Robert Kurtz GIS for Humanists 10 December 2020 Dr. Aber and Dr. Fialka Final Project

Early Log Cabins of Southern Middle Tennessee

Michael T. Gavin spent the winter of 1994 driving down every road marked on a 1976 edition of the General Highway Map of Maury County. He did this to avoid bypasses and new road construction in the hopes finding extant log cabins from the early days of Tennessee. While conducting the survey Gavin also traveled to several other counties and soon narrowed his research to southern Middle Tennessee. Through on-site research and over a decade of experience in building and moving log cabins, he put together a comprehensive study of log cabins. His thesis discusses the history, evolution, and construction methods of log cabins in the region. Gavin recorded detailed information on every log cabin he encountered. Measurements, style, form, materials and methods used, and the evolutionary process the cabins may have gone through are recorded using spreadsheets and photographs. Spatial analysis of this data should reveal new trends in Gavin's research as well as give us a deeper look into early dwellings of Middle Tennessee.\frac{1}{2}

The log building is identified in three ways: as folk architecture, vernacular architecture, or everyday architecture. It is considered the building style of the common man; defining the connection between nature and the human experience. Log building traditions allowed those seeking shelter in America's backcountry to construct an inexpensive home by utilizing local, available building materials. The use of these materials depended on the experience of the

¹Michael T. Gavin, "Nineteenth Century Hewn Log Architecture in Southern Middle Tennessee: An Artifactual Study" (master's thesis, Middle Tennessee State University, 1995).

builder and their intent. Many log homes were constructed as temporary shelters until a more fashionable, proper home could be built. Gavin reminds us of how rare it is to find builder's memoir, but recounts Nathan Vaught (builder from 1806-1820), who notes that cabins were often built expediently and often replaced with brick shelters.² To those who constructed their log buildings with a more permanent home in mind exposed their skills and traditions through their methods of construction, forms, and styles. Some of these traditions were carried over from their homelands, while others adapted to their surroundings and learned skills from their neighbors.

These methods led to regional groupings identified through building methods, styles, and forms, which can be seen best through mapping. In the late 1960s, early in his career, Henry Glassie wrote a number of studies on log cabins identifying styles, forms, and groupings, but fell short when it came to visual identification of patterns.³ John B. Rehder utilized ten years of research within the state of Tennessee in his work titled *Tennessee Log Buildings*, in an attempt to survey the entire state.⁴ Rehder uses maps to identify trends, but due to the large region he is covering, he is only detailed down to the county level. His study is a bit misleading considering that his data includes very little information on eastern Tennessee. Due his undertaking of such a large survey his information, aside from identifying styles and forms, his numbers are very vague and can get a bit confusing when trying to decipher the data.

²Michael T. Gavin, 84.

³Henry Glassie, "The Types of Southern Mountain Cabin," In *The Study of American Folklore: An Introduction*. ed. Jan H. Brunvand (New York, NY: W. W. Norton Co, 1968), 338-370; Henry Glassie, "The Central Chimney Continental Log House," *Pennsylvania Folk Life* 18, no. 2 (1968/69): 32-9; Henry Glassie, "The Appalachian Log Cabin," *Mountain Life and Work* 39 (Winter 1963): 5-14.

⁴John B. Rehder, *Tennessee Log Buildings: A Folk Tradition* (Knoxville, TN: University of Tennessee Press, 2012).

Terry G. Jordan gives extremely detailed accounts of log cabin construction methods and their European roots in his book, *American Log Buildings*. Jordan does an amazing job of tracing European traditions in log cabin construction while identifying some of those traditions and American adaptations on the east coast. Jordan's use of drawings and photographs to describe construction methods are impressively in-depth. He uses maps to identify corner notching traditions in Europe, but because his focus was on the origination of traditional log cabin construction, he shies away from American maps other than identifying general regions.

