt-Gimblett 2012:202). The third colonization is taking place today in museums by removing cultural significance assigned to an object by its creators and replacing it with a biased, Western control (Curtis 2012:75).

Having created these idealized images of a past significantly altered by Western colonialism, museums have used their self-claimed power to create exhibits of items robbed of their cultural context. Due to the roots of ethnology, museums have exhibited ethnographic items by the "conceptual categories and practices of ethnographers" rather than importance relative to the items original culture (Kirshenblatt-Gimblett 2012:204). By deciding which artifact or object is proper to display in order to create an image of Native American culture, museum professionals are often those who decide what constitutes "a proper Indian" (Ames 1992:68). The way museums choose to display these objects reveals more about Western values of aesthetics and entertainment rather than the importance assigned by the culture being presented (Curtis 2012:75).

In relation to the aesthetic presentation of objects, it is important to note that the lines between art and artifact have been disseminated by Western thought. Several Native American objects, such as pottery or baskets, have been placed on display in art museums. However, as observed by Susan Vogel (1991:191), "almost nothing displayed in museums was made to be seen in them." Museums themselves have assigned objects to the category of "art" despite the fact that the original maker of the item may never have had that intention. An example is with pottery and woven baskets. These items, which may have been only for practical use or function, are at times exhibited as pieces of Native American art. In these cases, "form becomes more important than content" (Ames 1992:52). When museum professionals perform this reassignment of purpose, they do so through the context of their own culture and their own values, not through the values of the original creators of the objects (Vogel 1991:193). Exhibiting Native objects as art

without proper context exploits the people who created the items and is therefore a continued expression of power over those people (Ames 1992:71).

In continuing to explore why non-Natives represent Native Americans as artifacts themselves, one must examine the goals of museums in exhibiting cultural items. Museums traditionally prescribe to the goal of educating and informing the public (American Alliance of Museums 2000). However, this goal has been overshadowed by the want to entertain in order to justify the costs of museums. An aesthetic approach has come to dominate the exhibition of ethnographic objects, tending to provide only minimal explanations of the item on display (Grognet 2012:165). Rather than assign importance to cultural identity associated with the object, museums have favored the aesthetic quality of the item (McMaster 2012:377). This complete lack of cultural detail in favor of aesthetic appeal defeats the purpose of educating the public by failing to provide "further insight or knowledge about an alien culture" (Grognet 2012:166). By not including information beyond the simple identification of an object, a museum fails to provide meaningful context for the item and falls short of representing all aspects of culture (Baxandall 1991:40). Whenever museum professionals do attempt to provide additional information, their efforts are further complicated by issues of cultural affiliation. Westerners created the geo-cultural areas that anthropologists use to define Native American groups. This creates problems of identification because Native groups historically made use of the physical environment, but they were not defined by the geographic area in which they lived. Native Americans are bound culturally, not geographically in the way anthropologists have grouped them (Kroeber 1915:284). The use of broad, geographical associations rather than tribal association still depends on non-Native ideologies rather than Native American ideas of tribal relation and continues to detract from the importance assigned by the Native culture. Often times, due to these geo-cultural boundaries, direct affiliation remains ambiguous due to differences in geographic location between ancestors and descendants. In these cases it must be taken into account that western movement of Anglo-Europeans forced Native American groups to leave their traditional homelands and where tribes live now may not be congruent with where they, or their ancestors once lived.

Although complex, these issues can begin to be addressed by defining an ethnographic object in the terms of its purpose before it became part of a museum collection and acknowledging that the object had a "life of its own" (Grognet 2012:165). Lack of continuity from historic accounts of Native cultures to the way those cultures are practiced today suggests that these groups have gone extinct (McMaster 2012:277). Museum practitioners must recognize that they do not have absolute power over the interpretation of Native American cultures because those cultures still exist (Baxandall 1991:41). A shift must be made from viewing Native peoples as subjects to viewing them with respect to the sovereignty of their culture, since Anglo-Europeans failed to respect the sovereignty of their lands (McMaster 2012:381).

Repatriation and its Challenges

Some steps have already been taken in changing the relationship of museums and their collections of Native American objects. The creation of the Native American Graves Protection and Repatriation Act (NAGPRA) has transformed the relationship between Native American groups and museums. This law requires museums to repatriate human remains, sacred objects, and objects associated with burials (101st Congress 1990). Sacred objects, although vague, refers to ceremonial objects required by religious leaders for traditional practices and religions (101st Congress 1990). Native peoples now have the opportunity to lay claim to items of cultural patrimony and request the return of these objects. In addition, the law demands that the repatriation of objects will be done with consultation from "tribal government and traditional religious leaders," guaranteeing the consideration of Native American opinion (101st Congress 1990).

However, the law is not perfect. Several issues revolve around claims of cultural affiliation. In some cases, no direct link can be made because there is no record of connections between ancient Native American cultures and those that exist today, or there is simply not enough data. Other times, multiple tribes claim ownership of the same item or set of human remains and legal battles ensue. One such case began in 1996 when human remains were found in Kennewick, Washington. The bones, referred to as "Kennewick Man," date back to 9,000 years ago and were claimed by five separate tribes in the Pacific Northwest. The question surrounding cultural affiliation created a legal battle between the five tribes and anthropologists. The anthropologists in this case sued the government for the right to study the bones, arguing that they could reveal new information about human migration (Raja 2016). However, DNA testing revealed similarities between Kennewick Man and the five tribes. Under NAGPRA, the tribes held rights over the remains. Due to the lack of a direct connection to any single tribe, the five tribes agreed to a joint claim and worked together to rebury Kennewick Man. This is only one example of the issues surrounding cultural affiliation, and there is no "one-size-fits-all strategy" that makes sense for every case (Raja 2016).

Despite these difficulties, some museums are striving to aid in repatriation efforts. Current museum ethics for many museums support the move toward repatriation. The code of ethics created by the American Alliance of Museums states that "competing claims of ownership …should be handled openly, seriously, responsively and with respect for the dignity of all parties involved," as well as requiring that all affiliated museums follow all applicable "local, state, or federal laws" (American Alliance of Museums 2000). This support has created an avenue for Native Americans to pursue reclaiming control over the objects that have been used by museums to represent their culture. Again, this ideal of repatriating sacred objects is not without flaw. The process for proving cultural affiliation is not always the easiest and museums are often unwilling to part with their collections. As pointed out by Michael Ames (1992:109), "Native people are sacred to museum ethnologists" in that museum anthropologists place special value on the Native objects in their possession and may find it difficult to give up their authority over these objects.

Although NAGPRA requires museums to return human remains and associated items, many ethnographic objects remain in the possession of museums due to the complications and issues surrounding cultural affiliation. The question then is: How can these objects be displayed in a way that respects the culture they came from? The answer is to create and implement a bicultural perspective that allows the voice of the Native culture to be heard through their own interpretation. This does not mean, however, the complete destruction of ethnographic fact and historic interpretation by non-Natives. Rather, it is a process of asking how these two perspectives build upon one another to create a fuller picture (Ames 1992:56). Using this perspective does not mean that museum ethnologists can no longer talk about other peoples, it means that they can no longer speak for those people (Ames 1992:148). The key to a bicultural interpretation is to recognize the shared history of Native Americans and Westerners and to evaluate the two perspectives together within museum exhibits.

The Bicultural Perspective

After accepting the importance of both the Western museum and Native American perspective, museum professionals can begin to create exhibits based on a bicultural perspective. This interpretation can be created by first recognizing that Native American cultures still exist. One way to accomplish this task is to include the ethnographic present within exhibits. By continuing the discussion of Native history beyond the traditional explanatory end at Removal, continuity can be demonstrated through links between Native American cultures of the past and contemporary cultures. Exhibiting the past and present together bridge the disjunction that occurs in many museums. Second, exhibitors must stop the contrasting of indigenous people to Western culture. By comparing the two cultures, museums risk creating Native Americans as a primitive "other" instead of a culture of their own to be evaluated by their own values (Curtis 2012:78). Finally, museum professionals can create a bicultural interpretation of objects by directly consulting and working with Native peoples. Rather than try to interpret the emic point of view alone, museum professionals should listen to the "insiders" (Ames 1992:56). Asking the members of a specific Native American group how they interpret the importance of an object related to their culture and then using the Native person's own words in an exhibit can create a perspective of the culture relative to Native voice (Curtis 2012:78). Museum professionals can then combine this perspective with the scientific or archaeological data associated with an object. By combining both interpretations of an object, museums highlight the relation between Native and non-Native groups and how their interactions changed both American and Native American shared histories.

By relinquishing the self-claimed dominance of the museum and recognizing the still-living culture of Native Americans, exhibitors increase their wealth of knowledge while beginning the decolonization of indigenous peoples (Issac 2012:541). Again, it is important for museum practitioners to remember that the significance of a bicultural perspective lies in including both interpretations of cultural objects and bringing attention to how Native American culture has changed over time since the arrival of Europeans. As noted by Boas, cultures change over time and are in a constant state of flux (Boas 1920:315). A bicultural perspective serves to dismantle the romanticized nostalgia of the American Indian and recognize the changes in Native American culture from past to present.

Tangible and Intangible Culture

Another important component of the bicultural approach is recognizing the connection between tangible and intangible culture. Tangible culture refers to the tangible objects that are used to represent a culture and frequently displayed in museums. Intangible culture includes "knowledge, belief systems, techniques of the body, [and] performance" (Kirshenblatt-Gimblett 2012:200). Intangible culture resides in living people who practice the culture. Tangible objects may contain multiple layers of intangible information that may not be available based on the viewing the object alone. When the connection between these two types of culture is ignored, the physical object loses its significance (Kirshenblatt-Gimblett 2012:200). Although museums do not have access to this intangible culture through

their own ability, this does not mean the intangible culture has disappeared or is completely inaccessible (Kirshenblatt-Gimblett 2012:201). Bridging the gap between the tangible and intangible requires working with Native peoples in order to give relevant cultural context to the collections on display. This connection can be exhibited by using the words of Native Americans in the exhibit and by merging their cultural interpretation with the ethnographic interpretation traditionally held by museums. Although making the intangible culture of a group tangible is meaningful in creating a bicultural perspective, certain aspects of intangible culture cannot be expected to always be shared. Some objects on display are still considered sacred by certain Native peoples and have sacred knowledge surrounding them. This intangible knowledge belongs to the Native person and it is up to them whether or not such information makes the transition from intangible to a tangible display. As noted by Timmy Thompson, a ceremonial leader within the Muscogee Nation, some elders might disagree with the displaying of certain objects while Thompson himself may not mind exhibiting them, depending on the object (Reilly 2002:39). One such situation occurred at the University of British Columbia Museum of Anthropology in 1982. The museum invited the Haida people to raise a totem pole in the museum that was carved by a member of their own tribe. While many in the tribe appreciated the opportunity to display their heritage, other Native people mocked the raising of the totem pole, resentful of it being put on display (Ames 1992:55-57).

In some cases, the knowledge associated with an object may be esoteric, belonging to only a few distinct individuals. This form of knowledge is not meant to be known by others and sharing such knowledge may result in negative repercussions and broken taboos. Situations concerning esoteric knowledge may make sharing the intangible knowledge an impossibility. Museums must respect the decision of Native American peoples to disclose or not disclose their sacred knowledge. In these cases, the intangible will stay intangible.

Presenting cultural objects in cases where a Native group does not wish to participate can be a difficult balancing act. In these situations where items are still put on display, museums must present their own perspective while recognizing the limitations associated with the exhibit and conveying scholarly transparency (Vogel 1991:201).

In Summary

With the intention of creating a bicultural perspective, museum practitioners must resist the traditional practice of writing a unilineal narrative. Presenting exhibits with a Western value alone can cause misinterpretation of objects and exclude what is truly important about an object to the Native people it came from (Houlihan 1991:210). Instead, both Native and non-Native interpretations should be taken into consideration and displayed together in the context of their shared history. By giving the authority of their own culture to Native groups within the museum setting, exhibitors and Native people together can create access to material that may exist within Native American culture that is not conceived by Western ideals (Houlihan 1991:210).

In the interest of the respectful representation of Native American culture and the education of the public, it is in the best interest of the museum to work toward cooperation with Native Americans and possible co-direction of exhibits. By combining Native perspectives with ethnographic information, museum professionals can create continuity that reveals the extant nature of Native cultures and remove indigenous peoples from the singular, colonizing narrative that they have been forced to be a part of in the Western museum world.

Case Study: "We Walk in Two Worlds"

The Historic Arkansas Museum in Little Rock, Arkansas serves as an example of the creation of a bicultural perspective within a Native American History exhibit. Part of the museum's purpose is to interpret and represent the history of early Arkansans. This is partly done by using actors who work in the onsite historic buildings interpreting early Arkansas history for visitors. The Cromwell Native American Gallery continues this mission by interpreting the Native American presence in Arkansas (Figure 1).

Figure 1. The "We Walk in Two Worlds" exhibit was designed to include the Native American voice.

Plans for the "We Walk in Two Worlds" exhibit began in 2007 and took three and a half years to complete. Dr. Swannee Bennett, the Chief Curator, oversaw the creation of the exhibit from the beginning. According to

Bennett, the main goal of the exhibit was to include the Native American voice and he believes the exhibit met that goal.

When the idea of the exhibit first began, Bennett and other museum members decided the best way to include the Native American voice was to work directly with the three Arkansas tribes: Quapaw, Caddo, and Osage; indigenous groups who formerly occupied what is today Arkansas. When I asked Dr. Bennett how he contacted the Native groups, he informed me that the museum has had a long relationship with the Quapaw since the creation of an earlier exhibit in 1995.

When creating the current Native American gallery, Bennett emphasized the importance of Native Americans interpreting their own history. He was concerned with how the story was never told from the Native American perspective, including even the most mundane details. Instead, it was always told by Anglo-European authors. In the gallery, Native history is interpreted through the words of Native scholars.

Creating the exhibit began with creating advisory committees composed of representatives from the Quapaw, Caddo, and Osage tribes. In order to build the committees, the museum applied to the chairperson of the tribe. The chairperson then requested approval from the elders who then selected representatives for the tribe. The advisory board also included a consultant from the National Museum of the American Indian (NMAI) located in Washington D.C. who was approved by the tribes.

Once the advisory committees were formed, museum professionals, like Dr. Bennett, then asked them to define the goals of the exhibit. Together, the tribal advisors decided to focus on overarching themes already covered by historians including Native culture, contact with Europeans, disease, removal, and cultural renewal specific to Arkansas. They did not plan to completely rewrite the narrative, but instead to use the already existing narrative and tell it through their perspective as Native Arkansans.

With historic events chosen, selection of objects began. Objects were chosen based on what the advisory committees believed were emblematic of their culture. Most of the items displayed in the exhibit were either borrowed from the Smithsonian or donated by the tribes involved. Not all of the objects were strictly Native American, such as Spanish weapons. The use of these objects along with the Native American items is meant to emphasize the shared history of Natives and Anglo-Europeans. Dr. Bennett informed me that both ethnographic evidence and Native American interpretations were used in the display of objects. Members from the tribes interpreted much of the material culture items such as beadwork and clothing that act as visual signage illustrating Native culture. Other items, such as non-Native weapons and other material were interpreted by curators using ethnographic evidence.

Some items in the exhibit are from Caddo burials and have been repatriated under NAGPRA and are displayed with the approval from Caddo peoples. Pieces borrowed from the NMAI, whether they had already been repatriated or not, were also given approval by the tribes before they were displayed.

When walking through the exhibit, the use of a bicultural perspective becomes obvious. Each panel begins with the interpretation of an historical event by a Native American scholar in their own words. The cultural affiliation of the author is written in parenthesis after their name. This is then followed by ethnographic information that is traditionally seen in museum exhibits (Figure 2). This pattern continues throughout the entirety of the exhibit. The pairing of these two perspectives further demonstrates the shared history of Anglo-Europeans and Native peoples. As Dr. Bennett said, using Native voice does not mean that Anglo-Europeans cannot interpret history, it simply means that Native groups have a right to interpret their own history.

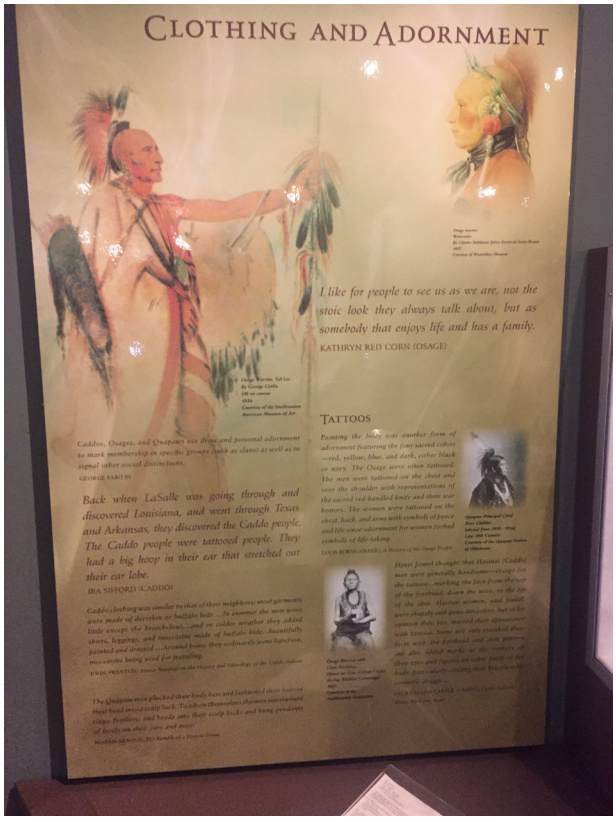

Figure 2. This panel exemplifies how the exhibit uses both the words of tribe members, as well as the interpretation of ethnographers.

Taken as a whole, the exhibit meets the goal of creating a bicultural perspective. Objects from the tribes and the Smithsonian are displayed side by side, using both ethnographic and Native interpretations. Every panel tells the history of Native Americans through the words of the tribal members themselves with support of ethnographic accounts. Anthropologists, museum professionals, and Native Americans all worked together to tell the story of the Osage, Caddo, and Quapaw experiences in Arkansas. Finally, the exhibit closes by displaying evidence of cultural renewal and continuation. This display includes material created by current tribe members such as a headdress with Mickey Mouse in the center. There are also three interactive screens that play interviews with members from each tribe. By ending the exhibit with evidence of the cultural continuation of the three tribes, the idea that Native Americans are extinct is challenged.