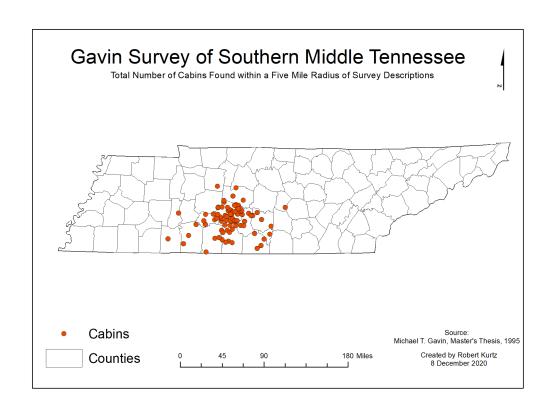
The vast majority of log cabin research is found within texts that focus on the study of vernacular architecture. Gabrielle M. Lanier and Bernard L. Herman wrote such a book, or field guide, dedicated to the study of everyday architecture. These books are meant to be used as guides that give examples of things a preservationist may run into in the field. Within these books there is always a section on log cabins where much of the information is taken from fieldwork and what is already known about log cabins, but the authors reveal their experiences to help people that are new to the field. What makes Lanier and Herman's work important is that it represents many books that cover log cabins in a chapter, but it also treats log cabins as any other vernacular form of architecture. What many of these books could benefit from is spatial data, and how it could be used to identify trends in the field by recognizing specific characteristics and how they relate to patterns.

The above historians and folklorists used mapping to identify trends, but the majority of them used the maps to display their areas of study or to show specific examples of landscapes. Henry Glassie drew his maps by hand and took a quantitative approach to some of his later studies in

⁵Terry G. Jordan, *American Log Buildings: An Old World Heritage* (Chapel Hill, NC: University of North Carolina Press, 1985).

⁶Gabrielle M. Lanier and Bernard L. Herman, *Everyday Architecture of the Mid-Atlantic: Looking at Buildings and Landscapes* (Baltimore, MD: John Hopkins University Press, 1997).

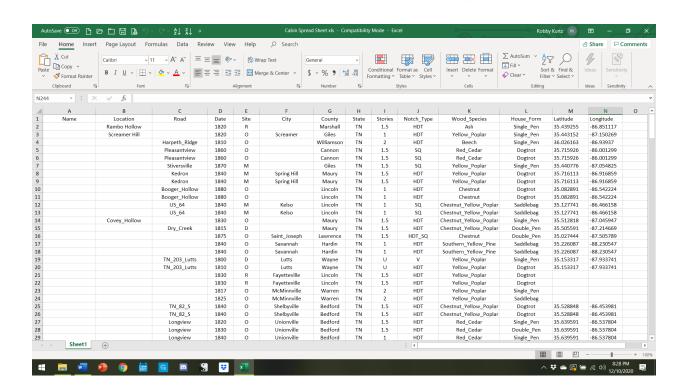
European trends and then used text to identify those trends in America. John B. Rehder used maps to express his many years of research, but did it at a scale that did not transfer the information as well as it should have, while Lanier and Herman only used maps for specific landscapes such as marches, and wet lands. This study addresses how spatial data can be used to expand on these types of research to reveal smaller regional patterns that could be used for further study, or the practice of studying any type of architecture. It is a way to confirm old research and create a new approach that will expand on this research. Even at the small scale of this study there are questions that remain unanswered, but what is most important is that it fills the gap in the historiography, or at least creates other avenues of approach into the study of vernacular architecture.



The data collected for this study came from Michael T. Gavin' survey of southern Middle Tennessee. The spatial analysis consists of cabin forms, construction methods, wood types, and estimated build dates. Gavin collected his data in the form of a spreadsheet. That information was then gathered and placed into a new spreadsheet that could be placed into ArcGIS. The spreadsheet consisted of 181 entries of log cabins ranging from the oldest estimated build date of 1790 to the newest, 1900. The cabins were listed by street, place, or owner's name. There was no clarification as to whether it was the current owner or the owner during the period it was lived in. However, some cabins with the same name were listed twice, but each name had unique values, therefore they were counted as a separate cabin. This brought the overall count to 243 cabins.

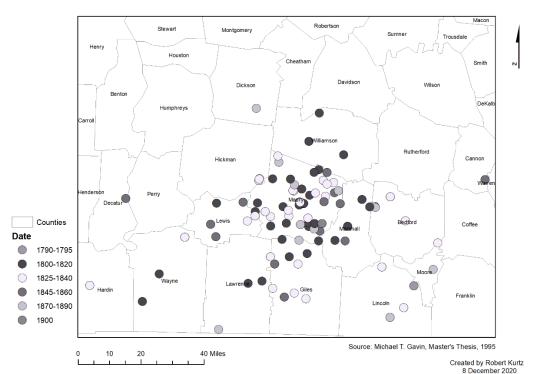
There were no specific locations for any of the cabins, therefore all the names were searched using Google Maps. To solve this problem parameters were set. If the location was the name of a city or town GPS coordinates were gathered. If they were a street or a road that was under ten miles long the GPS coordinates were taken in the center of the street. The maximum distance any coordinates were taken was at a five-mile radius. Cabins not meeting these criteria did not get a GPS location. Of the 243 cabins, 134 of them fell within the criteria. All 243 cabins were recorded on an updated spread sheet along with the GPS coordinates of those that fell within the criteria.

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Using the counties.shp and the states.shp, the state of Tennessee and its counties were separated using a definition query. NAD_1983_UTM_ZONE_16N was used to adjust the state map. The spreadsheet was then adjusted to .xls to import into ArcGIS and then the XY coordinates were changed to WGS 84 and a new feature class was created to manipulate the data. Symbology was used to select the data I wanted to display on the map by choosing Category and adding the selected values by highlighting them. If more than one of the same values existed, they were then grouped together. When there were too many separate values, I grouped them together and then double clicked on the group under the table of contents and renamed that group. This was done to create a shorter list for the legend. Graduated colors were used to represent the data. Print/Preview was used to set the map to landscape and to provide a clearer picture of the symbols the map was magnified to show only the area where cabins were placed. All the labeling, text, legend, scale, and north arrow were created using the tools under Insert.

Estimated Years of Construction



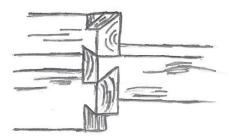
The spatial data in all the maps utilize a graduated color scheme revealing trends in the four categories under study. The years of construction are mostly estimated unless there were specific documents on the cabins. Gavin does not express this in his data. The popularity of log construction in Middle Tennessee fluctuated throughout the nineteenth century but saw a large increase in log construction from 1820 to 1850. Over half of the 134 homes with GPS coordinates were built. Cost was one of the major factors in log construction, "[but] as the population increased and the employment of manufactured construction materials became widespread, the cost-effectiveness of logs as a building material began to decline." Gavin suggests that other factors like "national styles, the rise of the 'rural improvement' movement, and the general availability of 'modern' house plans." Many of these events, or trends, led to more individual privacy inside the home; something that increased the cost of log construction.

The types of corners the builder used on log homes often depended on their experience. Square notching was the simplest method to use while diamond and half dovetail notching would have been performed by the most skilled log builders. Saddle notching and V-notching were less common in Middle Tennessee. There are several other types of notching, however, Gavin did not find them during his survey and in his data, he listed unknown for the cabins that were known to have existed, but they are no longer existing. Gavin did find a few cabins with a combination of different notches. This usually suggests that the cabin has been added to. It was not uncommon for someone to dismantle a cabin and use the materials to build an addition on to their existing cabin. Of the 134 cabins, the most popular notch that was used was the half dovetail notch. This is not surprising considering the large population of trees in the area under study, which would increase the number of experienced builders in the area. Only one diamond notch was found.