Discussion and Conclusion

The Historic Arkansas Museum provides evidence that creating a bicultural interpretation of Native American history is a viable solution for creating Native voice in museum exhibits. An important step toward creating this perspective is reaching out and communicating with Native American peoples and giving them the opportunity for self-determination through the self-interpretation of their history (Ames 1992:148). Museum professionals may continue preserving history and interpreting historical events, but they should no longer preserve a living culture without the voice of those native to the culture (Ames 1992:106). The Historic Arkansas Museum proves that creating relationships with Native Americans is both possible and beneficial to the mission of museums. By collaborating with Native groups we can expand our understanding and create fuller interpretations of history. Although collaboration means giving up the self-appointed authority of the museum, it does not mean destroying the importance of ethnographic interpretation. Using ethnographic interpretation to support the perspective of Native American history and culture by Native Americans successfully combines the two perspectives in a way that is meaningful and informative. Striving toward a bicultural perspective and giving Native Americans back the voice over their own culture is a step toward decolonizing Native people from the strict unilineal narrative created by museums and returns cultural autonomy to the proper owners of Native culture.

References Cited

101st Congress
1990 Native American Graves Protection and Repatriation Act. Electronic document, https://www.nps.gov/nagpra/mandates/25usc3001etseq.htm, accessed September 19, 2016.

American Alliance of Museums
2000 Code of Ethics for Museums. Electronic document, http://www.aam-us.org/resources/ethics-standards-and-best-practices/code-of-ethics, accessed September 19, 2016.

Ames, Michael M.
1991 Biculturalism in Exhibitions. *Museum Anthropology* 15(2):7-15.

Ames, Michael M.
1992 *Cannibal Tours and Glass Boxes: The Anthropology of Museums*. UBC Press, Vancouver.

Baxandall, Michael
199 Exhibiting Intention: Some Preconditions of the Visual Display of Culturally Purposeful Objects. In *Exhibiting Cultures: The Poetics and Politics of Museum Display*, edited by Ivan Karp and Steven D. Lavine, pp. 33-41. Smithsonian Institution Press, Washington.

Boas, Franz
1887 Museums of Ethnology and Their Classification. In *Museum Studies: An Anthology of Contexts*, 2nd ed., edited by Bettina Messias Carbonell, pp. 126-128. Blackwell Publishing, West Sussex.

Boas, Franz
1920 The Methods of Ethnology. *American Anthropologist* 22(4):311-321.

Brown, Michael F.
2008 Cultural Relativism 2.0. *Current Anthropology* 49(3):363-383.

Curtis, Neil G.W.
2012 Universal Museums, Museum Objects and Repatriation: The Tangled Stories of Things. In *Museum Studies: An Anthology of Contexts*, 2nd ed., edited by Bettina Messias Carbonell, pp. 73-81. Blackwell Publishing, West Sussex.

Grognet, Fabrice
2012 Ethnology: A Science on Display. In *Museum Studies: An Anthology of Contexts*, 2nd ed., edited by Bettina Messias Carbonell, pp. 163-167. Blackwell Publishing, West Sussex.

Houlihan, Patrick T.
1991 The Poetic Image and Native American Art. In *Exhibiting Cultures: The Poetics and Politics of Museum Display*, edited by Ivan Karp and Steven D. Lavine, pp. 205-211. Smithsonian Institution Press, Washington.

Isaac, Gwyneira
2012 Technology Becomes the Object: The Use of Electronic Media at the National Museum of the American Indian. In *Museum Studies: An Anthology of Contexts*, 2nd ed., edited by Bettina Messias Carbonell, pp. 533-545. Blackwell Publishing, West Sussex.

Kroeber, A. L.
1915 Eighteen Professions. *American Anthropologist* 17(2):283-288.

Kirshenblatt-Gimblett, Barbara
2012 From Ethnology to Heritage: The Role of the Museum. In *Museum Studies: An Anthology of Contexts*, 2nd ed., edited by Bettina Messias Carbonell, pp. 199-205. Blackwell Publishing, West Sussex.

McMaster, Gerald
2012 Museums and the Native Voice. In *Museum Studies: An Anthology of Contexts,* 2nd ed., edited by Bettina Messias Carbonell, pp. 377-382. Blackwell Publishing, West Sussex.

Raja, Tasneem
2016 A Long, Complicated Battle Over 9,000-Year-Old Bones is Finally Over. National Public Radio 5 May. http://www.npr.org/sections/codeswitch/2016/05/05/476631934/a-long-complicated-battle-over-9-000-year-old-bones-is-finally-over, accessed October 10, 2016.

Reilly III, F. Kent
2002 Thoughts on the Preservation of Traditional Culture: An Interview with Timmy Thompson. In *Hero, Hawk, and Open Hand: American Indian Art of the Ancient Midwest and South*, edited by Richard F. Townsend and Robert V. Sharp, pp. 37-41. Art Institute of Chicago.

Rosaldo, Renato
1989 Imperialist Nostalgia. *Representation* 26:107-122.

Vogel, Susan
1991 Always True to the Object, In Our Fashion. In *Exhibiting Cultures: The Poetics and Politics of Museum Display*, edited by Ivan Karp and Steven D. Lavine, pp. 191-204. Smithsonian Institution Press, Washington.

Tipping the Scale: Regional Evaluations of Industrial Food Environment Equilibrium

Cecily Freeman, *University of Central Arkansas*

Introduction to the Industrial Food Environment in the United States

Food is a visceral component in both the biological and cultural domains of humans. Our relationship with food is intimate, very complex, and necessary. For all of human existence food has supplied an indispensable connection to nature and secured our continuity as a species. As globalization transforms our societies, and in turn our food systems, this connection is becoming increasingly blurred (Dyball 2015; Nestle 2002; Tillotson 2004). Since industrialization, the food industry has become a hybrid of nature and society and has intensely changed our food environments (Tillotson 2004:621). The ways in which tradition has directed human consumption have now been replaced by dietary advice from the food industry and advertising (Nestle 2002; Tillotson 2004:618). In other words, food handled at the global scale generates consequences down to the individual level.

The industrialization and global integration of the U.S. food industry cultivates concerns about issues regarding food security and obesity in the context of toxic food environments. Elements of food environments include proximity to food stores and restaurants, food availability, pricing, marketing influences, access to food and nutrition assistance programs, as well as cultural identity and knowledge of foodways (United States Department of Agriculture [USDA] 2015; Messer 1986:60). Cultural food habits, eating behaviors, and general nutritional knowledge frame the way individuals in a society perceive relative sufficiency of the food environment, as well as the communal and individual wellness, and if any nutritional deficits are related to socio-physiological functioning (Messer 1986:60).

According to Thomas Malthus (1960[1798]:5), "the great question is now at issue, whether man shall henceforth start forwards with accelerated velocity toward illimitable, and hitherto unconceived improvement, or condemned to a perpetual oscillation between happiness and misery." The perpetual cycle of happiness and misery spoken by Malthus can be seen as the ebb and flow associated with human populations and subsistence. Human populations have experienced the repercussions of food production since its earliest adoption (Diamond 1987:96). The cause and effect relationship of food production and human populations has only intensified over time, until reaching its current state. At this point in time, industrial food production along with the global economy has further exacerbated the issues of public health and social well being.

The U.S. has an industrial system that produces enough food for its 125 million households. However, food security is far from satisfied (USDA 2015). Food security is recognized as physical, social, and economic access to sufficient, safe, and healthy foods needed to live a well and active life (McDonald 2010:2). Food insecurity is the lack of this ability to secure adequate foods. In this case, food security can be recognized as a healthy and balanced food environment. Food security and obesity are closely linked in their affiliation to industrial food environments (Pan et al. 2012:1403). For example, Nestle (2002) points out the obesity and food insecurity paradox is present in many industrialized nations. In 2000, the number of obese people matched the number of malnourished people in the world at 1.1 billion (Nestle 2002:16). Malnourishment is a symptom of food insecurity. The balanced scale that once existed among humans and the nature of the food environment has been tipped.

How does the industrialization of food and public policy impact communal well-being in the context of local food environments? Places such as Arkansas produce large amounts of food, while simultaneously having high percentages of food insecurity and obesity (USDA 2015). Agricultural production accounted for 17 billion of Arkansas's economy in 2012 (University of Arkansas Division of Agriculture Research and Extension 2013:3). The same year, Arkansas was the national leading producer in rice, harvesting 9.4 million pounds, the second overall national producer of poultry products, and third national producer of broilers (chicken), producing over five million pounds (USDA 2015:2). What factors contribute to the imbalance of energy in this type of food environment?

Food insecurity and obesity both hold consequences for public health that are determined by an array of factors, such as behavioral, biological, environmental, and cultural circumstances that shape food environments. A balanced food environment effectively promotes a normal ecological metabolism (Nestle 2002:5). Exploring human adaptability within ecosystems is significant in identifying elements that affect the energy equilibrium to create toxic food environments and cause cultural transformations (Steward 1955:30-31).

This study assesses local food environments through the global system to assist in creating sustainable solutions for balancing the scale in the future.

Before the Industrial Environment

The balance of the ecological scale was offset long ago when humans began to control and exploit resources to produce food. Before the industrial food system and even before the adoption of food production, humans evolved in a foraging environment; making a living with the natural resources available (Diamond 1987:96). Human populations only began producing food in parts of the globe between 9,000 and 12,000 B.P. (Cohen 2003:63). Hunting and gathering has been the means of subsistence for 95 percent of human existence. Therefore, the foraging lifestyle has been the normal evolutionary expression of human physiology and psychology (Cohen 2003:63; Diamond 1987:96). Along with biological evolution, cultural evolution has occurred (Steward 1955:12). Though there has been no universal sequence of industrial food production, there are parallel consequences of its adoption across the globe. For instance, O'Dea (1984) conducted a study using 10 Australian Aborigines with Type 2 diabetes. The male subjects began consuming foods from an urban industrial center and quickly realized changes in weight and blood glucose levels. The subjects were returned to the Bush for a seven week reversion of their traditional hunter-gatherer lifestyle. The study that found after returning to a foraging diet the men had experienced improvements in weight, blood pressure, triglyceride levels, and drastic changes in glucose levels and insulin response (O'Dea 1984:601,602). The study shows the local populations will experience negative health outcomes from adopting an industrialized diet. It is evident that the human connection to food and the environment has changed with the means of subsistence from forager to producer.

The extent of environmental balance generated by the foraging lifestyle, compared to food production, has been ecologically successful overtime. Though the shift to food production, and more intensely to the industrial food system, is seemingly positive, a closer examination demonstrates the opposite. Because humans have been foragers throughout our evolutionary history, the adoption of food production quickly effected health and our relationship to each other and the environment (Diamond 1987:95).

The transition to food production was bad for the foraging body in several ways. Hunters and gatherers typically consume a more varied diet compared to food producers (Diamond 1987:9). Agriculturalists tend to gain calories from a few crops, often resulting in nutritional deficiencies (Diamond 1987:97). A food producer's risk of food insecurity is heightened with the concentration and dependence on only a handful of foodstuffs (Cohen 2003:64). If crops fail, the liability only increases and the population may be threatened by starvation (Diamond 1987:97). Agriculture also encourages the increase of population density (Diamond 1987:97). Since food production began, the crowding of peoples has only increased. As Malthus (1960) mentions, with adequate food and space to expand populations will continue to increase. With this expansion in population and food production is also the increase in contact and exchange. Crowding promotes disease and illness, most of which are not present in foraging societies because population density is very low and there are no domesticates (Diamond 1987:97). It is important to note, many diseases and viruses were originally spread through animal domestication (Diamond 1987:97).

The development of agriculture has brought stratification and contrasts in nutrition and overall cultural capital for many. Food producing populations are characterized by deep class divisions, which are not present in foraging populations (Diamond 1987:97). Hunter gatherers have little to no concentration of stored foods, which maintains a sense of equality. Therefore, there is no overarching rule of elites or social dependents to seize food supplies (Diamond 1987:97). Compared to producers, the ratio of labor investment to caloric return for a forager is equal among all and completely adequate. The elite do not participate in the hard labor required for food production. Hard labor is done by the lower class. In contrast, foraging populations share a larger amount of the work and it is less intensive. For example, the !Kung Bushmen only spend about six hours per day for around three days of the week "working", or getting food (Lee 1968:41). The rest of their time is spent in leisure.

The concentration of wealth inevitably creates a divide between the elite and the commoner. In this context, being an elite is the only secure means of escaping nutritional deficiencies and disease. There is archaeological evidence to support the sharp contrast in nutritional well-being between elites and commoners since food production was adopted. For example, Diamond (1987) references an archaeological case study from Mycenae, Greece (1500 B.P.) that suggests elites consumed a better diet than commoners based on average height, dental health, and number of bone lesions caused by disease and exhaustive labor.

The issues of poor health and social inequalities experienced today are deeply rooted in antiquity, stemming from the transitions to food production over the last ten thousand years. What does all of this mean for those subsisting on the industrial food system today? This is a question I explore throughout this study.

The Development of the Industrial Food Environment in the United States

The industrial food system has greatly altered subsistence in the U.S. through continually advancing power in food production and through commercial communication. Herein, marketing and consumption of food related to communal wellness are reviewed for a more extensive grasp on the various outcomes of worldwide integration relative to food security and the obesity epidemic in the U.S. Acting on behalf of their own agendas, large entities in the food industry created a complete public system that they now control. Corporate food has used advertising and public policy to increase profit and completely change food distribution and consumption in the U.S., which has contributed to food insecurity and adversely influenced the current public health issues. Commercial interests supply food to Americans with a lack of responsibility.

A historical comparison of food policy of both supply and demand provides a general understanding of the formulation of the industrial food environment. From the 1890s to 1960s public health policy was directed towards eradicating hunger. The "eat more" campaign was a supply and demand generated public policy directed at promoting food consumption and preventing dietary deficiencies (Nestle 2002:32,38,39). During this period, when marketing potential was recognized in the discovery of micronutrients, the industry took the idea and began to exploit the consumer (Nestle 2004:34-35). On the account nutrients can be found in all foods, food can be publicized to be consumed for public health interests (Nestle 2002:34). This marketing concept allow products like vitamin-enriched cereals to be "nutritionally enhanced" allowing them to be advertised as low fat or sugar, though they contain large amounts of both (Nestle 2002:25). The demand side of policy is in favor of public health, while the supply side of policy is concerned about increased consumption and production.

During the period of micronutrient discovery, U.S. food supply was being industrialized and promoted before nutritional science was thoroughly understood. When the rates of chronic disease began to rise at the end of the 1960s, the federal government abruptly shifted its dietary advice (Nestle 2002:38). As more nutritional advances were made, government shifted to an "eat less" mindset to warn people about dietary risks for chronic diseases (Nestle 2002:38). Food producers were outraged by the government telling people to eat less of their specific food products. The uproar caused some leading officials to recant their positions in favor of "not disrupting the economic situation" of corporate food production (Nestle 2002:41). The government was trying to create dietary guidelines to increase public health, while the food industry lobbied for their influence to promote production and appease stockholders.

A few decades of extensive growth and overproduction routed food policy into its present economic model, which has led to our current public health issues (Tillotson 2004:631-632). As of the late 1990s food consumption rose to an average of seven hundred more calories per day, per capita in the U.S. compared to the 1970s (Nestle 2002:8). This is the result of the rapidly expanding industrial food system and the effects of marketing. The industrialization of the food supply and the general U.S. economy inadvertently led to America's food related problems (Tillotson 2004:620).

Advertising is now so ingrained in the cultural conscious of industrial society that there is little recognition of its influence on food choice and subsequent impact on food culture. Advertising has helped create the industrialized food environment. When we go to the grocery store our choices seem limitless and we likely do not think about our food choice until suggested. Those who do read food labels, scan over tons labels and products that are consistently changing and making new health claims, but something disturbing is behind all those alluring claims and individual packages. According to Nestle (2002), seven of the ten largest food companies in the world [Philip Morris, ConAgra, Mars, IBP, Sara Lee, Heinz, and Tyson Foods] resided in the U.S. in 2000. Other companies in the U.S. such as Coca-Cola, McDonald's, and Roche were among the top 100 largest food companies in the world (Nestle 2002:12,13). These few companies, along with only a few crops (wheat, rice, soy, corn) make up most of those choices available in stores (Nestle 2002:23,26). Only a few companies controlling a mass food supply with billions of dollars illustrates the extent to which the food supply has been industrialized.

Companies produce thousands of new products per year, though there is limited shelf space. Nestle (2002) reports there are around 320,000 food products competing for around 50,000 spaces at the supermarket. Two thirds of these are condiments, candy, snacks, and soft drinks (Nestle 2002:25). These are not tastes in which humans are biologically evolved to favor in nature (Breslin 2013:410). With so much competition for space, only highly endorsed products make the cut.

Advertising is significant in allowing for a subtle infiltration of food choice; a choice we increasingly do not make for ourselves. Vast amounts of money are spent in order to convince us of what we should eat. Big entities spend lots of money to create appeal with nutritional claims and good taste. McDonald's spent $670,000 and Coke $174,000 on direct media advertising in 1999 (Nestle 2002:22). That number has since grown. In 2006, 44 reporting companies spent 1.6 billion dollars on food and beverage marketing to children and adolescents (Federal Trade Commission [FTC] 2008:7). Sixty-

three percent of that 1.6 billion was spent directly on promoting carbonated beverages, restaurant food, and breakfast cereals (FTC 2008:7). Nestle (2002) points out that advertising costs for a single, nationally distributed food product surpasses federal expenditures for the promotion of fruit and vegetables (or the food pyramid) more than tenfold.

Advertising strategies include outlets like mass media, packaging, in-store marketing, and cross-promotions (Harris et al. 2009:409). Companies will often use integrated campaigns to push product (Harris et al. 2009:409,410). A report from the Federal Trade Commission states character and celebrity endorsement promotions were widespread in 2006 with over 80 television and movie characters tied into food and beverage advertising (FTC 2008:4). Findings from Harris et al (2009), show that three companies [Kellogg, General Mills, and Kraft] were responsible for over half of all cross-promotional advertising in their sample. Two thirds of those promotions were for foods in only five categories: cereals, fruit snacks, meal products, frozen desserts, and candy (Harris et al. 2009:410) The public has been tricked to favor low cost sweet, fatty, and salty foods, which only validates the authority of advertising and its influence on food culture.

Our Environment, Our Complications

The food industry has turned our relationship with food into a system favoring consolidation and mass production. It has been propelled by economic, political, and social institutions that handle food at all levels (Bestor 2012:603). Though the consequences of food production have long been present, these problems have intensified with the adoption of the industrial system.

Commercial interests are increasingly pushing product that is energy dense [more calories per gram] and more prepared. These interests have spread the industrialization of cuisine globally. For example, contemporary Japanese food culture has dramatically changed because of the transition to an industrial environment (Bestor 2012:603). There has been a pervasive adoption of "conveyer belt sushi" and convenience stores selling processed foods across the region (Bestor 2012:603). It is important to note, industrial consumers are familiar with these prepared foods across the globe, like sushi. Sushi can be found nearly anywhere now. Convenience foods such as TV dinners, sugar sweetened beverages, and boxed meals have been popular in the U.S. since the mid-twentieth century (Tillotson 2004:632).