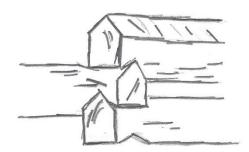
⁷Gavin. 85.

⁸Gavin, 85.

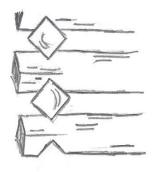
Types of Corner Notching



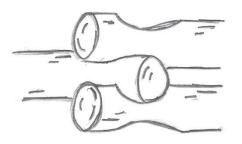
Half Dovetail



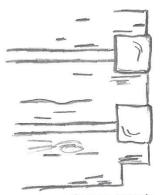
V-Notch



Diamond Notch

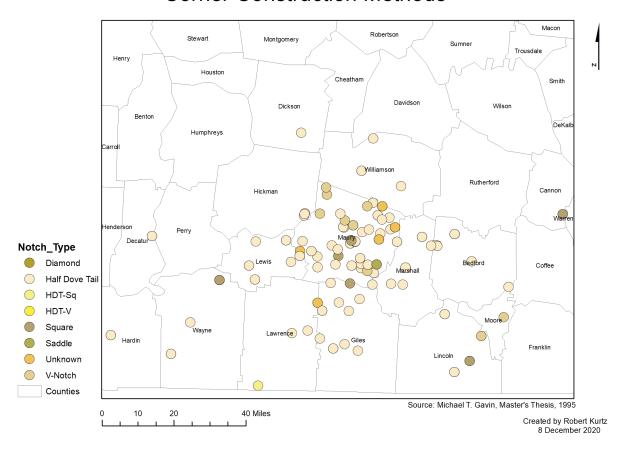


Saddle Notch

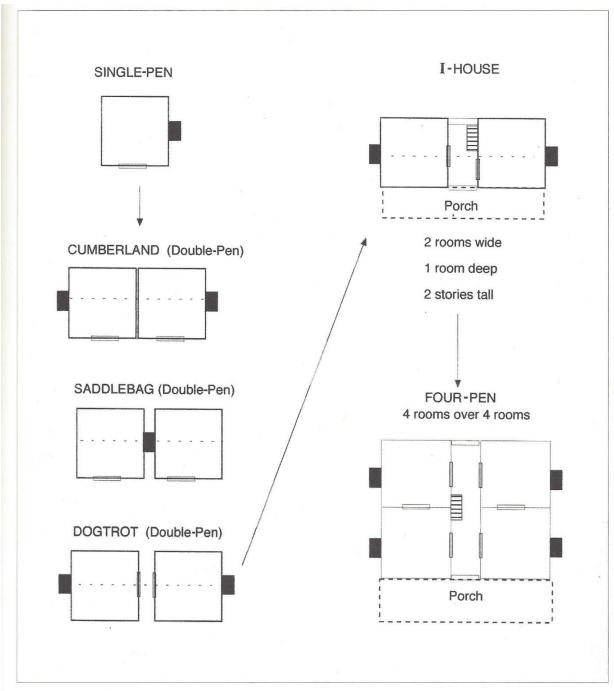


Square Notch

Corner Construction Methods



The house form and the wood species maps are in now way representative of any trend other than their current form and species during the time of the survey. Log homes are essentially puzzle pieces that can moved and manipulated without anyone ever knowing. The house form map indicates that the single pen was the most commonly built log home. Eighty-five of the 134 log homes were single pen. This could be related to cost and changing social trends, but this cannot be confirmed without primary sources to back them up considering that some of these homes could have been dismantled and moved prior to the survey. The same hold true for the larger dog trot and double pen log homes. Many of these homes may have very well been single pen homes and added to later. As John B. Rehder's illustration of the evolution of the log home