This influence has constructed a toxic food environment that makes it very difficult be food secure and is much less healthy overall (Diamond 1987:97; Tillotson 2004:618; Young 2004:8). Young (2004) refers to these specifically as obesogenic environments. This type of environment restricts mobility and stimulates high energy consumption (Young 2004:8). An obesogenic environment is characterized by a lack of sports and leisure spaces, as well as hereditary, family, and community socialization directed towards inactive practices (Young 2004:9).

The U.S. has a substantial pandemic of obesity with more than half of the population overweight (over 150 million people) (Tillotson 2004:617). Obesity affects people at all demographic and socioeconomic levels, but is disproportionately prevalent among low-income households (Pan et al. 2012:1403). According to the United States Department of Agriculture, many states in the South have some of the highest percentages of food insecurity in the country with Arkansas ranked number two in the nation at 19.4 percent and Mississippi leading the nation at 20.8 percent (USDA ERS 2015:20). People who are food insecure may rely on energy dense, low cost food, which can then result in obesity (Pan et al. 2012:1403). Pan et al. (2012) explore the association of food insecurity and obesity to find that 61 percent of the food insecure adults in their sample had increased odds of being overweight. Independent of education and income level, Pan et al. (2012) argue individuals who are food insecure often overcompensate when food is available. They are also more likely to consume energy dense foods because they are relatively inexpensive, which contributes to weight gain.

As populations and their means of subsistence have increased, as has the coalescence of those affected by the social stratification of food production. There will always be some individuals who have greater access than others in food producing societies (Diamond 1987:97). This has been apparent since the earliest adoption of food production and is visible in the U.S. industrial system today. Often large food chains that allow for relatively inexpensive food for consumers are not located in poor income neighborhoods. Chung and Myers (1999) report that this may be the most significant factor responsible for making the poor pay more for foods. Chain stores selling low cost foods in specific geographical areas highly contributes to gaps in food availability (Chung and Myers 1999).

There are limitations concerning the assessment of food security and obesity relative to food environments. It is difficult to measure food security and its effects on an individual because of the void between what foods an individual buys and what they actually consume. This may lead to some distorted data on the association between food insecurity and obesity. It can also be difficult to gauge the degree to which a food environment directly contributes to personal food security and health. A

multitude of biological, environmental, and cultural determinants must be evaluated to holistically understand the effects of our food environments.

This analysis assesses the creation of the U.S. industrialized food environment, focusing on the association of food security and obesity relative to the toxicity of such food environments. Oftentimes individuals facing food insecurities have inadequate access to healthy food habitats and fluctuating caloric intake, which contributes to obesity. Globalization has manifested itself at the local level making humans adapt to urban environments. A number of factors contribute to the economic explosion of the industrial food system in the U.S. As the number of available food products rise, the number of companies controlling them decreases, which only preserves the toxic habitat they have inadvertently created.

Cultural Ecology and the Industrial Food Environment

Food procurement is arguably the most influencing of all the activities that structure the function of social and cultural groupings (Moran 2008:75,76). Focusing on structural factors that are under stress within an environment reveal how humans adapt (Moran 2008:36). Civic concern is growing toward a better understanding of the environmental changes we are experiencing, of the consequences to human populations and environment, and the magnitude of adaptations different populations must make in order to compensate for these changes. Malthus's principles concerning population argue that subsistence will increase with the rate of population, therefore food production and further the industrial environment, are adaptations compensating for changes in population (Malthus 1960[1798]). The industrial food environment is both a tangible, biological matter and an abstract structural framework that has afflicted populations and changed culture.

This analysis focuses on adaptation to the industrial food system through earlier concepts of cultural ecology combined with contemporary views of energy flow through populations and ecosystems. An ecological perspective provides the theoretical underpinnings to efficiently understand certain circumstances that influence the balance of energy in a food environment and consequently transform food culture.

Though contemporary ecological theory jointly focuses on biological and social sciences, biology plays less of a role in the earlier ecological concepts concerning culture (Moran 2008:45; Steward 1955:13). Through the lens of cultural ecology, culture is seen as an extensive accumulation of attributes, rather than substitutive process (Steward 1955:13). The industrial food system itself is viewed as an accumulation of cultural extensions from the biological processes concerning subsistence. Over time food production has developed into the industrial system with the assistance of culture processes. For instance, the ways in which humans cultivate, obtain, consume, and perceive food are all elements of culture that change with food production.

At the heart of cultural ecology is Steward's concept of the cultural core (Steward 1955:37). The cultural core consists of an array features that are intimately related to subsistence activities and economic arrangements (Steward 1955:37). Specific features include social, political, and or religious and ideological patterns. Secondary factors are also present, including cultural-historical aspects and the dispersion of elements associated with those arrangements. The industrial food system is the cultural core of the U.S.

The interrelationship of exploitive and productive technologies within an environment, the behavioral patterns associated with such exploitation, and the extent to which the exploitive behavior has affected some aspects of culture are significant in this approach (Steward 1955:40,41). Human adaptability, as a cultural mechanism within the food environment, is a regulatory process striving for ecological homeostasis (Moran 2008:36,42). As populations increase, so does the means of food production (Malthus 1960:9). The food environment created by the industrial system is unique because the subsistence network is expanded far beyond the local community. The nature of the food environment is predominantly determined by the larger system at work.

The relationship between productive technologies, such as those used in the production of commodity crops through industrial agricultural practices, and the food environment explain the population's subsistence devices. The overproduction of commodity crops through industrial farming methods provide large amounts of cheap foodstuffs for consumers (Nestle 2002:5). Advances in food processing technology are also present in the environment. Unlike the subsistence devices of pre-agricultural societies, for instance hunting instruments and plant processing tools, those in the U.S. industrial food environment typically sustain themselves using devices such as a grocery store buggy, financial capital, and plastic packaging (Steward 1955:37). Most people in this environment obtain food from a store shelf and use a wheeled basket to collect the foodstuffs. Foods are most often packaged in plastic and often partially prepared so they can be stored and consumed in a variety of effortless ways (Tillotson 2004:632).

The behavioral patterns associated with the exploitation of those technologies are important. Subsistence patterns dictate certain limits on a community's way of life through

their environment (Steward 1955:40). Habits are shaped by not only by the technologies directly linked to food production, but also the transportation and distribution infrastructures that supply consumers (Steward 1955:41). For example, the relatively recent decrease in fruit and vegetable consumption, or increase in consumption of sugar sweetened beverages in the U.S. are habits framed by the exploitation of these technologies. As mechanical techniques in the production and distribution of food is advanced, there is an increased availability and a possible change in rates of consumption.

Spatial factors like geographical location, land use, as well as food availability and access are all indicators of the potential energy flow equilibrium within a food environment (Moran 2008:58). In this case, the notion of energy flow in an ecosystem can be applied to a population's consumption and expenditure of calories from food and beverages. Also, potential energy flow is traced through local characteristics of the environment such as energy density, consumption of healthy foods, public policy concerning nutrition, and range of public spaces for an active lifestyle.

Methods of Measuring Food Environment Equilibrium

Applying these methods to the concept of an industrial food environment will assist in identifying factors that have caused imbalances in the American industrial food system, as well as the consequences of deviation from a healthy food environment equilibrium. From this perspective cultural change is not merely viewed as a sequence of isolated historical events, but rather a series of transitions affecting the balance between a number of interrelated variables. The precise caloric intake of single individuals is not present in this study. Rather, local indicators of possible energy consumption and activity patterns are identified through multiple data sources to gauge their impact on the human-food relationship.

Ecological research primarily analyzes populations and their connection to energy circulation within an ecosystem (Moran 2008:166). Moran (2008) explains that populations serve as measurable units for the transmission of energy and matter in an environment. Humans adapt to environmental fluctuations by primarily changing behavior and culture, but also by adjusting physiological and genetic traits over time (Moran 2008:166). Energy requirements of the population and ecosystem vary according to activity, population size, climate, and the ecosystems ability to produce energy (Moran 2008:206). Populations are flexible for this reason, acting as a regulatory agency for environmental balance. Malthus (1960) adds that population cannot increase without means of subsistence. The oscillation of population and subsistence is always perusing a perpetual harmony through corresponding ratios of expansion (Malthus 1960:11-15). This concept can be applied to understand the contemporary food environment in the U.S and the consequences of its imbalance in recent years. The recognition of the downplay of empirical biological evidence is present here and the focal point of this examination is on the observable elements that point to parallel consequences and therefore cultural characteristics that affect human adaptability to certain ecosystems.

It is important to identify a population's method of food production, preparation, storage, consumption and habits related to caloric intake and expenditure in order to understand the transmission of energy between humans and their residing ecosystem. Identifying these methods also assists in understanding cultural transitions. Modern population production and consumption habits have had serious effects on food environment energy equilibriums, resulting in adverse environmental well-being and public health. This study is a survey of data related to intrinsic and extrinsic factors operating in proximity to food environment equilibrium. Adaptations to the industrial food system are themselves determinants of imbalance.

Profiles of eight states, Arkansas (AR), Alabama (AL), Kentucky (KY), Louisiana (LA), Mississippi (MS), Oklahoma (OK), Tennessee (TN), and Texas (TX), were constructed to understand the industrial food ecosystem. Those eight states comprise two regions, West South Central (AR, LA, OK, TX) and East South Central (AL, KY, MS, TX) (U.S. Census Bureau 2010). These two regions were specifically selected because they contain states ranked among the highest in the nation for both obesity and household food insecurity (USDA 2015; Center for Disease Control 2015).

A survey of secondary data was collected to build the profile for each state. Each profile includes spatial energy density, indicators of fruit and vegetable consumption, obesity and household food insecurity rates, as well as state indicators of physical activity. Data on state policies guiding individuals toward a healthy lifestyle are also included. Combining the measures both healthy and unhealthy food consumption supplies comparable data for the flow of energy through the ecosystem. Foods that are unhealthy (energy dense in fat salt, and sugars) supply greater amounts of energy to consumers than foods that are healthy, providing lesser amounts of energy in a balanced way. Public policy concerning health and nutrition are significant in understanding the political and social elements related to the cultural core in this model.

Energy density is analyzed through the CDC's 2011 report on modified retail food environment (mRFEI).

Energy density refers to the concentration of calories compared with the particular weight of a food (CDC 2011:1). The mRFEI measures the number of healthy and less healthy food retailers within census tracts across each state as defined by typical food offerings in specific types of retail stores (e.g., supermarkets, convenience stores, or fast food restaurants) (CDC 2011:1). Out of the total number of food retailers considered healthy or less healthy in a census tract, the mRFEI represents the percentage that are healthy. The mRFEI combines measures of food deserts (lack of access to whole foods) and food swamps (relative amounts of energy-dense unhealthy food options) to quantify the measure into a single number (CDC 2011:1). Scores greater than zero correspond with the food desert concept and lower scores correspond to food swamps. These concepts provide reliable, quantifiable data relative to the amount of energy being produced and consumed by humans in an industrial food environment in these areas.

The CDC released a report in 2013 on indicators of fruit and vegetable consumption. The report presents data on each state's fruit and vegetable consumption, environmental, and policy indicators of support for the consumption of fruit and vegetables (CDC 2013:2). For healthy energy consumption, the American Dietary Guidelines recommend eating more fruits and vegetables (CDC 2013:2). Combining the rates of fruit and vegetable consumption along with policy indicators and land use support for fruit and vegetables helps to understand a population's connection to healthy forms of food acquisition.

The same CDC report from 2013 is used to document acreage percentages of croplands used to grow fruit and vegetables for each state (CDC 2013:7). This percentage of harvested land for fruits and vegetables are used as regional indicators of the quantities of fruits and vegetables in the local food systems.

State obesity percentages are sourced from a 2016 report prepared by The State of Obesity, a project of the Trust for America's Health and the Robert Wood Johnson Foundation. The State of Obesity data comes from the Behavioral Risk Factor Surveillance System (State of Obesity 2016:19). According to the report, BRFSS is the largest ongoing, state-based telephone health survey, which was established by the CDC (State of Obesity 2016:19). The survey samples adults from each state targeting information on health risks, behaviors, and health practices (State of Obesity 2016:19).

Household food insecurity rates are from a 2016 report provided by the USDA Economic Research Service. The percentage is the average prevalence households experiencing low to very low food security from 2013 to 2015 by state (USDA 2016:21). The average of three years of food insecurity data present a significant statistical measure to assess the extent of food anxiety in the region of study.

Data illustrating population energy expenditure is an index formed from the statistical components of a 2014 report by the CDC. The report provides information on physical activity behaviors and state-level policy supporting a physically active environment (CDC 2014:3,19). Indicators of physical activity include percentage of adults who engage in no leisure-time physical activity, who usually biked or walked their commute, percentage of population living within half a mile of a park, and percentage of youth with recreational and physically active lifestyle infrastructure in their neighborhood [i.e. parks, playgrounds, recreation or community center, sidewalks, and walking paths] (CDC 2014:23).

Analysis and Discussion

The first column of Table 1 shows each the state's mRFEI score. Every state has a score that is above five, with most scores being close to the maximum score of 10. The closer the score is to 10, the more the retail food environment is characterized by tremendous amounts of energy dense foods. The exact score of 10 means that only 10 out of every 100 food retailers were likely to offer healthy food options, like fruits, vegetables, and whole grain foods (CDC 2011:2). The average mRFEI score for the locations under study is 8.6. This score illustrates that the immense availability of unhealthy foods shapes the characteristics of each state's food environment.

Mississippi had the lowest average daily intake of fruits and vegetables. Alabama, Tennessee, and Texas all had the highest averages of fruit and vegetable intake. The percentage of cropland used for fruit and vegetable growth in each state is presented to understand support

State	mRFEI score	Average # of fruits and vegetables consumed adults / day	% acreage of cropland harvested fruits & vegetables	Food insecurity rates	Obesity rates
AR	9	F1.0% V1.50%	0.20%	19.20%	34.50%
AL	10	F1.0% V1.60%	1.20%	17.60%	35.60%
KY	10	F1.0% V1.50%	0.2%	17.60%	34.60%
LA	9	F1.0% V1.40%	0.6%	18.40%	36.20%
MS	8	F0.9% V1.40%	0.8%	20.80%	35.60%
OK	6	F0.9% V1.50%	0.3%	15.50%	33.90%
TN	10	F1.0% F1.60%	0.8%	15.10%	33.80%
TX	7	F1.0% V1.60%	0.9%	15.40%	32.40%
U.S. National	N/A	F1.10% V1.60%	2.50%	12.7%	37.80%

Table 1. Indicators of Population Energy Intake by State.

for consumption. Arkansas, Kentucky, and Oklahoma all dedicate an average of less than 0.5 percent of agricultural land to fruits and vegetables.

Mississippi had the highest percentage of insecure households and the second highest percentages of obesity. Arkansas is ranked second in household food insecurity and fourth in adult obesity. This pattern of high food insecurity and high rates of obesity continue through each state under analysis.

Table 2 presents an index of indicators the outflow of energy of populations within each state. In other words, it represents the ways in which individuals and communities maintain healthy caloric expenditure. Nearly a third of the population in all eight states (32.01 percent) reported no leisure-time physical activity. This is roughly seven percent higher than the overall national average of 25.40 percent. In all states there were low percentages of the population living near parks. Less than half of the youth population in all cases had any infrastructure supporting an active lifestyle in their neighborhood. LA, MS, TN, and TX are all states with policy supporting smart urban design. Smart design policies implement efficient approaches to developing a community's infrastructure providing a more healthy environment (American Public Health Association). AR, AL, KY, and OK had no policy supporting community scale design. There is a lack of efficient management for infrastructure of all forms of transportation, but especially that for citizens who want to participate in active transportation.

The region of study represents the local environments that comprise it in considerable ways. By state, and region as a whole, there is visible evidence of causation. Each local had increased availability to processed food retailers, increased rates of food insecurity, and low consumption of fruits and vegetables, while having significant rates of obesity. The human food relationship is an ecological system in constant movement.

State	No leisure-time physical activity	Usually biked/walked commute	% of population living w/in 0.5 Mi. of park	% of youth w/ recreational/physically active lifestyle infrastructure	State policy supports community scale design
AR	30.90%	2.00%	15.30%	43.00%	No
AL	32.60%	1.40%	14.70%	37.00%	No
KY	33.80%	2.30%	19.80%	40.60%	No
LA	29.30%	2.40%	22.30%	35.40%	Yes
MS	36.00%	1.80%	10.90%	30.00%	Yes
OK	31.20%	2.10%	33.40%	40.60%	No
TN	35.10%	1.50%	17.50%	37.00%	Yes
TX	27.20%	1.90%	32.50%	53.10%	Yes
U.S. National	25.40%	3.40%	39.20%	54.50%	54.00%

Table 2. Indicators of Population Energy Expenditure by State.

To be able to enter the system at any focal point and trace oscillation to understand its consequences is very important.

Therefore to bring this argument full circle, these findings answer my core question. How does the industrialization of food, combined with public policy, impact communal well-being in the context of local food environments? The industrial food environment is comprised of social, political, and biological factors that promote an unbalanced ecological relationship. First, the systemic nature of the industry, with support from advertising, and correlating public policy help guide consumption. The system creates and maintains what foods are available to a population and, therefore affect consumption. The same entities also control the population's access to an environment that helps maintain a physically active lifestyle. If aspects of energy consumption and expenditure are not oscillating in balance, the consequences are profound. The data presented clearly supports the applied theories. As Malthus mentions, as populations rise so does subsistence. Using the profiles under study to apply to a global scale, it can be stated that subsistence has shifted to an industrial environment to support increasing population density. The shift to industrial food production has been an adoptive transition to provide large quantities of foods to support the dense population. Technical advances in production, processing, and political policy combined with the necessity to support population subsequently helped to develop the energy dense foods that characterize the industrial food environment today.

A major limitation is recognized with the lack of empirical biological data to support some state claims. It would be significant to examine the biological effects of the industrial food environment on human psychology as well. Further exploration into the biological consequences of this environment will only further illustrate the need for environmental food assessment across the globe.

With these findings we can better prepare for the future. There is no reversing the increase of population and subsistence, so we must find ways to support and maintain in an ecologically efficient manner. This is done through changing the default of personal choice through changing the environment. People will eat healthy and be active if those things are available. Based on the data, populations must make the personal choice to increase physical activity and decrease consumption of energy dense foods.

Simultaneously, the environment must be changed in order to promote these things. Each is a product of the other as a constant operating cycle. Many individuals have limited access to adequate foods and places to be active. Changes in public policy can provide the power needed to do so. I suggest shifting focus

to the endeavor of civic agriculture. Civic agriculture is the holistic method of diffusing local agricultural and food production processes into the community (Lyson 2004:64,65). It is small-scale, locally oriented, and is flexibly and efficiently organized. Community oriented local systems help to gain greater control over economic destinies, enhance level of cultural capital among populations, and contribute to socioeconomic well-being (Lyson 2004: 103,105).

Acknowledgments

I would first like to thank my thesis professor and overall academic mentor, Dr. Duncan McKinnon. His guidance and advice has continued to help mold my academic career and this project through its final revisions. I would like to extend my gratitude to Dr. Eric Bowne and partner Crystal Bowne for supplemental resources and direction towards the major conclusions of this study. Also, thanks to Ryan Nguyen for taking time to complete the peer review process and offer additional comments to the article.

References Cited

Bestor, Theodore C.
1951 Kaiten-Zushi and Konbini: Japanese Food Culture in the Age of Mechanical Reproduction. In *Anthropological Theory; An Introductory History*, edited by Jon McGee and Richard Warms, pp. 603-615. McGraw-Hill.

Center for Disease Control (CDC)
2011 Census Tract Level State Maps of the Modified Food Environment Index (mRFEI). National Center for Disease Prevention and Health Promotion; Division of Nutrition. Physical Activity, and Obesity.

2013 State Indicator Report on Fruits and Vegetables. National Center for Disease Prevention and Health Promotion; Division of Nutrition. Physical Activity, and Obesity.

2014 State Indicator Report on Physical Activity. National Center for Disease Prevention and Health Promotion; Division of Nutrition. Physical Activity, and Obesity.

Chanjin, Chung and Samuel L. Myers, Jr.
1999 Do the Poor Pay More for Food? An Analysis of Grocery Store Availability and Food Price Disparities. *Journal of Consumer Affairs* 33(2):276-296.

Cohen, Mark N.
2003 *Paleopathology at the Origins of Agriculture*. Academic Press.

Diamond, Jared
1987 The Worst Mistake in the History of the Human Race. *Discover Magazine* 95-98.

Federal Trade Commission (FTC)
2008 Marketing Food to Children and Adolescents; A Review of Industry Expenditures, Activities, and Self-Regulation.

Harris, Jennifer L., Marlene B. Schwartz, and Kelly D. Brownell
2009 Marketing Foods to Children and Adolescents: Licensed Characters and Other Promotions on Packaged Foods in the Supermarket. *Public Health Nutrition* 13(3): 409-417.

Pan, Liping, Bettylou Sherry, Rashid Njai, and Heidi M. Blanck
2012 Food Insecurity is Associated with Obesity among U.S. Adults in Twelve States. *Journal of the Academy of Nutrition and Dietetics* 112(9):1403-1409.

Lyson, Thomas A.
2004 *Civic Agriculture: Reconnecting Farm, Food, and Community. Tufts* University Press, Medford, MA.

Malthus, Thomas R.
1960 [1798] *On Population*. Random House Publishing, New York, NY.

Moran, Emilio F.
2008 *Human Adaptability: An Introduction to Ecological Anthropology*. West View Press, Boulder, CO.

McDonald, Bryan L.
2010 *Food Security*. Polity Press, Cambridge UK.

Messer, Ellen
1986 The "Small but Healthy" Hypothesis: Historical, Political, and Ecological Influences on Nutritional Standards. *Human Ecology* (14)1:57-75.

Nestle, Marion
2002 *Food Politics: How the Food Industry Influences Nutrition and Health*. University of California Press, Berkeley and Los Angeles California.

O'Dea, Kerin

1984 Marked Improvement in Carbohydrate and Lipid Metabolism in Diabetic Australian Aborigines After Temporary Reversion to Traditional Lifestyle. *Diabetes* 33(6):596-603.

State of Obesity
2015 *Adult Obesity in the United States*. Trust for America's Health.

Steward, Julian H.
1955 *Theory of Culture Change: The Methodology of Multilinear Evolution*. University of Illinois Press.

Tillotson, James E.
2004 America's Obesity: Conflicting Public Policies, Industrial Economic Development, and Unintended Human Consequences. *Friedman School of Nutrition Science & Policy* (24):617-643.

United States Census Bureau
2010 Census Bureau Regions and Divisions of the United States. Geography Division.

United States Department of Agriculture Economic Research Service (USDA, ERS)
2016 Household Food Security in the United States in 2015.

University of Arkansas Division of Agriculture Research and Extension
2013 Economic Contribution of Arkansas Agriculture. University of Arkansas System Division of Agriculture. Little Rock, Arkansas.

Young, E.M.
2004 Globalization and Food Security; Novel Questions in a Novel Context. *Progress in Development Studies* 4(1):1-21.

Paleontology within Archaeology: The Symbolism of Extinct Megafauna Represented in the Upper Paleolithic Cave Paintings at Chauvet Cave

Ryan S. Nguyen, *University of Central Arkansas*

The World's Oldest Paintings

Located in southern France, the Chauvet Cave system is a site from the Upper Paleolithic–an era dated between 50,000 to 10,000 years ago–that houses the oldest cave paintings discovered to date. Discovered in 1994, the Chauvet Cave is located near the Pont d'Arc. This large arch-like feature was carved out of the limestone by the Ardèche River (James 2016:522). Its contents have been heralded as masterpieces with over 400 animal images decorated across the biggest chambers and galleries which extend approximately 225 meters from the cave entrance. These 400 depictions consist of megafauna such as mammoths, rhinoceros, bison, deer or elk, bears and even lions (James 2016:522). It is the context of such megafauna that is the discussion of this paper.

The purpose of this research is to establish cultural links between the inhabitants of Europe at the end of the Late Pleistocene Epoch–a geological scale which is contemporary with the Upper Paleolithic era–and the megafauna portrayed at Chauvet by means of the fossil record and archaeological studies of cave paintings in an ethnographic context. Exactly how accurate are the creatures depicted on the cave walls at Chauvet when compared to fossil reconstruction? Do any anatomical discrepancies portrayed by the artist, or artists, hold a symbolic meaning? What influence could the animals represented at Chauvet have had on the culture of early men in Europe? While the analysis of style and technique are important, these depictions may hold a meaning beyond style and ritual. The significance of these kind of questions is to look at the cave paintings as more than artistic expression.

To understand the paintings of Chauvet as more than artistic expressions, this paper will evaluate anthropological approaches, examine the contents of the images, and connect the images to the culture of the people. First, a summarized history of exploration of the region that lead to the discovery of the cave will provide the necessary background. Second is a discussion of the challenges when placing the site into a temporal context. Next, the short comings and strengths of symbolic theory and iconography are analyzed and a more tailored course of study is discussed. This is followed by a review of the detail and accuracy of the Chauvet Cave paintings in contrast to fossil remains from other contexts. Finally, the hunting culture of the people responsible for the Chauvet paintings is discussed.

A Brief History of Exploring Chauvet

Though Chauvet holds the oldest discovered cave paintings, the site has only been explored since the mid-1990s where scholars have uncovered significant treasures. Research on the cave warranted special commendation and protection and since 2014 it has been recognized as a World Heritage Site. Prior, Chauvet was sealed from the world to protect its contents from microbial and chemical damage (James 2016:519). Chauvet, as a site, began with the exploration of the gores and caves along the Ardèche River. This task was the mission of a team lead by three experienced speleologists, or cave explorers, and scholars. These scholars were Eliette Brunel Deschamps, Christian Hillaire, and Jean-Marie Chauvet.

In his reports, Chauvet (1996) elaborates on his teammates and their backgrounds. Deschamps was a wine producer in the Ardèche region and non-professional cave explorer. However, she had spent several years exploring the cave systems along the Ardèche River and had a great interest in the geology and speleology of the region. Deschamps had such an extensive knowledge of the caves and gorges around the river that it only made sense to have her as part of the team (Chauvet et al. 1996:19). This proved to be the right decision as her achievements in the fields of geology and speleology are linked to the discovery of a prehistoric habitation at Aven du Cade in the Plateau of Saint-Remèze and two burial caves along the Ardèche River.

A founding member of the Spéléo-Club od Pont-Saint-Esprit, Christian Hillaire had explored the Aven des Pèbres and discovered a continuation to another Paleolithic site, the Grotte des Deux-Ouvertures that dated back to approximately 20,000 years ago (Chauvet et al. 1996:20).

Finally, Jean-Marie Chauvet is described as an experienced cave explorer and scholar who has explored and documented a plethora of different cave systems in southern France. He has been a member of the Spéléo-Club des Vans since 1970 and has discovered three rock

art sites in Algeria. He was made custodian of the caves of Ardèche in 1993 and the Chauvet Cave site was named after him (Chauvet et al. 20).

With a team of experienced speleologists, scholars, and regional experts, Deschamps, Hillaire, and Chauvet undertook a three-year mission from 1991 to 1993. The purpose of the mission was to document the cave systems and archaeological sites along the Ardèche River. This was undertaken for the sake of protecting the rich speleological culture of France (Chauvet et al. 1996:30). They proceeded with methodical and in-depth examinations of the cliffs and gorges along the river to mark a site location. The team came across many sites that were already known by locals and caving enthusiasts but were among the first to document the depictions and imagery within the cave (Chauvet et al. 1996:30-31).

Chauvet, Deschamps, and Hillaire (1996) describe how they returned to the field in 1994 to revisit an area to ensure that they had not overlooked anything significant. The group trekked a cliff alongside the Ardèche River and noticed a small cavity. To be certain this was not a cave they had already surveyed, the team moved inside to investigate. With practically no standing room, the trio worked their way through the cave, eventually finding signs of an entrance to an undiscovered extension. After taking turns shifting rocks out of their way, Deschamps made a confirmation that there was indeed a large gallery beneath them. The group decided to exit the cave and retrieve the necessary equipment to enter the gallery. Chauvet, Hillaire and Deschamps then returned to the cave and proceeded in single-file formation to explore deeper. They were in awe at the sheer size of the chamber since a gallery of this magnitude was unheard of within the Ardèche region. The trio found bear bones scattered across the cave floor and later found two lions and a mammoth they suspected to be painted in red ochre (Chauvet et al. 1996:35-36). These discoveries were the first in a long list of animal depictions that would become famous across the world and the subject of research for the next 22 years.

Temporal Context of Chauvet Cave

At the outset, to understand the context of Chauvet Cave is establishing the date when the paintings were made and to understand the process of cave art dating. Temporal context is critical in order to place sites along a cultural and geological timeline in synchronicity to now extinct fauna that early peoples encountered.

A well-practiced method of dating cave sites is known as stylistic chronology. This method evaluates the presence or absence of objects and artistic styles already documented within the archaeological record seen at other ethnographically comparable sites. By this method, the Chauvet site is situated between the Gravettian and late Solutrean or even early Magdalenian cultures circa 29,000 BCE to 17,000 BCE (Pettitt and Bahn 2003:137). Since these early uses of stylistic chronology, the amount of recorded animal pictographs at Chauvet has doubled. Hélène Valladas, a primary researcher at Chauvet, has noted the collection of forty dates from charcoal and pigments from the paintings (Valladas and Clottes 2003:143). The sophistication of the cave paintings can also be linked to other Upper Paleolithic discoveries that are not within the Gravettian or Magdalenian cultures, such as statuettes of Swabian Jura which further narrows the timeline (Valladas and Clottes 2003:143).

However, there is a substantial difficulty with dating Chauvet using only stylistic chronology. Many images at the Chauvet are superjacent to others, which makes isolation and identification of a particular style challenging (Valladas and Clottes 2003:143). Therefore, the implementation of radiocarbon dating using carbon-14, has been used in conjunction with stylistic chronology to provide more accurate dates (Pettitt and Bahn 2003:134). Radiocarbon techniques and stylistic chronology date the site between 32,000 and 30,000 BCE.

Yet, radiocarbon dating is not a perfect science. The sources of carbon can pose an accuracy issue for radiocarbon dating. Charcoal and organic pigments used in the Chauvet paintings are the primary sources used in radiocarbon dating. These sources could be contaminated by excess carbon found within the cave in the form of fossils and microorganisms on the cave walls (Pettitt and Bahn 2003:135). However, source issues can be accounted for at Chauvet. In two chambers at the cave, some of the excess carbon found on the cave walls is explained as torch marks that were superimposed on to animal pictographs. When dealing with Paleolithic works, carbon dating can be even more challenging as it is difficult to extract the necessary samples of pigments and rock from cave paintings. The fragile nature of the paintings and urge of scholars to protect them from damage exacerbates these challenges.

A number of testing errors could erroneously impact the dating process at Chauvet. For example, scholars studying Mississippian pictographs, note that carbon samples taken could date the charcoal but not the paintings themselves (Diaz-Granados et al. 2015). This falls under what is known as the problems of "Old Wood and Old Charcoal." This "Old Wood" problem states that dates could related to when the wood was burned to make the charcoal rather than the date the pictograph was created. The "Old Charcoal" issue relates to where the charcoal was gathered. Charcoal from one location in the cave may have been burned years or decades

before it was gathered to create the pictograph. So, the depictions may be significantly younger than the collected radiocarbon dates (Diaz-Granados et al. 2015:50). These kinds of contaminations increase the difficulty of procuring a viable sample, especially considering the finite amount of viable carbon available. Also, accelerator mass spectrometry (AMS) has revealed that, depending on where the sample was taken, the sample may have included independent formations from the cave (Pettitt and Bahn 2003:135). Such formations may be composed of materials that formed years before or after the cave walls were painted. These varying formational growths further skew the dates for the site.

Though Chauvet Cave has been under scrutiny for conflicting dates using stylistic chronology and radiocarbon dating (Pettitt and Bahn 2003:138), it still can be considered "the best-dated rock art site in the world" (Valladas and Clottes 2003:143). Multiple radiocarbon dates taken from Chauvet are within the same range and the similar sophisticated styles dated elsewhere are also within the range. With all this in mind, this research will operate under the original dates of 32,000 BCE to 30,000 BCE.

Symbolic Theory and Iconography

An anthropological study on the paintings of Chauvet Cave cannot heavily rely on symbolic theory. Symbolic theory is routinely used in post-modernist approaches to anthropological studies, as such studies focus on analyzing power, position, and agency of a society and culture. Clifford Geertz (1973), a scholar in symbolic and interpretive anthropology, viewed culture as a multilayered construct that relies on symbolic meanings. He explained that culture cannot be looked at as an empirical topic of study and it cannot solely be studied through the lens of the scientific method. Geertz believed that the human animal is a creature tangled in a web of our own making of culture. The synthesis and examination of culture cannot be limited to the viewpoints of the physical sciences. In short, symbolism is not about fact but about the meaning of the symbol prescribed by the culture (Geertz 1973:5). Geertz focused on the reality in which people spun their various meanings into their own culture. He noted that a man's status in the community, anxiety about women, trials, and wars and so on could be compared to one aspect of culture or another (Geertz 1973:418). However, societal factors such as these are difficult, or even impossible, to decipher from Paleolithic cave paintings. Geertz's symbolic anthropological approach, therefore, is seen as a partial approach. Research of Paleolithic cave paintings cannot create a multilayered reconstruction of the culture of Upper Paleolithic peoples with only one avenue of study. The cultural model that must be reconstructed requires a solid foundation that benefits from a limited analysis (Knight 2013:18). So, the core subject matter of the cave paintings must be taken at face value.

Iconography as a theory can be helpful when interpreting the Chauvet paintings. Iconography is the study of establishing a relationship between the image and the subject matter the image represents (Knight 2013:3-4). Most symbolic anthropology is applied to an abstract image or motif within a historic meaning. That meaning is then put into context through the material culture of the group being studied (Knight 2013:17). An application of this manner is not feasible because Paleolithic cave paintings represent the environment in which Upper Paleolithic people lived. In other cases, the iconographer takes the representations being studied and connects it to myths, legends, or text. This is done to show that an image can be defined through intimate knowledge of the people in question (Knight 2013:11). However, at Chauvet the only source of knowledge available is the images themselves.

The principles of iconography can inform on the study of Chauvet in two important ways. First, the images themselves inform the researcher about the environment in which Upper Paleolithic people lived. Though it is not possible to observe behavior, the images depicted on the cave walls provide a narrative of a vast ecosystem. That narrative is the context of early cultural forms that can be thought of as a means to record what people saw and interacted with. Second, when determining what an image means, Knight (2013:64) lays out a very simple principle: if an image looks like a specific object, person or animal, then it is highly probable that is exactly what it is. There is little debate on whether a deer or lion represented at Chauvet is a deer or lion. These claims can then be corroborated with the fossil record of Pleistocene species found in Europe that match the Chauvet paintings as a form of material culture.

Although limited, iconography can be implemented to study past cultures and these cultures can shed light on how to interpret imagery and culture at the cave. Carol Diaz-Granados used petroglyphs and pictographs to study Mississippian cultures of the United States. Mississippian cultures had a plethora of animal representations that included serpents, birds, and others. A petroglyph is carvings on rock and a pictograph can be drawings or paintings on stone. Mississippian pictographs can also be studied under Knight's simplicity principle. For example, scholars agreed that the pictograph of the Underwater Spirit or Piasa depicted at Picture Cave, a Mississippian site located in Missouri was indeed an image depicting the Underwater Spirit (Figure 1). Past research and identification by other Southeastern Ceremonial Complex (SECC) scholars indicated that the pictograph was the Underwater Spirit since the

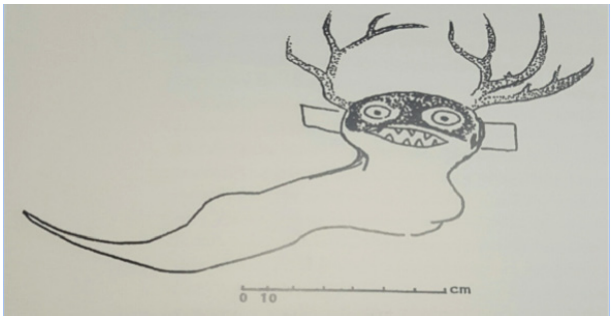

Figure 1. Underwater Spirit or Piasa depicted at Picture Cave, Missouri. Image taken from *Picture Cave: Unraveling the Mysteries of the Mississippian Cosmos*, edited by Carol Diaz-Granados, James R. Duncan, and F. Kent Reilly III.

spirit's key features were antlers and a serpentine body (Diaz-Granados et al. 2015:51). The imagery of Picture Cave was also used to piece together an epic narrative linked to the Mississippian culture that used the cave where each image played a role within that narrative (Duncan 2015:212).

If Mississippian cultures recorded the prominence of their environment, it is logical to assume that the Chauvet painters also recorded their environment. Of course, this does not mean that Mississippian peoples are direct descendants of those that occupied Chauvet. The Chauvet site lacks the ritualistic representation seen in the Mississippian imagery, like the ceremonial war club or maces and the Birdman (Townsend and Sharp 2004:143-145). However, the abundance of certain animal imagery on the cave walls may indicate how the site was used over the years. There may have been significance in the placement of the paintings, which may show a hierarchy to the animals or may portray their role in telling a narrative unique to Chauvet (Diaz-Granados et al. 2015:51). Such images revealed a heavy environmental influence on cultures, and this type of environmental observation can be extrapolated to the context of the Upper Paleolithic Era (Diaz-Granados 2004:140).