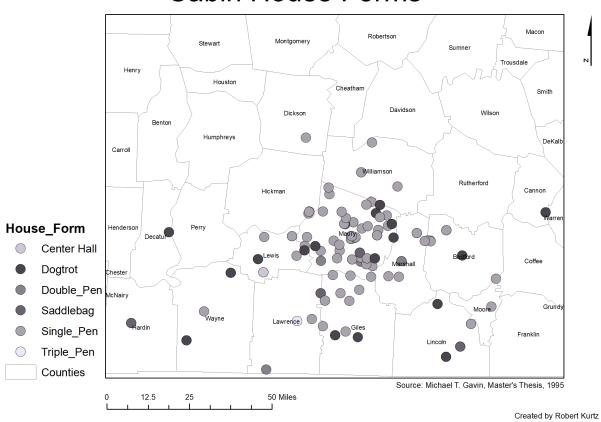
House types evolved from the single-pen to three double-pen types to the I-house and finally to the four-pen with floor plans that follow the British pen tradition. (Sources: Kniffen 1965; Jordan and Kaups 1989; Rehder 2004)

Illustration taken from John B. Rehder, Tennessee Log Homes.

suggests, it can change its form and how it is identified simply by placing two single pens next to each other. What is more interesting is that this change can take place in any direction. A portion

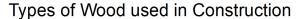
of a log home can be dismantled and moved fifty feet away changing its description and the total number of cabins. The only way to confirm these changes would be if there were two different types of notching used on one cabin, otherwise, unless the skill is extremely obvious, there is no way to tell. This creates a larger discrepancy in the following map.

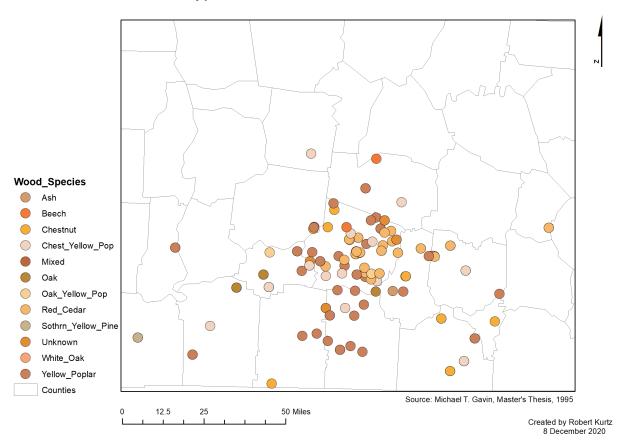
Cabin House Forms



Wood types fall under the same category as the house form. Outside sources such as cost and social changes can affect the types of woods used in the construction of a log home. The map serves no purpose other than to give a visual of log cabins and the specific types of wood used. The two most commonly used types of wood are red cedar and yellow poplar. Cedar is known for holding up much better against the elements than yellow poplar, but it is interesting that more oak trees were not used considering it is a much harder wood. Only five of the 134 log homes

used oak. Forty-four used yellow poplar and thirty-eight used red cedar. What the map does show is that there is no specific reason for using any specific species. It appears the wood that was used was abundant in the area where the settlers were going to build. The Tennessee Division of Forestry states that in southern Middle Tennessee every species of tree is known to grow, and interestingly, they do not show any cedar species at all on their list. It raises questions about what trees may have been common in the eighteenth century that no longer are.





⁹Michael D. Williams, "The All Season Pocket Guide to Identifying Common Tennessee Tress," 2005.

The use of spatiotemporal methods has raised more questions than answered them. It is not a stand-alone type of research other than creating a visual of what the author is writing about, which is very important. This study requires much more research. It also raised awareness in that it is a very time-consuming process. Maps need to be created comparing ethnic groups to notch types and as well as class to house forms. Considering that Gavin did the most of his research in Maury County is seen in the maps. However, the questions regarding house form, notch style, and types of wood used, are full of variables that might be accounted for with more research. With the lack of information from professionals that built these homes, there is little optimism on my part. Demographics would be an avenue of approach, but the variables still persist and consume the data.

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