Another important aspect when analyzing the use of cave paintings is the ability of symbols and images to span multiple regions. F. Kent Reilly III and James F. Garber noted that symbols and imagery could cross cultural and geographic regions (Reilly and Garber 2007:4). Pictographs of megafauna have been depicted across Europe, though the most relevant are found across France. These French megafauna pictographs are represented by the Lascaux Cave bulls, the bison at Tuc d'Audoubert, and the Pech-Merle cave horses (Phaidon 2007:6-14). With each European site representing a similar genus and even species of animals, it suggests that they shared aspects culture even with approximately 10,000 years separating their use. It may have spread along animal migration patterns where hunters and predators followed the same patterns. These sites can therefore be presented as potential ethnographic connections (Brown 2007:75). Conceivably, Chauvet may have been used over thousands of years by people who crossed physical space, as well as over time. Stratified images of lions depicted at the site could be a link between generations of the same people with their own interpretations and experience (Knight 2013:76). The repeated imagery adds to the narrative of Upper Paleolithic culture, as if each new painting brings in a new chapter to a the far-traveled experience across time with similar adversaries and prey.

Accuracy and Detail of Cave Paintings

One of the most striking features of Chauvet is the vast number of megafauna depicted in cave paintings. Thus, studying the details of the paintings and the accuracy of the subjects has anthropological value. Megafauna species–those with a body mass over 50 kilograms–that lived during the end of the Pleistocene Epoch are examined in this paper (Alexander 1989:159). First, the breadth of megafauna depicted will be considered along with details of the Chauvet paintings. Second, utilizing the field of paleontology allows the accuracy of the paintings to be referenced against the fossil record. On the matter of paleontology, this field is traditionally occupied by studies in dinosaurs, marine and flying reptiles that lived at the same time as dinosaurs, reptiles that predated dinosaurs, and extinct species of mammals and birds (Alexander 1989:1). It is the latter that will be incorporated here.

The number and detail of the megafauna depicted at Chauvet provides some cultural insight. The megafauna represented at Chauvet include approximately 40 horses, 76 mammoths, 75 feline predators, and 65 rhinos (Table 1) (Clottes 2008:40). Guthrie (2005) noted this, and goes as far as to call it an obsession. This supports the assertion that Upper Paleolithic groups participated in a hunting culture, but much more can be inferred (Guthrie 2005:52). While walking, tracking, and waiting for prey, it is reasonable to assume that hunters had ample amounts of free time. This allowed them to watch megafauna and recall vast amounts of detail that would later be recorded on the cave walls. The paintings captured how the animals rested or slept, groomed, nursed, birthed and even died, by both predator and human hunting (Guthrie 2005:53). The hunters included distinguishing marks like stripes, dots, manes, humps and size for specific animals (Clottes 2008:40; Guthrie 2005:53). These hunters even recorded the fighting techniques of rhinoceros and bison, size of lion prides, and the structure of a sexually mature Megaloceros giganteus, or Irish elk (Guthrie 2005:55).

Common Megafauna at Chauvet		
Horses	Unknown Species	40
Mammoths	*Mammuthus primigenius*	76
Felines	*Panthera leo spelaea*	75
Rhinos	Unknown Species	65

Table 1. The amount of key megafauna represented at Chauvet Cave.

This sophistication portrayed on the walls of Chauvet shows an in-depth case, which could arguably be the oldest study of animal behavior and ethology.

Accepting Knight's imagery principle that an image depicts what it seems to depict, this paper next evaluates the accuracy of the Chauvet paintings. How closely do the cave paintings compare to skeletal reconstruction, fossil records, or known anatomical traits? With hundreds of specimens depicted on the walls of Chauvet, the accuracy of lion portrayals, mammoths, and seasonal migration are assessed.

The lion panel can be evaluated per the type of feline predator likely depicted as well as the painting's accuracy (Figure 2). During the Late Pleistocene, there were two main groups of large feline predators in Europe. Those groups were the *machairdontinae*, the saber-toothed cats, and the *pantherinae*, the group that also consist of extant predator felines such as tigers and African lions (Figure 3). The paintings reveal that these predators are not from the *machairdontinae* subfamily because they lack elongated canines. Thus, these predators are in the *pantherinae* subfamily of felines. One prominent species in Europe during the Middle to Late Pleistocene were the European cave lions, *Panthera leo spelaea* (Masseti and Mazza 2013:66). Chauvet paintings likely depict *Panthera leo spelaea*. The proportions of the Chauvet lions are slightly skewed, but quite accurate. An anatomical inaccuracy is the depiction of lions appearing to have two eyes on just one side of the head. Guthrie calls this the "Halibut Effect" (Guthrie 2005:93). Like a halibut, the eyes appear on one side of the head. This may be due to the painter's portrayal of what is seen and what is known. While eye placement can easily be refuted

Figure 2. A section of the Lion panel at Chauvet. The species is most likely *Panthera leo spelaea*. The lions are depicted with two eyes on one side of their head.

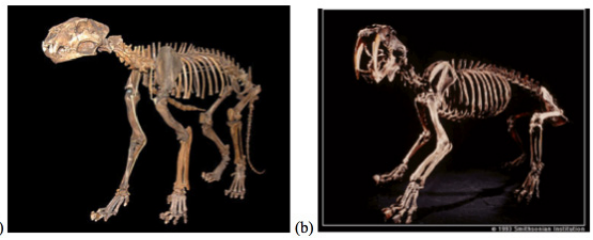

Figure 3. (a) A skeletal reconstruction of a *pantherinae*, and (b) a skeletal reconstruction of a *machairdontinae*.

by skulls of cave lions found, this choice is likely based on the painter representing a three-dimensional figure in two-dimensional space (Guthrie 2005:93).

The mammoths at Chauvet are largely correct, with some variations. A mammoth species, likely *Mammuthus primigenius*, had its tusks misrepresented at Chauvet. While the mammoth at Chauvet shows tusks turning outward and away from each other, a skeletal reconstruction from the Smithsonian shows that the tusk are turning towards each other (Figure 4). This may be linked to the discretion of the painter, and it is unclear whether or not this has a significant symbolic meaning (Guthrie 2005:95). However, the paintings of mammoths are still quite accurate. There have even been discoveries of preserved mammoths in ice from Siberia. The specimens found had been so well preserved that experts were able to conduct detailed comparisons to the specimens depicted in cave art across France. They noticed the long, black hair of the mammoth was portrayed on the cave walls of Chauvet, as well as at other sites like Rouffignac, France (Figure 5) (Alexander 1989:159-160).

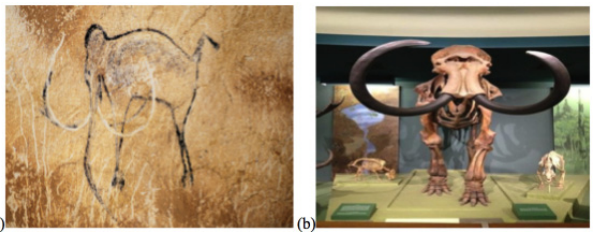

Figure 4. (a) A mammoth depicted at Chauvet Cave with twisted outward, and (b) a mammoth reconstructed, on display at the Smithsonian Natural History Museum, with tusks twisted inward.

The massive amount in which certain species are represented could very well be linked to a massive hunt during a seasonal migration. Many panels show the animals with legs superimposed on to one another. Such an argument could be presented by the lion panel. A more detailed image is presented here with over a dozen lions behind bison, rhinos and other herbivores (Figure 6). A similar migration can be observed today by wildebeests in Africa. Each year thousands of these animals migrate

Figure 5. A mammoth depiction from Rouffignac Cave site in France.

across vast distances, and each year predators are lying in wait to take advantage of this moving feast. With so much detail already added, one could argue that this is a depiction of animals moving with their herds or fleeing predators. However, Clottes (2003) has argued that these anatomic features are reserved for stylistic study of practical three-dimensional rendering. Yet he does concede to the idea that these animals were depicted to be in a running motion (Clottes 2003:199). So, with the depiction of motions, and with a pack of predators behind a herd of large herbivores, the argument that this scene portrays a hunting narrative stands firm.

Figure 6. The lion panel that shows the lions behind bison and other herbivores facing the same direction. This is arguably a chase scene or a hunt.

A Hunting Culture

The hunting of large mammals was a major turning point in the progression of human evolution (Guthrie 2005:216). Chauvet, like many Paleolithic cave sites, documents the importance of hunting culture. By looking at what the paintings at Chauvet plainly show, one sees a picture record of the ethological and ecological observations of the hunters that used the site. This demonstrates that these were specialized hunters that focused on larger prey while supplementing their diet with smaller catches like fish, birds and smaller mammals (Guthrie 2005:217). Understanding the hunting patterns of Chauvet inhabitants sheds light on rituals like courtship, the role of women, and the relationship of people to prey.

One crucial cultural aspect of the hunt that has been suggested is evidence of courtship and mate selection within a given group. A hunting expedition seeking powerful megafauna brought thrill and a sense of pride. If successful, men would certainly have returned with stories to tell and it is suggested that women would take such feats in to consideration with regards to courtship (Guthrie 2005:217). In this culture, megafauna mammals were a means to success.

Men were not the only ones who were hunting. Women near Chauvet also likely hunted. Women would often pursue the smaller game, which supplemented the group diet. Children would also likely play a small role so they could learn the necessity of smaller hunts and the thrill of chasing larger game (Guthrie 2005:234). Environmental hazards like extreme weather and predators limited the opportunities for women to hunt or forage for other foods. So, women contributed to the large hunts by processing the animal after a successful hunt and by making clothes out of furs and hides (Guthrie 2005:226).

Women may have possibly been record keepers at Chauvet. Recent research by Dean Snow (2013) evaluated evidence for sexual dimorphism shown in hand prints and hand stencils at Upper Paleolithic cave sites. Snow was able to develop special algorithms by taking measurements of hand prints from a reference population of modern Europeans. He used similar techniques to measure hand stencils and prints from Upper Paleolithic sites to plug into his algorithms and separated into a two-step test (Snow 2013:479-451). The results from Snow's test were that 25 percent of the hand stencils and prints were male prints and 75 percent were female prints (Snow 2013:755). Women, not men, were likely the predominate artists of Upper Paleolithic art. Women could portray these animals with such accuracy, perhaps because of their own hunting exploits or because of the time they spent processing the animal.

Certainly, the inhabitants of Chauvet greatly respected the megafauna they hunted. Though fighting and killing of megafauna may seem violent, this action was not rooted in a sense of violence, but rather out, of need. Depictions of speared animals are shown in Chauvet and the Lascaux sites in France, but the intent is not gore (Figure 7). To the people that used Chauvet, there might have been a sense of familiarity in what the animal was experiencing. The idea is that megafauna would be born, grow, mate, care for their offspring, feed, fight and die in a similar matter to the hunters (Guthrie 2005:226). In a sense, they would share the same feelings of fear and dread, depending on which participant was on the

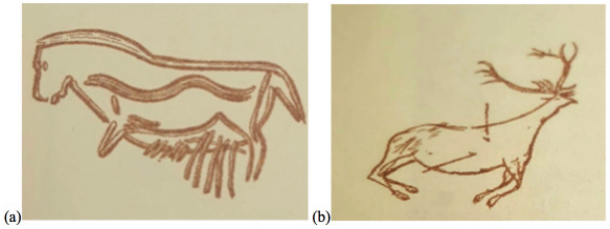

Figure 7. (a) A horse depicted at Chauvet with spears penetrating its body, and (b) A red deer from Lascaux with spears penetrating its body. Both images taken from *The Nature of Paleolithic Art* (Guthrie 2005a:295 and 2005b:249).

verge of death. This is also seen at other Paleolithic sites where humans were drawn from the side similar to the megafauna. This suggests that Upper Paleolithic peoples classified themselves in the same system as animals (Robb 2015:645). Paleolithic painters also created scenes of butchering animals. These scenes depict a social gathering where people came to celebrate (Figure 8). The excitement at their accomplishment and the procurement of necessary food and resources along with the stories told about the hunt all are captured with the representation of the animal and the sacrifice it made for earlier human ancestors to survive (Guthrie 2005:222).

Where to go from here?

The study of Paleolithic art and its iconography as it relates to early Upper Paleolithic culture is a vast topic. The Chauvet cave is only one piece of a very old, mysterious puzzle. Under the right conditions, prehistoric iconography can yield a vast, though limited, array of descriptions of early cultures. The analysis done here, with this theoretical framework in mind, has resulted in some important considerations. First, in regards to the accuracy of the paintings when compared to fossil remains, the base shape and identification is quite accurate with variations in physical morphology due to the choices in portraying the animal. On those variations, there does not seem to be any symbolic meaning behind them, but an attempt to render a three-dimensional being in a two-dimensional medium. Finally, the influence these animals had does not go beyond the role of prey being hunted. However, they were recorded in a manner that provides insight into the culture of Upper Paleolithic hunters as naturalists focusing on the behavior of their prey. Linking that to the repeated use of Chauvet of thousands of years portrays a long tradition of this observational study.

The next question is how should researchers advance the findings at Chauvet? Guthrie offered a possible answer that a consideration of alternative theories to the hunting society may be necessary. Perhaps the butchering scenes were not of a recent kill but of a scavenging expedition (Guthrie 2005:238). It may prove beneficial for different studies to look into how

Figure 8. A recreation of a butchering event inspired by a Paleolithic carving found in Raymonden, France. Image taken from *The Nature of Paleolithic Art* (Guthrie 2005:222).

decomposition of megafauna may be represented. The state of decay in which a carcass is found may be helpful in determining if a scavenging strategy was a viable one. Also, a look into bite marks on fossil remains from known scavenging species could be helpful in parts of the animal could be left for groups to scavenge. Another avenue of study is to explore the roles of men and women at Chauvet. Snow's study opted out of using the stencils and prints from Chauvet because of limited access to the site (Snow 2013:752). A similar study using stencils and prints may prove invaluable to provide an understanding of the roles of women in the cave.

Whether looking at Upper Paleolithic people as a hunting culture or any alternative, it is clear that they would record their exploits on the cave walls that exist throughout Europe. It is vital to continue studies into these kinds of sites. That way, it would be possible to form a ethnographic connection to our early ancestors and the dawn of our own culture.

References Cited

Alexander, R. McNeill
1989 *Dynamics of dinosaurs and other extinct giants*. Columbia University Press, New York.

Brown, James
2007 On Identity of the Birdman within Mississippian Period Art and Iconography. In *Ancient Objects and Sacred Realms: Interpretations of Mississippian Iconography*, edited by F. Kent Reilly III and James F. Garber, pp. 56-106. University of Texas Press, Austin, Texas.

Chauvet, Jean-Marie, Eliette Brunel Deschamps, and Christian Hillaire
1996 *Dawn of Art: The Chauvet Cave: The Oldest Known Paintings in the World*. Harry N. Adams, Inc., New York.

Clottes, Jean
2008 *Cave Art*. Phaidon Press, New York.

2003 *Chauvet Cave: Art of the Earliest Times*. University of Utah Press, Salt Lake City.

Diaz-Granados, Carol
2004 Marking Stone, Land, Body, and Spirit. In *Hero, Hawk, and Open Hand: American Indian Art of the Ancient Midwest and South*, edited by Richard F. Townsend and Robert V. Sharp, pp. 139-147. Art Institute of Chicago, Chicago.

Diaz-Granados, Carol, Marvin W. Rowe, Marian Hyman, James R. Duncan, and John R. Soughon
2015 AMS Radiocarbon Dares for Charcoal from Three Pictographs and Their Associated Iconography. In *Picture Cave: Unraveling the Mysteries of the Mississippian Cosmos*, edited by Carol Diaz-Granados, James R. Duncan, and F. Kent Reilly III, pp. 47-56. University of Texas Press, Austin Texas.

Duncan, James R.
2015 Identifying the Characters on the Walls of Picture Cave. In *Picture Cave: Unraveling the Mysteries of the Mississippian Cosmos*, edited by Carol Diaz-Granados, James R. Duncan, and F. Kent Reilly III, pp. 209-237. University of Texas Press, Austin Texas.

2011 Early Manifestations of Mississippian Iconography in Middle Mississippi Valley Rock Art. In *Visualizing the Sacred: Cosmic Visions, Regionalism, and the Art of the Mississippian World*, edited by George E. Lankford, F. Kent Reilly III, and James F. Garber, pp. 64-95. University of Texas Press, Austin, Texas.

Geertz, Clifford
1973 *The Interpretation of Cultures*. Basic Books, Inc., New York.

Guthrie, R. Dale
2005 *The Nature of Paleolithic Art*. University of Chicago Press, Chicago.

James, N.
2016 Replication for Chauvet Cave. *Antiquity* 90(350):519-524.

Knight, Jr., Vernon James
2013 *Iconographic Method in New World Prehistory*. Cambridge University Press, Cambridge.

Masseti, Marco, and Paul P.A. Mazza
2013 Western European Quaternary Lions: New Working Hypothesis. *Biological Journal of the Linnean Society* 109(1):66-77.

Pettitt, Paul, and Paul Bahn
2003 Current problems in dating Palaeolithic cave art: Candamo and Chauvet. *Antiquity* 77(295):134-141.

Phaidon Press Limited
2007 *30,000 years of art: the story of human creativity across time and space*. Phaidon, London.

Reilly III, F. Kent, and James F. Garber
2007 *Ancient Objects and Sacred Realms: Interpretations of Mississippian Iconography*. University of Texas Press, Austin, Texas.

Robb, John
2015 Prehistoric Art in Europe: A Deep-Time Social History. *American Antiquity* 80(4):635-654.

Snow, Dean R.
2013 Sexual Dimorphism in Europe Upper Paleolithic Cave Art. *American Antiquity* 78(4):746-761.

Valladas, Hélène, and Jean Clottes
2003 Style, Chauvet, and Radiocarbon. *Antiquity* 77(295):142-145.

American Indian Health: A Look at Regional and Traditional Levels

Paula Long, *University of Central Arkansas*

Introduction

Indigenous American Indians on rural reservations in North America rely heavily on commodity foods, which are typically unhealthy because they are high in fat, sugars, and carbohydrates. This is far from the traditional diet that has mostly disappeared within the past 200 years since European colonization of the Americas. Traditional American Indian diets are generally plant-based and supplemented with wild meats (Bauer et al. 2012:1346). American Indians are a demographic minority in the United States and as a group they suffer from poor health, including abnormally high rates of obesity and Type-2 diabetes among adults and children (Bauer et al. 2012; Kunitz et al. 2014:268). The changes in health and food availability of American Indians from a traditional diet are dramatic.

Metabolic issues of indigenous peoples correlate with poor diet and poor health (Kunitz et al. 2014; Willows 2005; O'Dea 1984). Studies also indicate that rural regions have higher mortality rates than their urban counterparts. Though American Indians have generally poor health there is variability across regions that can provide important information on the quality of life. However, data of regional health is currently limited (Kunitz et al. 2014:270). Importantly, the high risks associated with American Indian health should be considered within the scope of the traditional diet practiced, prominent regional foods, and socioeconomic status of community areas (Kunitz et al. 2014:268). Furthermore, when examining American Indian health, it is relevant to implement a holistic understanding of American Indian history and values (Kunitz et al. 2014:270). Understanding the impact of processed foods on American Indian health demonstrates the importance of traditional cultural living and subsistence where applying appropriate cultural traditions to American Indian health has the ability to allow American Indians to understand their health on a more integrated level (O'Dea 1984; Walker et al. 2010:58). In this paper, I compare two different areas of varying traditional subsistence strategies that demonstrate patterns of significant health differences. The two regions evaluated are the Southwest (sedentary farmers) and the Northern Plains (nomadic hunters).

Theoretical Orientation

Food has changed on a global level as an adaptation to demand and economy. Globalization theory focuses on the behaviors and choices of people that are influenced by the production, information, and the movement of goods globally. These behaviors can influence trends in production as an all-embracing process, yet on the individual this process "carries with it fears among people such as erosion of identities, culture, and losing control of lives to heartless and faceless mega corporations and markets" (Karunakar 2011:156). Globalization elevates former regional food economies into an international market of commodity foods that focuses on rapid exchange of goods, ideas and culture for maximum profit. Consumption of industrialized commodity goods is then made available through advanced technologies of food production that allows for quick-eats in the form of unhealthy food concoctions. The industrial technologies that emerged in the 1950s and 1960s, such as refrigeration and mechanized production, caused food production and innovation to increase substantially. Additionally, the increase in consumption and processing often reflects the political, social, and economic structure which defines a tribal nation. In short, tribal nations and communities are equally impacted by increased consumption and processing by mechanized food industries (Bestore 2006:605-606; Karunakar 2011:156; Lyson 2004:24).

The process of global interactions is not only economically influenced but can also be a product of war, missions, and traders. As such, social and cultural change are intertwined with these demands just as symbols and meanings are intertwined and transform over time. Issues related to intertwined global interactions often result in cultural homogenization. Homogenization is generally equated to the 'Americanization' or 'commoditization' of a culture where objects and ideas are voluntarily or involuntarily shared broadly. The best example of this is with food consumption and the branding of "American Food" (hamburger, pizza, hot dog, etc.) in non-Western countries around the world. Though homogenization is seen as a trait of America influencing other cultures, other countries and nations have their own forms of homogenization, which are usually directed toward minority populations within these nations (Appadurai 1990:572). Food homogenization is one example of this process of globalization and has spread from the non-Native majority of the

United States to the American Indian minority. As a result, traditional subsistence has transformed traditional diets to commoditized food stuffs that are high in sugar and fat and abundant on reservations (Kunitz et al. 2014; O'Dea 1984).

Methodology

Qualitative and quantitative data were collected to understand the present condition of American Indian health. Ethnographic aids were acquired to gain a deeper knowledge of regional health and how traditional subsistence may cause variation in Indian health. Cultural regional areas are used as defined by the Indian Health Service (IHS). Mortality data from IHS was examined for an overall increase in poor health for all American Indians and regional data is used investigate differences in health. Mortalities of diabetes mellitus (Type-2 diabetes) and diseases of the heart are included because they are health risk related deaths. SPSS Statistics was used to find the significance of regional mortality rates of Type-2 diabetes and diseases of the heart, although data were limited to five variables and were lacking in equal comparable variables per group (Burwell 2014).

All mortality rates should be consistent to increased commoditization overtime. Differing traditional foods and whether the food practices can be continued may affect whether or not mortality rates show the same trend in groups. Increasing cultural understanding and opening pathways to health resources for American Indians is necessary for preventative measures to be fully useful to communities and decrease future mortality rates (Walker et al. 2010).

Diabetes and Obesity of American Indians

Some early health statistics provide information on the probability of poor health for American Indians. Data from the 1950s show higher mortality rates for American Indians than non-American Indians and that Indians were more likely to die from communicable or non-communicable diseases. Differences in regional health are often explained by regional economies, but economy does not account for all aspects such as cultural traditions of food or local food availability (Kunitz et al. 2014:268).

Today, American Indians and Alaska Natives suffer from overwhelming rates of obesity. Experts define obesity as levels of fat so abnormally high that they affect human health (Willows 2005:76). As obesity increases, diabetes also increases. People with Type-2 diabetes are commonly obese. Type-2 diabetes occurs when glucose (blood sugar) levels are too high and the body's insulin cannot respond to the glucose levels properly (O'Dea 1984:596). The number American Indian adults with Type-2 diabetes and obesity increased by 10.4 percent from 1995-2004. Over half of American Indians (59.2 percent) were found to be obese in 1995 and over the next nine years climbed to 69.6 percent (Wilson et al. 2007:1-3).

Risk Factors for Obesity and Diabetes

Obesity not only causes excessive weight gain, it increases risks for other diseases including increases in particular cardiovascular diseases. Other health issues associated with obesity are hypertension, cancer, arthritis, sleep and breathing disorders, and gallbladder disease. Obesity in children has the same negative health effects of Type-2 diabetes, high blood pressure, high levels of fat and insulin in the blood, gallstones, and breathing problems (Willows 2005:76; Wilson et al. 2007:1).

The declining health of American Indian adults is affecting children since children are in the same food environment and more than likely given the same types of high fat and sugar food consumed by adults (O'Dea 1984; Willows 2005:76). Studies of American Indian children from the Navajo, Pueblo, Sioux, Pima, and Winnebago or Omaha tribes reported children participating in less physical activities while doing more sedentary activities, such as watching television (Willows 2005:78). More so, obesity can also impact a child's mental health, physical health, and self-esteem (Willows et al. 2005:79). Their mental health can be affected by weight dissatisfaction and developing eating disorders to deal with weight dissatisfaction. Research suggests that overweight children are at extremely high risk to become obese adults and therefore have higher chances of obesity related risk factors (Willows 2005:80).

Food Access and Insecurity

Food insecurity is the limited ability or the inability to access food that is considered nutritional and safe for the community. Food insecurity has to do with the economic class of an individual or family where living expenses, income, and debt are contributors to the amount and type of food that can be afforded. Community access to proper food stores is another significant factor where 21.1 percent of U.S. households with children report instances of food insecurity between 2004 and 2005 (Bauer et al. 2012:1346).

The inaccessibility of healthy food is a factor which contributes to poor health. Food insecure American Indian families tend to consume cheap commodity food, such as that offered at gas stations or convenience stores and often use these locations as primary sources of food rather than food markets (Bauer et al. 2012:1346- 1348). Gas stations and convenience stores do not offer nutritionally sufficient foods, but do offer high-sugar and highly processed foods that

contribute to obesity and Type-2 diabetes (Bauer et al. 2012; O'Dea 1984). Some common foods available at convenience stores are sodas, chips, and candy. The ability to obtain healthy food and make healthy food choices is essential to dietary health where access to food markets has been shown to have a positive effect on overall health (Gittlesohn and Rowan 2011:1179).

Community access to healthy foods significantly impacts American Indian health (Bauer et al. 2012:1346). American Indian diets are relatively low in fruits, vegetables, and dairy and a transition to refined carbohydrates, high-fat foods, and high-sodium foods has been noted in American Indian diets over the past 100 years (Gittelsohn and Rowan 2011:1179). Instead of gathering and collecting foods as part of a traditional diet, Indians are now subjected to standard foods of the U.S., which are highly processed and genetically refined. Food is now packaged in many forms, such as canned and frozen. These processed foods containing high levels of salt for preservation which has been connected to health problems such as obesity, diabetes, and high blood pressure (Lyson 2004:53-55).

Traditional Food

Traditional subsistence of Indians depended on the environment where plants were used heavily for foods but also for material and medicinal purposes and have been found to be an important part of Indian culture for thousands of years. Archaeologists have found much regional variation in plant and food usages among indigenous communities (Smith 2011:5-11).

Southwest Subsistence

Sedentary farming has been a way of life in the arid Southwest for over 2,000 years. Squash, beans, and corn were part of the Southwest diet until contact with Anglo-Europeans who introduced new food and agricultural items (Dozier 1983:31, 65). American Indians of the Southwest gathered as well as farmed and some of the foods they gathered were pinyon nuts, cactus fruit, mesquite beans, wild potato tubers, cholla cactus buds, wild berries, and seeds like Indian millet (Schollmeyer and Turner 2004:573; Boyce and Swinburn 1993:369). The arid climate necessitated innovation of stream irrigation and use of Rio Grande floodplain for crops (Dozier 1983). The floodplain farmland was used predominantly for large crops of maize, beans, and melons. Small gardens around homes provided supplemental food and nearby deer, bear, and fox were available for hunting. In the fourteenth century Spanish came into contact with Southwest Indians and introduced many foods such as wheat, watermelons, cantaloupe, apples, peaches, pears, tomatoes, and chilies. The Spanish also brought domestic animals for food and farming such as mules, horses, cattle, donkeys, sheep, and chicken (Dozier 1983:38, 65-66).

The Pima Indians were farmers in the Sonaran Desert of the Southwest for approximately 500-1000 years. They gathered many traditional southwestern foods (wild cactus fruits and blooms, berries, etc.), but primarily sourced food from agricultural crops of wheat, maize, beans, and squash. They hunted mule, deer, birds, and jackrabbits. As settlement of Anglo-Europeans increased and hunting and gathering became less available, food was mostly acquired through trade and government food programs.

In the 1950s Pima diet was composed of 61 percent carbohydrates, 24 percent fats, and 15 percent proteins compared to the traditional diet that was composed 70-80 percent carbohydrates, 8-12 percent fats, and 12-18 percent proteins. In other words, the modern Pima diet is opposite of the traditional diet. Traditional subsistence provided a low fat and high carbohydrate diet whereas the modern diet is higher in fat and lower carbohydrates. Over the past 100 years there has been an increase of commodity foods coinciding with obesity and diabetes rates in the Pima Indian populations. Boyce and Swinburn (1993:369) found that Pima Indians over the age of 25 have an obesity rate near 50 percent. In this study, Pima Indians reverted to their traditional diet for seven days by eating traditional foods such as squash, prickly pear juice, sunflower seeds, homemade tortillas, blue cornmeal cereal, etc. Over seven days there was no significant change in health. These results are not surprising since commodity food has been in use for years. It is still suggested that traditional foods be more frequently incorporated over time due to the low-fat quality (Boyce and Swinburn 1993:370-371).

Northern Plains Subsistence

The Northern Plains traditional diet is very similar in that Indians gathered and utilized foods from the surrounding environment until contact when European foods were introduced. However, the two notable differences between Southwest and Northern Plains subsistence strategies are the availability of bison and a more nomadic lifestyle. Though some groups were sedentary farmers and hunter-gatherers who did not subsist primarily off of bison, a generally and growing trend among Plains groups was nomadic hunting of the North American buffalo. In prehistoric times, floodplain gardening around rivers and lakes was as important as hunting and gathering (Bozell et al. 2011:353). Native seeds and crops in this region consisted of little barley, sunflower, goosefoot, and marshelder (Adair and Drass 2011:319-321). Birds, fish reptiles, rabbits, quail, squirrel, and deer were hunted

regularly in the Northern Plains. Bison, due to its vivacity and size, was not hunted consistently or on a large scale until the introduction of Spanish horse in 1650 (Hassick 1971:171).

Though bison hunting grew in the seventeenth century, it has been demonstrated at nearly every archaeological site in the Plains that the importance of bison to Northern Plains Indians dates back to at least 900 B.C. (Bozell et al. 2011:366). Indians of the Northern Plains developed a great dependence on bison as a source of food and materials for their livelihood. As the buffalo roamed the plains, hunters followed them and became dependent in ways which left much of the former farming behind. Gathered foods were instead supplemental to the nomadic, hunting lifestyle (Hassick 1972:171-174). Other meat sources such as deer and elk were available, but bison became valued and essential. So much so that many other tribes, such as the Sioux, the "Cheyennes, Araphoes, the Crows, and probably the Blackfeet [who] gave up a farming economy in favor of moving west to hunt buffalo" (Hassick 1972:177).

Both traditional diets of the Southwest and Northern Plains were healthier than the gas station commodity food of today (Gittelsohn and Rowan 2011). However, it should be noted that in Southwest diets, dependency on maize agriculture resulted with high numbers of dental caries that can be seen in the archaeological record (Schollmeyer and Turner 2004).

Dental caries

In North America, after maize was introduced and heavily relied on around 500 B.C., there is a notable change in the archaeological record of settlement and subsistence change along with increases in populations. Dental caries are cavities and other forms of poor tooth health, such as weakened enamel or excess plaque. The prevalence of dental caries is related to a diet that contains plentiful amounts of carbohydrate-rich starches that are the basis of agricultural diets. For example, Native populations of the Southwest had more dental caries than populations in the Northern Plains who subsisted on a meat fat and protein based diet. This is because maize is heavy in starch and in the Southwest it was typically ground into flour, which adheres to teeth more than unrefined or processed carbohydrates. This resulted in more carbohydrate residue attaching to the teeth of Southwest individuals (Schollmeyer and Turner 2004:572).

A comparative archaeological study of teeth of Southwestern populations and Northern Plains populations found that hunter-gatherer population had almost no dental caries. Some populations had high rates of dental caries, but they also have processed refined flours from plants like acorns. The Southwest area has several plants other than maize that contributes to high rates of dental caries, such as pinyon nuts, wild potato tubers, and Indian millet seeds. The comparison of dental caries suggests a traditionally healthier Northern Plains diet over that of the Southwest. Regional plant life and food technologies are attributes that directly affect health and should be considered when viewing variation in regional health of Indians (Schollmeyer and Turner 2004:572). In short, even though there was prehistoric regional health variation, commodity food is even unhealthier than a maize dependent diet (Boyce and Swinburn 1993).

On Reservations

Native Americans on reservations typically have access to nutrition assistance programs from the U.S. government such as Supplemental Nutritional Assistance Program (SNAP) and Women, Infants, and Children (WIC). Even though these programs are attainable, Native Americans often purchase commodity foods from convenience stores or fast food restaurants due to easier access and lack of produce vendors on reservations (Bauer et al. 2012:1346). Most food vendors on reservations carry processed foods and sugar sweetened beverages. They are lacking in whole grain items, low-fat dairy products, and fresh produce. Furthermore, reservation life is prone to food insecurity due to poverty. These areas are also generally rural and American Indians who live in rural locations are more likely to undergo food insecurity. American Indian families are more likely to experience times of food insecurity with low total income rather than families who were unemployed without pay (Bauer et al. 2012:1346-49). This may be due to the stipulations of SNAP and WIC that cease assistance around an income of $20,000, which is just above the stipulated U.S. poverty line. The stereotype of reservation life is one of low socioeconomic status, unemployment, poor or ill health, and high population participation in health risk behaviors such as substance abuse (Cheadle et al. 1994:412). Rates as high as 40 percent of families on reservations experiencing food insecurity is alarming. It is even more alarming when one accounts for American Indian history, their control of land, and lack former traditional diet.

Regional Health Variation

Health risk factor rates across North American regions are similar for American Indian groups and non-Indian groups. Data reflects if American Indians are at a higher risk in a particular region as compared to the general populous and shows that Indians are at a higher health risk than non-minority groups across the same regions (Cheadle et al. 1994:412; Gittelsohn and Rowan 2011; Kunitz et al. 2012:272). Southwestern Indians have higher

rates of cardiovascular disease which may be caused by longer exposure to disruptions in traditional culture and diet than Indian communities in other regions. Pima Indians have the highest rate of diabetes in the world and other Southwestern Indians retain moderate to high rates of diabetes. Notable regional mortality has been documented since 1982 (Welty and Coulehan 1993:278- 279).

In the Southwest, access to education and income are lower than other regions and land is in possession of tribes rather than individual. The Northern Plains is similar in this regard because land is now allotted to the individual. Community land efforts may be affected by individualism because it is not controlled under a tribal government entity (Kunitz et al. 2014:270). Walker et al. (2010:62) found that involving council elders and key cultural attributes among indigenous peoples improved health. In this light, many Indian families do not venture to supermarkets or obtain healthy foods through shopping, but instead facilitate community gardens or organize shopping trips to grocery stores that can build a social network focused on a healthful community and standard of living for the individual (Bauer et al. 2012:1349).

Australian Aboriginals and Type-2 Diabetes

As a comparison and to further demonstrate the decline of health of indigenous people as a process of globalization, I include a case study on Australian Aboriginals, who also have been removed from their general subsistence and placed on commodity food (O'Dea 1984). I include this discussion because there is more specific data of Australian Aboriginals, which further supports the need for access to healthy food.

Australian Aboriginals suffer from very similar health issues related to a very similar traditional low carbohydrate and low sugar diet, as well as similar food insecurities as American Indian communities (Bauer et al. 2012; Brimblecombe et al. 2012; O'Dea 1984). Methods used in O'Dea's study of pre-diabetic Australian Aboriginals could also be implemented in American Indian health treatments. O'Dea is a nutritionist who worked to reverse pre-diabetic symptoms of excess weight and hyperinsulinism. In the study, Australian Aboriginals diets were reverted to a traditional hunter-gatherer subsistence for a seven-week period and a three-month period with absolutely no access to processed foods and sugar sweetened drinks. In contrast to the Pima Indian diet reversal that incorporated traditional foods into the modern processed diet, traditional Aboriginal diet incorporates high amounts physical activity and variability with foods such as crocodile, yams, figs, kangaroo, shellfish, and many other animals from various ecosystems in northern Australia (O'Dea 1984:596-603). The difference in physical activity and variety of foods in the traditional Aboriginal diet may be why there was no significant change in health among Pima Indians.

Urban diets of Australian Aboriginals are mostly comprised of fatty meats and carbohydrates. High consumption rates of flour, sugar, carbonated drinks, and alcoholic beverages were also recorded. All of the Aboriginals that participated in the study, and who left an urban environment to transition away from a modern diet, underwent steady weight loss, improved glucose tolerance, plasma triglycerides, and also reduced hyperinsulinism. It is not necessary (or possible?) for American Indians to revert back to their traditional diet in the same manner as O'Dea's field study, but access to traditional foods and higher food security has the potential to drastically improve American Indian health (Bauer et al. 2012; Brimblecombe et al. 2012; O'Dea 1984:596-598; Walker et al. 2010:60).

Indian Health Service Data

Data gathered from the IHS offices are limited. However, mortality rates for diabetes (Table 1) and heart disease (Table 2) are provided to show an increasing trend in health risk related deaths. IHS data of regional mortality rates were gathered from offices in regional areas to test the hypothesis of differences in health. The Southwest offices examined include Albuquerque, Tucson, and Phoenix. Regional office data for the Northern Plains are from Bemidji and Billings. Table 3 provides a comparison and was used to create Figures 1, 2, and 3. Figures 1 and 2 illustrate the variation in found in regional mortality rates. However, they do not show any obvious significance. Figure 3 provides the mean results of the two-tailed test using the data from Table 3.

Years	Deaths*
1954-1956	64
1972-1974	356
1982-1984	180
1992-1994	354
2002-2004	627
	643
2007-2009	

Table 1. Diabetes Mellitus Deaths of American Indian/ Alaska Native Population, 1954-2009. *Source of data from Indian Health Service 2014. The unadjusted deaths do not account for inaccurate races on death certificates. 1972 data is from specific counties. IHS age-adjusted rate per 100,000 people. (Burwell et al. 2014:118, Table 4.44).

Years	Deaths*
1954-1956	
1972-1974	2,275
1982-1984	1,117
1992-1994	1,524
2002-2004	1,859
	1,905
2007-2009	

Table 2. Heart Disease Deaths of American Indian/ Alaska Native Population, 1954-2009. *Source of data from Indian Health Service 2014. The unadjusted deaths do not account for inaccurate races on death certificates. 1972 data is from specific counties. IHS age-adjusted rate per 100,000 people. (Burwell et al. 2014:118, Table 4.46).

Analysis

The aforementioned areas were grouped into their respective regional area in accordance to IHS description. SPSS calculated an Independent Samples Test at the ∂=0.05 significance level for the two groups. The groups were found to not be significant, t>0.05, for diabetes (t=0.415) or disease of the heart (t=-0.525). As illustrated in Figure 3 there is a significant difference between the means of each group when comparing the disease by of at least ±20, if not more. The lack of significance seen in the t-test is likely to be a result of limited data, not necessarily because variation in health lacks between groups. This is indicative of the mean. If more variables could be acquired for each group, I believe significance could be established. Data from several years would show a stronger correlation between advanced processed food availability and poor health. The rising rates can be viewed in Table 1.

Comparison of all other regions should help discover why there is variation. Taking in factors such as food security and controlling for grocery stores may give more specific data. Qualitative data, such as if traditional foods are still consumed and what kinds of foods, could also be informative but would be more difficult to measure.

Region	Offices	Heart Disease Deaths*	Diabetes Mellitus Deaths*
Southwest	Albuquerque	179	106
	Phoenix	467	191
	Tucson	81	62
Northern Plains			
	Bemidji	458	138
	Billings	211	53
Southwest Total		**727**	**359**
Northern Plains Total		**669**	**191**

Table 3. Heart Disease and Diabetes Deaths of American Indian/ Alaska Native Population 199-2001. *Source of data from Indian Health Service 2003. The unadjusted deaths do not account for inaccurate races on death certificates (McSwain et al. 2003:63-67).

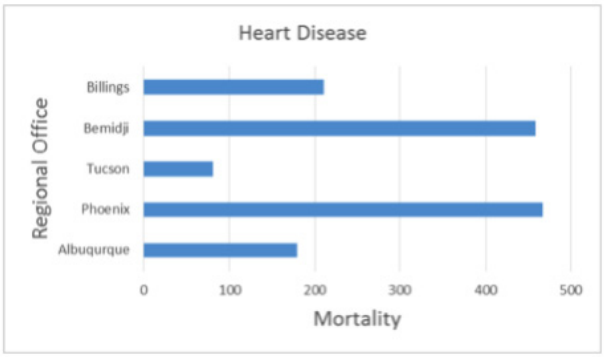

Figure 1. Heart disease mortality rates from each regional office.

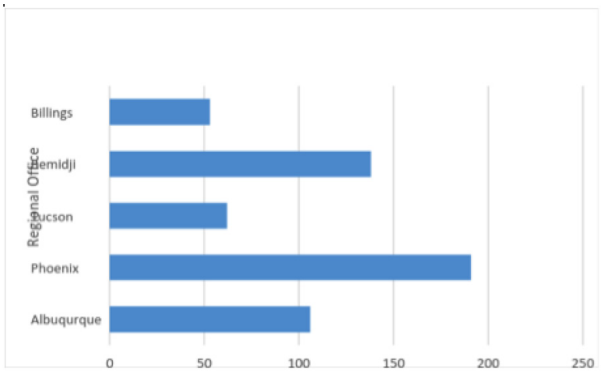

Figure 2. Diabetes mortality rates from each regional office.

Conclusion

Native American mortality is higher than non-minority mortality in the United States, even in the same counties. The East region is the only exception to this observation, where there are higher levels of diabetic urban residents (Kunitz et al. 2014:272). The state of Native American health should be viewed as an epidemic when compared to relatively healthy non-Native neighbors. Cross-cultural practices and integration of Native American health into public health services made available to these people is a necessity for livelihood (Walker et al. 2010:58).

Each community holds different beliefs and also has different access to healthy food, health systems, and traditional food sources (Gittelsohn and Rowan 2011:1179). Implementing programs of health literacy so that one may use the health care system knowledgeably is key in creating avenues of healthy lifestyles. Another approach to addressing Native American health is the involvement of community leaders, or elders, to address issues in Native American health in a culturally effective way (Walker et al. 2010:60). A type of health program that presently exists and implements cross-cultural attributes is known as Pathways. While not widely available, Pathways is a program that is funded by the National Heart, Lung, and Blood institute. This program addresses high health risk factors in

Group Statistics

	American Indian Region	N	Mean	Std. Deviation	Std. Error Mean
Diabetes	Southwest	3	119.67	65.577	37.861
	Northern Plains	2	95.50	60.104	42.500
Diseases of the Heart	Southwest	3	242.33	200.642	115.841
	Northern Plains	2	334.50	174.655	123.500

Figure 3. Comparison of diabetes and heart disease mortality.

Native American communities with the help of tribal health departments and tribal administration members (Gittelsohn and Rowan 2011:1179).

Implementing traditional foods for each indigenous group and increasing physical activity toward a traditionally healthier indigenous population can be an aid in dramatically changing health. Traditional foods hold higher nutritional value and are lower in fat than modern commodity foods (Boyce and Swinburn 1993; O'Dea 1984:603). Food insecurity can be addressed by making available healthier foods to Native American communities by increasing food education and food networking (Gittelsohn and Rowan 2011). For example, Food Corps is a program funded by Ameri-Corps and teaches food education to children and communities. The program also builds gardens while teaching community members how to grow food to increase food security. The Food Corps program is currently only implemented in a few Native communities in Arizona, New Mexico, North Carolina, and Oregon (Food Corps 2016).

Further research in examining health of all regions with varying former subsistence strategies may provide information for Natives Americans and non-Natives across regions to change or ease the epidemic. There are many factors to consider in each region such as food security, environment, regional-traditional food availability, control of land base, economic status, and urbanization. It is necessary to take all variables into consideration since all contribute to an environment that may support certain high health risks among Native American communities. Food Corps and Pathways can address the most high-risk areas immediately and are programs that can be beneficial. Native Americans are two times more likely to have diabetes as the general U.S. population (Gittelsohn and Rowan 2011:1179). The risk factors associated with diabetes have great potential to be deadly (Kunitz et al. 2014).

References Cited

Adair, Mary J., and Richard R. Drass
2011 North American Use of Animals on the North American Great Plains. In *The Subsistence Economies of Indigenous North American Societies: A Handbook*, edited by Bruce D. Smith, pp. 353-386. Washington, D.C.

Appadurai, Arjun
1990 Disjuncture and Difference in the Global Cultural Economy. In *Anthropological Theory: an Introductory History,* edited by John R. McGee and Richard L. Warms, pp.567-587. New York.

Bauer, Katherine W., Rachel Widome, John H. Himes, Mary Smyth, Bonnie Holy Rock, Peter J. Hannan, and Mary Story
2012 High Food Insecurity and Its Correlates among Families Living on a Rural American Indian Reservation. American *Journal of Public Health* 102(7):1346-1352.

Bestore, Theodore
2006 Kaiten-Zushi and Konbini: Japanese Food Culture in the Age of Mechanical Reproduction. In *Anthropological Theory: an Introductory History*, edited by John R. McGee and Richard L. Warms, pp. 604-614. New York.

Brimblecombe, Julie, Kerin O'Dea, and Robyn Liddle
2012 Use of Point-of-Sale Data to Assess Food and Nutrient Quality in Remote Stores. *Public Health Nutrition* 16(7):1159-1167.

Boyce, Vicky L. and Boyd A. Swinburn
1993 The Traditional Pima Indian Diet: Composition and adaptation for use in a dietary intervention study. *Diabetes Care* 16(1):369-371.

Bozell, John R., Carl R. Falk, and Eileen Johnson
2011 North American Use of Animals on the North American Great Plains. In *The Subsistence Economies of Indigenous North American Societies: A Handbook*, edited by Bruce D. Smith, pp. 353-386. Washington, D.C.

Burwell, Sylvia, Robert G. McSwain, Francis Frazier, and Kirk Greenway
2014 *Indian Health Service: Trends in Indian Health* U.S. Department of Human Health Services.

Cheadle, Allen, David Pearson, Edward Wagner, Bruce M. Psaty, Paula Diehr, and Thomas Koepsall
1994 Relationship between Socioeconomic Status, Health Status, and Lifestyle Practices of American Indians: Evidence from a Plains Population. *Public Health Reports* 109(3): 405-415.

Dozier, Edward P.
1983 *The Pueblo Indians of North America*. Waveland Press Inc. Prospect Heights, Illinois.

Food Corps Inc.
2016 Native Communities. Food Corps Inc. https://foodcorps.org/apply/where-youll-serve/native-communities/ accessed September 26, 2016.

Gittelsohn, Joel, and Megan Rowan
2011 Preventing Diabetes and Obesity in American Indian Communities: the Potential of Environmental Interventions. The American Journal of Clinical *Nutrition* 93(5):1179-1183.

Hassick, Royal B.
1972 *The Sioux: Life and Customs of a Warrior Society.* University of Oklahoma.

Karunakar, P.
2011 Threat of Globalization to Indigenous Peoples' Culture and Identities in India. *Fourth World Journal* 10(2): 153-166.

Kunitz, Stephen J., Mark Veazie, and Jeffrey A. Henderson
2014 Historical Trends and Regional Differences in All-Cause Amendable Mortality among American Indians and Alaska Natives Since 1950. *American Journal of Public Health* 104(S3):268-277.

Lyson, Thomas A.
2004 *Civic Agriculture: Reconnecting Farm, Food, and Community*. Tufts University Press.

McSwain, Robert G., Michael O. Leavitt, Richard M. Church, and Edna L. Paisano.
2003 *Regional Differences in Indian Health: 2002-2003.* U.S. Department of Human Health Services.

O'Dea, Kerin
1984 Marked Improvement in Carbohydrate and Lipid Metabolism in Diabetic Australian Aborigines after Temporary Reversion to Traditional Lifestyle. *Diabetes* 33:596-603.

Schollmeyer, Karen Gust, and Christy G. Turner II
2004 Dental Caries, Prehistoric Diet, and the Pithouse-to-Pueblo Transition into Southwestern Colorado. *American Antiquity* 69(3):569-582.

Smith, Bruce D. (editor)
2011 *The Subsistence Economies of Indigenous North American Societies: A Handbook*. Rowman & Littlefield Publishers, Inc., Washington, D.C.

Walker, Roger, Helen Cromarty, Barbara Linkewich, and Douglas Semple.
2010 Achieving Cultural Integration in Health Services: Design of Comprehensive Hospital Model for Traditional Healing, Medicines, Foods and Supports. *Journal of Aboriginal Health* 6(1):58-68.

Welty, Thomas K. and John L. Coulehan.
1993 Cardiovascular Disease among American Indians and Alaska Natives. *Diabetes Care* 64(1): 277-283.

Willows, Noreen D.
2005 Overweight in First Nations Children: Prevalence, Implications, and Solutions. J*ournal of Aboriginal Health* 2(1):76-86.

Wilson, Charlton, Susan Gilliland, Kelly Moore, and Kelly Acton
2007 The Epidemic of Extreme Obesity among American Indian and Alaska Native Adults with Diabetes. *Preventing Chronic Disease* 4(1):1-8.

Artifacts 1/2 Mile: The Commodification of Culture

Anna Suarez, *University of Central Arkansas*

Introduction

This paper discusses the effects of the commodification of culture and explores implications on the authenticity of the culture imposed. A current issue facing many indigenous cultures in the United States is the commodification of their culture. A culture becomes commodified when it is treated as a commodity that can be bought and sold (Greenwood 1976:128-142; Smith 1989:173). This research seeks to understand the effect of commodification of culture on indigenous peoples and communities and to understand if commodification of a culture changes the perceived authenticity from both an emic and etic perspective. In other words, does commodification exploit and alter the authenticity of culture or does it evolve into a form that allows the perpetuation of that culture for future generations? This paper also evaluates the history of cultural tourism in the United States and explores the question of how "Imperialistic Nostalgia" came to be, implications on cultural tourism today, and the perceived authenticity of impacted cultures.

Methods

Literature Review

I began my research by doing a literature search for material on the anthropology of tourism, specifically regarding cultural and ethnic tourism. After identifying a gap in the literature related to the theory of tourism anthropology, I began to broaden the research to try and identify why this gap might exist. I discovered that this gap exists because although cultural tourism is not a new phenomenon, the concern for those cultures it impacts is quite new. I then turned my research towards the commodification of culture and how it impacts authenticity within those cultures effected. I tried to search for both emic and etic perspectives and sources. To do so I had to turn to some non-traditional sources, such as contemporary Native American rap, poetry and blogs. I had to turn to these sources because the scholarly articles I could find on culture commodification were primarily from the etic perspective. I also searched for material on imperialistic nostalgia and included those sources.

Along with the literature review I also did an analysis of previous case studies. I found a case study done by Mathieson and Wall (1982) on traditional art forms, which examines what happens to traditional art forms when they are no longer made for ceremonial purposes but are to be sold to tourists. Their findings on the effects of cultural tourism on traditional art forms carries over into other aspects of culture commodification.

"Undercover" Participant Observation

I also went undercover as a cultural tourist to conduct my own case study at Ka-do-ha Indian Village in Murfreesboro, Arkansas. Going undercover is a direct violation of the American Anthropological Association (AAA) code of ethics. However, the park is under the control of a private individual and does not answer to the same ethics guidelines as a State or National Park would. Native American Grave Protection and Repatriation Act (NAGPRA) guidelines are followed at the park, yet very loosely. I chose to break the ethics code while doing this case study because I feel very strongly that the portrayal and display of Native American remains (even only in plaster form) are a direct violation of the humanitarian rights of Native Americans. If I had been up front and transparent with the woman working the front desk at the park (who also happened to be an owner of the park and live on the site) about my true reasons for being there and the possible implications of my work on their facility, she would likely have promptly escorted me from the property. When other human beings rights are being violated I do not have a problem with violating AAA ethics codes to expose the issue so that it may enter into larger discussions and be more closely examined. The goal in such an endeavor is to encourage change in the policy(s) that allows this type of issue to continue so that social justice may be brought to those impacted by it.

Cultural Tourism and the Theory Behind the Anthropology of Tourism

Cultural tourism, sometimes also referred to as ethnic tourism, is hard to strictly define. Generally, it is characterized by a visitor (tourist) coming into contact with a group or groups who have an historically unique identity which varies greatly from that of the visitor (Van der Burg 2013:22). It includes, but is not limited to, material culture, language, ceremonies, history, cuisine, and usually some sense of experiencing nostalgia for the "primitive other" or the way things use to be (Van der Burg 2013:22).

Cultural tourism has its roots in the second half of the nineteenth century beginning in Europe and Britain (Wyllie 2000:15). Examples of the earliest forms

of tourism can be found in the journeys of pilgrimages undertaken to religious locations such as Mecca or Jerusalem, travel to Greece during the Olympic Games as early as 776 B.C., or the journey made by the Egyptian Queen Hatshepsut in 1490 B.C. where she traveled to the lands of Punt in the name of peace and possibly tourism (Wyllie 2000:15). With the fall of the Roman Empire and the loss of road infrastructure, the Dark Ages (A.D. 476 to A.D. 1450) halted most pleasure travel in Europe (Wyllie 2000:15). The world would not see travel for pleasure and education again until its reemergence in the nineteenth century (Van der Burg 2013:19; Wyllie 2000:15;)

Commodification of Culture

The commodification of culture is described by Greenwood (1976:128-142) as a "local culture itself treated as a commodity" (Smith 1989:173). Greenwood claims that the commodification of culture is simply a perpetuation of the modern capitalist system where "anything that can be priced can be bought and sold" (Greenwood 1976:128-142; Smith 1989:173). Wyllie (2000:12) also agrees with Greenwood suggesting that the culture industry "is a subtle means of reproducing, reinforcing, and perpetuating the capitalist system".

The anthropology of tourism is such a complex multifaceted subject that it has been compared to the field of anthropology itself (Lett 1987; Smith 1989:278). To understand the anthropology of tourism it takes a holistic and multifaceted approach that is every bit as complicated as those used in the broader field of anthropology. The research done on tourism anthropology is relatively young and unexplored where a number of isolated case studies on indigenous communities and the commodification of their cultures have been performed only within the last ten years (Lisette 2013:19-20; Smith 1989:185; Wyllie 2000:51). The long range and future effects on the authenticity of cultures impacted by cultural tourism and indigenous communities have yet to be fully addressed within the data presented herein. Yet, the long-term economic impact on the perpetuation of the culture has been addressed in every case study examined and mentioned in this paper. Generally, the prognosis of the economic effect of the commodification of a culture on its perpetuation is positive (Graburn 1984:393-419; Smith 1989:223-235; Van der Burg 2013:49-60; Wyllie 2000:13). Cultures who have an ascribed economic "value" (commodified for cultural tourism) are more likely to maintain some semblances of the original culture, even if it is in face only. As the anthropological study of tourism continues, the conversation about it and its effects on indigenous communities identities will evolve (Lett 1987; Smith 1989:278).

The history of cultural tourism in the United States is closely tied with National Parks. One example is Yellowstone National Park. Yellowstone consists of two million acres situated within parts of Wyoming, Idaho, and Montana and was created by congress in 1872 (Jacoby 2003:83; Steinberg 2009:136-146). It was first a federal wilderness refuge, which elevated the conservation of natural resources as an agenda for the United States for the first time in history (Steinberg 2009:136). Henry Dawes, a congressman from Massachusetts, claimed that the Yellowstone environment was so formidable that not even Indians could live there. As such, it was presented as a place seemingly without history (Steinberg 2009:146). Other park promoters claimed that Yellowstone was so pure that it was a "primeval solitude, filled with countless locations that have never been trodden by human footsteps" (Jacoby 2003:84). Gustavus Doane, a U.S. Army officer who was on an 1870 expedition in the region, claimed that the Natives were too superstitious to enter the park boundaries due to the thermal activity (Jacoby 2003:84).

The Dawes, Doane, and other park promoter claims could not have been further from the truth. The area that is Yellowstone had been in use by the Nez Perce, Blackfeet, Crow, Lakota, Shoshone and Bannock, Tonkeys, Kiowa and Tukudeka for generations (Jacoby 2003:83-84). Some of the early park managers at Yellowstone claimed they found abandoned shelters in every glen and valley of the park and they found pole and brush fences in every meadow that would have been used for hunting (Jacoby 2003:84). The thermal activity may have even attracted Native Americans to the area, as the warmth generated from the thermal springs would have allowed for winter grazing of animals. It was also reported that the thermal springs were used by Natives in preparing food (Jacoby 2003:84-86). Native Americans were effectively written out of the park history and landscape of the early Yellowstone narrative, which erased "Indian claims by reclassifying inhabited territory as empty wilderness" (Jacoby 2003:85). A series of treaties and executives orders passed or signed between 1855 and 1875 consigned Native Americans that had been previously inhabiting Yellowstone and the surrounding areas to pieces of land where they would be less likely to come into contact with early visitors to the park (Steinberg 2009:148). Those tourists, it was argued, would have been frightened by the "mere rumor of the presence of Indians in the park" (Steinberg 2009:148).

In the early twentieth century, it was discovered that the history and Indian cultures of the region in which a park was located had just as much, if not more, "value" to add as a tourism draw to the park. This was exploited to lure guests to visit the State and National Parks, and Yellowstone was included (Meringolo

2012:86). In Yellowstone, the park booster clubs who had supported the treaties and executive orders to oust Native Americans a few years earlier now hired them to sell a version of the park to the American public that was presented as an unspoiled and untouched wilderness (Steinberg 2009:154). The Northern Pacific Railroad hired a small group of Blackfeet to "play Indian" and advertise for their Yellowstone rail line (Steinberg 2009:153). Others, such as Buffalo Bill's Wild West Show, Pawnee Bill's Wild West, and the Great Far East Show would soon follow (Legends of America 2003). Thus, cultural tourism and imperialistic nostalgia developed in the United States.

An example of the effects of the commodification of culture can be seen in a case study of traditional art forms done by Mathieson and Wall (1982). They identified three phases of changes that take place when traditional artists have economic contact with tourists. The first step is the traditional artistic designs with particularly deep religious and mythical affiliations disappear from arts and crafts. Second, those designs are replaced with unsophisticated degenerate designs, which are associated with techniques used in mass production of arts and crafts to be commodified. Third, skilled craftsmanship and distinctive styles which portray those traditional artistic designs with particularly deep religious and mythical affiliations will gain a resurgence in response to the degenerate replacements (Mathieson and Wall 1982; Wyllie 2000:70-71). Cultural tourists will want to purchase the "authentic" and "meaningful" artwork over the perceived tourist art (Mathieson and Wall 1982; Wyllie 2000:70-71). The production of art for tourists and not for traditional reasons also seems to have an impact on the artists themselves. As noted by Nelson Graburn (1984), art made for tourists "is said to be divorced from traditional cultures and its production is therefore less satisfying [to the artist]" (Graburn 1984:393-419; Wyllie 2000:71). The finished art form itself does not carry with it the same meaning when it is made for tourists than it does when it is made "within the traditional cultural fabric" and carries with it a symbolic or spiritual meaning (Wyllie 2000:65). This can lead to the traditional artist becoming detached from their art (Mathieson and Wall 1982).

The question of authenticity also comes into focus with the commodification of culture. At what point can something no longer be called authentic or traditional? When do traditional art forms lose their symbolic or spiritual meaning when they are made for tourists and when do those same objects now become inauthentic? Or, are they the evolved form of a culture who has been commodified? In this context, "authenticity refers to a product that is seen as genuine; it conveys some message about an object and about how people perceive this object" (Van der Burg 2013:23). MacCannell (1999) asks if indigenous communities dealing with the commodification of their culture could be considered truly "authentic" if they are portraying a way of life which no longer exists in order to appeal to cultural tourists who are seeking the "real lives of primitive populations" (MacCannell 1999; Van der Burg 2013:25). He states that the way a people live today is arguably just as authentic, if not more so than the "fictionalized" portrayal of the "authentic" experience that no longer exists and is portrayed for cultural tourists (MacCannell 1999; Van der Burg 2013:25). In other words, if the community or individual who is portraying the "real lives" of their "primitive selves" no longer lives in that manner, can their portrayal of that way of life even be considered truly authentic if they no longer truly live in that manner.

Commodification as a Means of Preservation

MacCannell (1976) argues that the staged unauthentic performances of Native peoples for tourists are a means for them to retain and sometimes regain control of their authentic culture (MacCannell 1976; Wyllie 2000:13). This view point is shared by many Natives today, as stated by Native poet Linda Hogan, "We are building the future out of the shards of the past; we are now recovering ourselves and reclaiming our traditions" (McMaster and Trafzer 2008:241). This has not always been an easy thing to do for "Native groups [who] have struggled to obtain, tell, or protect their past" (Watkins 2005:432). It can be argued that cultural tourism gives Native groups a platform, as well as the resources needed, to protect and preserve their heritage, ceremonies, and traditions for their posterity. In this light, "the tourist audience is valued for the economic benefits it brings, and these increase the possibility that such cultural practices will be conserved" (Wyllie 2000:68). Although, it would seem that not all Natives agree with Hogan. Tee Iron Cloud, a contemporary Native Lakota rapper refers to the Black Hills in one of his songs singing, "the whites made our hills into a vast Disneyland, nothing but the tourists and the hot dog stands" (Iron Cloud 2013). This viewpoint must also be considered.

English (1986) counters naysayers to the idea of commodification as a means of preservation with his use of the "white knight syndrome" (English 1986; Wyllie 2000:57). He states that tourists and well meaning anthropologists suffer from the "white knight syndrome" and might fail to understand individuals might simply prefer to participate as a means of the preservation of their culture and heritage. The White Knight Syndrome is used by English (1986) to describe the non-Native tourist who comes into contact with "primitive others" who they (the White Knight) feel are suffering and need to be uplifted out of a perceived situation. He uses the

example of a waitress working in an air-conditioned hotel in Mexico, versus toiling in fields under a broiling sun (Wyllie 2000:57). The waitress or waiter might prefer working in those conditions as opposed to the latter.

Imperialistic nostalgia is an odd phenomenon because of its juxtaposition. As stated by Rosaldo (1989:107-108), "agents of colonialism long for the very forms of life they intentionally altered or destroyed". Imperialistic nostalgia seems to be a strictly European phenomenon with many cultures not having any occurrence that could be considered similar existing in their vocabulary (Rosaldo 1989:108). Rosaldo (1989:108-111) also notes that the phenomena of imperialistic nostalgia is often observed operating in tandem with The White Knight Syndrome. An excellent contemporary example of this could be the Oscar winning film Dances with Wolves and the final film slide presented to moviegoers:

> *Thirteen years later, their homes destroyed, their buffalo gone, the last band of free Sioux submitted to white authority at Fort Robinson, Nebraska. The great horse culture of the plains was gone and the American frontier was soon to pass into history.*

In the words of the Native Appropriations blog, "It won the Best Picture Oscar because it was 3 hours of straight-up imperialist nostalgia" (Native Appropriations 2010).

A Case Study: Ka-do-ah Indian Village

In order to evaluate cultural tourism using participant observation in Murfreesboro, Arkansas, I went "undercover" as a cultural tourist to Ka-do-ah Indian Village (Figure 1). I took notes in a small notebook, while taking photos to document and provide visual examples of the information and observations gathered during my visit.

Ka-do-ha Indian Village is a tourist attraction "Indian village" consisting of six Mississippian era (A.D. 900-1600) mounds, five of which have been excavated by amateur archaeologists. Four of the mounds contained burials of what the Ka-do-ha staff refer to and interpret as "chiefs." The open burials were on display for the public to view up until a few years ago when NAGPRA legislation ended the practice of burial display. Today, the park has plaster casts of the remains as representations of the actual burials in open excavations. These casts are on display for the visitors to the park. It is important to note that Ka-do-ha is not the only park in the United States that has a history of displaying open burials. Other parks with a history of similar open burial display methods include Dickson Mounds in Fulton County, Illinois, and Wickliff Mounds in Wickliff, Kentucky.

Figure 1. Sign attracting visitors to the Ka-do-ha Village.

All along the one and half mile route to the park are bright yellow signs lining the road (Figure 2). On them are items that are waiting to be purchased at the "trading post" which lies ahead. The signs list such items as Genuine Indian Moccasins, Indian dolls, artifacts, and arrowheads. These signs bespeak of a culture which has been totally commodified for a private individuals profit and experienced by cultural tourists in the form of imperialistic nostalgia.

Figure 2. Bright yellow signs that exist along the road.

A guard rail separates guests from the hollowed out excavation areas and open burials and a dilapidated garden shed protects each of the mounds and their open burials from direct rain and sunlight. The top area of most of the mounds around the excavation pit have been capped with cement, which is now crumbling. The garden sheds do not protect from animals, windblown leaves, trash, and other materials or debris from getting in the pits. Above each of the burials displayed is a bright yellow sign which gives information on the "Chief" found in the mound. The sign describes how tall or old the individual was and the burial objects laid to rest with him or her. One burial at the park is suggested to be a sacrificial offering to the chief buried alongside them.

The museum at Ka-do-ha is located in a single damp and dimly lit room. There are eleven glass cases surrounding the room with a large stylized diorama of

an imagined Mississippian era (A.D. 900-1600) mound village taking up one whole wall of the rectangular shaped room. The center of the room contains three glass cases with examples of projectile points from the Americas. The eleven cases contain a mixture of artifacts which are displayed and are absent of their individual cultural context. The cases are broken down into time periods but some of the time periods range well over a thousand years. Along with artifacts from the site and others in Arkansas, there are also artifacts from all over North America, Papua New Guinea, Peru, Chiapas, China, and Australia. The museum more closely resembles the private procurements of a collector instead of a museum. The artifacts are displayed without their respective cultural context to provide proper insight or respect.

The gift shop or "trading post" at Ka-do-ha is interesting. The Confederate States of America Flag proudly drapes over a counter next to a life-size "Dime Store Indian" where you may purchase a "symbol of the south." A mixture of authentic artifacts from all over the world (some even from a tomb in China.) are sold in the gift shop along with their tags of "authenticity." They are sold alongside replicas of the same objects. In some cases the authentic are indiscernible from the fake except for the most trained eye. A 1963 sales catalogue of "Genuine Indian Artifacts" is proudly displayed next to the wall of floor to ceiling cases containing artifacts for sale. Nazi memorabilia can be also found in random locations throughout the gift shop, including an extensive collection of lapel pins. The cultures of the first peoples of the Plains seems to be the most desired items in the gift shop and from listening to the lady working the front desk, they appear to sell the best as well. Items with design details and styles resembling Plains cultures are the most prominent items in the gift shop for sale. A "Shop Spirit Guardian" adorned with a stylized neon colored feathered headdress, which resembles a Plains war bonnet greats guests as they enter the gift shop (Figure 3). A fee of eight dollars per adult and four dollars per child is charged before admission to the museum or mound complex is allowed.

The park also "seeds" the plaza area of the mound complex with replica projectile points and fragments of semi-precious gems. Guests are allowed and are even encouraged to dig in the area of the plaza that has been plowed up by a tractor for the seeded items (Figure 4). A washing station is provided for guests to "wash their treasures" which they have unearthed in the plaza. This seeded plaza sets a precedence with tourists to the park that teaches and reinforces them that it is okay and legal to go out and dig for objects of cultural significance. More so, if one is not "lucky" enough to unearth a treasure you may simply purchase one in the gift shop to remember your visit.

Figure 3. "Shop Guardian"

A park like Ka-do-ha presents an interesting opportunity for the study of the anthropology of cultural and ethnic tourism because it is a park that is controlled by a private individual who is separate from the State or National Park System. In other words, the individuals who run the park do not fall under the control of an interpretation guideline or a code of ethics which is mandated by the Park Service. They only must answer to State and Federal laws, such as NAGPRA. This leaves a large gap for creative interpretation on the part of the private owner, which can be seen in the museum, burial displays, seeded plaza, and the choice of gift shop merchandise. It creates an attitude that normalizes the commodification and cultural appropriation of culturally significant objects. This normalization of the commodification of culturally significant objects bleeds over into other parks and locations. For example, I have personally witnessed this phenomenon while working at Toltec Mounds Archeological State Park. Guests, who visit Toltec and have visited Ka-do-ha previously, generally become somewhat indignant upon rejection when they

Figure 4. "Arrowhead and quartz crystal hunting area at the park"

request where they may dig for arrowheads. On several occasions I have witnessed a guest, whom after being denied "digging rights," proceeds to search the gift shop for the "authentic artifacts." If they cannot dig their own memorabilia, they will simply purchase one in the gift shop as an example of imperialist nostalgia.

Discussion and Conclusion

Cultural tourism, the commodification of culture, and the authenticity of the culture is a multi-layered issue with no clear direct approach to tackling it. The experience of nostalgia when paired with cultural tourism can arguably be considered as a form of imperialistic nostalgia (Rosaldo 1989:107-108). However, it does warrant further study. As of 2002, The World Travel and Tourism Council reports that cultural tourism is estimated to produce "$6.7 Trillion in GDP and 253 million jobs worldwide" and is projected to grow as leisure time increases (Slick 2002:219). Ka-do-ha is a small family run business, which claims no kinship to the culture which they have commodified for their profit. The effects of the conditioning of cultural tourists at sites like Ka-do-ha are bleeding over into other parks and cultural tourists attractions such as Toltec Mounds Archeological State Park. This bleeding over effects the safety and integrity of cultural heritage sites by normalizing looting of culturally significant objects. Does commodification exploit and alter the authenticity of culture, or does it evolve into a form that allows the perpetuation of that culture for future generations? Cultural tourism, when approached from the emic perspective, can be a platform for Native groups to preserve and interpret their own heritage (MacCannell 2001:380-390; Watkins (2005:430-432). Michael Ames (1992:156) says that now is the time in which it is no longer appropriate for non-Natives to interpret Native heritage. He continues by stating that when culture is one of the only commodities that Native people own in the United States, it can no longer be acceptable for non-Natives to appropriate and exploit for their own financial gain (Ames 1992:156).

Future Possibilities

In the future I would like to expand on the Native voice, perhaps through an interview or a more extensive look at contemporary artists as supporting evidence. I would also like to make use of a comparative case study. The case study would use an individual with no anthropological training or historical background to go through the Ka-do-ha Indian Village. I would develop a questionnaire in attempt to objectively acquire reactions from the individual of their park experience. I feel that from this information I could then make better suggestions for solutions to the issues that Ka-do-ha presents in its interpretation and representation of Native American history and culturally significant objects. I think it would also be worthwhile (perhaps even more so) to do a parallel case study with a Native American at the park from one of the five historic tribes of Arkansas. I would like to get their impressions and reactions to the park. I feel that their reactions to the park would be the most important even though archeologists debate the connection between the five historic tribes of Arkansas and the Mississippian-era Native Americans who built the mounds at Ka-do-ha. Nonetheless, it is their collective history that Ka-do-ha is trying to portray and interpret and thus they should have a substantial voice. From these combined views the most appropriate course of action could be ascertained and suggested to address the issues in parks similar to Ka-do-ha Indian Village.

References Cited

Ames, Michael M.
1992 *Cannibal Tours and Glass Boxes: The Anthropology of Museums*. UBC Press, Vancouver, BC.

English, E. Philip
1986 *The Great Escape? An Examination of North-South Tourism*. The North-South Institute, Ottawa, Ontario.

Graburn, Nelson H. H.
1984 The evolution of tourist arts. *Annals of Tourism Research* 11:393-419.

Greenwood, Davydd J.
1976 Tourism as an agent of change: A Spanish Basque case. *Ethnology* 11:80-91.

Iron Cloud, Tee
2013 Flying Limbs Inc., Productions. Electronic document, https://www.youtube.com/watch?v=I6PMnHiqy8&list=RDI6PMnHi8qy8&index=1, accessed April 21, 2017.

Jacoby, Karl
2003 *Crimes against Nature: Squatters, Poachers, Thieves, and the Hidden History of American Conservation.* University of California Press, Berkeley.

Legends of America
2003 Electronic document, http://www.legendsofamerica.com/we-buffalobillgallery.html, accessed April 29, 2017.

Lett, J.
1982 The British Virgin Islands tourism industry: Problems and prospects for the 1980s. Paper presented at the seventh annual meeting of the Caribbean Studies Association, 26-30 may 1982, Kingston, Jamaica.

MacCannell, Dean
1999 *The Tourist Schocken*. New York.

2001 Remarks on the Commodification of Cultures. In *Hosts and Guests Revisited: Tourism Issues of the 21st Century*, edited by Valene L. Smith and Maryann Brent, pp. 380-390. New York.

Mathieson, Alister, and Geoffrey Wall
1982 *Tourism: Economic, physical and social impacts*. Longman, London,

McMaster, Gerald, and Clifford E. Trafzer
2008 *Native Universe: Voices of Indian America.* National Geographic Books, United States.

Meringolo, Denise D.
2012 *Museums, Monuments, and National Parks: Towards a New Genealogy of Public History*. University of Massachusetts Press, United States.

Native Appropriations
2010 I'm a true Indian now: I finally saw Dances with Wolves. Native Appropriations. Electronic document, http://nativeappropriations.com/2010/07/im-a-true-indian-now-i-finally-saw-dances-with-wolves.html, accessed April 23, 2017.

Rosaldo, Renato
1989 Imperialist Nostalgia. *Representation* 26:107-122

Slick, Katherine
2002 *Archeology and the Tourism Train: Public Benefits of Archaeology.* University Press of Florida, Gainesville.

Smith, Valene L.
1989 *Hosts and Guests: The Anthropology of Tourism.* University of Pennsylvania Press, Philadelphia.

Steinberg, Ted
2009 *Down To Earth: Natures Role in American History.* Oxford University Press, New York.

Van der Burg, Lisette
2013 Commoditization of The Ju/'Hoansi Culture: Destorying Authenticity of Revitalizing Tradition? A Study on the Impacts of cultural Tourism on the Ju/'Hoansi San in the Nyae Nyae Conservancy, Namibia. Master's thesis, Department of Anthropology, University of Leiden, Netherlands.

Watkins, Joe
2005 Through Wary Eyes: Indigenous Perspectives on Archeology. *Annual Review of Anthropology* 34:430-432.

Wyllie, Robert W.
2000 *Tourism and Society: A Guide to Problems and Issues*. Venture Publishing, Pennsylvania.