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## The Role of Ferry Crossings in the Development of the Transportation Network in East Tennessee, 1790-1974

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To the Graduate Council:

I am submitting herewith a thesis written by Tyrel Gilce Moore Jr. entitled "The Role of Ferry Crossings in the Development of the Transportation Network in East Tennessee, 1790-1974." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Geography.

John B. Rehder, Major Professor

We have read this thesis and recommend its acceptance:

Leonard W. Brinkman Jr., Edwin H. Hammond

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

To the Graduate Council:

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John B. Rehder  
John B. Rehder, Major Professor

We have read this thesis  
and recommend its acceptance:

Leonard W. Brubaker  
Edmund H. ...

Accepted for the Council:

Hilton A. Smith  
Vice Chancellor  
Graduate Studies and Research

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THE ROLE OF FERRY CROSSINGS IN THE DEVELOPMENT  
OF THE TRANSPORTATION NETWORK IN  
EAST TENNESSEE, 1790-1974

A Thesis  
Presented for the  
Master of Science  
Degree  
The University of Tennessee

Tyrel Gilce Moore, Jr.

December 1975

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The preparation of the thesis would have been substantially more difficult without the generous assistance of those mentioned above.

## ABSTRACT

This thesis examines the role of ferry crossings in the development of East Tennessee's transportation network. Because of the number of streams in the area, ferries were widely used and this study traces their changing location and influence from the 1790's to 1974.

The study revealed that ferry crossings were among the area's earliest internal improvements and that they were the principal method of stream crossing on regularly traveled routes from the 1790's to the late 1920's. In addition to serving as a relatively reliable means of stream crossing, ferry sites took on a variety of functions during this period. Steamboat and flatboat trade flourished in the nineteenth century and ferry landings functioned as foci for commercial activity by providing connections between river and wagon transportation. Because ferry landings were convenient collection points for agricultural items marketed in the water and wagon transport system, local trading centers and country stores were often established near them. Movements of people and goods were oriented by the pattern of routes linked by ferries and their widespread use made them vital in the regional transportation system.

Ferries lost the multiple functions that they had held in the regional economy and transportation system when the automobile replaced the horse and wagon. Steam navigation declined and after

the first two decades of the twentieth century the influence of ferries was diminished. By the late 1930's, the role of ferries had been reduced and they were used on less important routes in the transportation system. Prior to the twentieth century ferries were symbols of improved transportation; in the automobile era their slowness caused them to be regarded as obsolete features of the transportation network.

In 1974 only five of the approximately one hundred which operated in the 1890's were still operational in East Tennessee. These ferries provided a savings of distance on routes of limited or local importance. The present ferries also serve as reminders of an historically important transportation system which shaped the past and present geography of the area.

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## CHAPTER I

### INTRODUCTION

#### Statement of Problem

Pioneer settlement in East Tennessee followed the area's major streams. The less hospitable nature of upland areas, such as the Cumberland Plateau, made valley situations more attractive to settlers seeking agricultural land. Valley-oriented settlement made it essential to choose methods of stream crossing. Although fording was practiced early and continued to be widely used on smaller streams, ferries became the chief method of crossing larger streams and were widely used from the 1790's through the 1930's. Ferries functioned as vital transportation linkages, reference points for travel, and sometimes contributed to the development of local trade centers.

This thesis examines the role of ferries in the development of East Tennessee's transportation network. Changes in the location, importance, and function of ferry crossings influenced and reflected the changing character of the area. In order to achieve the objectives mentioned above, an attempt is made to answer the following questions:

1. Where and when were ferries utilized for stream crossing?
2. How did their location and function change through time?
3. What do ferries reveal about the places and routes they serve?

The explanation of where, when, and why these changes took place will contribute to a fuller understanding of the area and its transportation network as they have evolved through time.

### Study Area

The area under investigation consists of the Tennessee River Basin in eastern Tennessee (see Figure 1). Tributaries considered are the Powell, Clinch, Holston, French Broad, Nolichucky, Little Tennessee, Hiwassee and Ocoee Rivers. These streams traverse the region's most densely settled areas, interrupting overland travel routes and creating a demand for numerous crossing sites.

The use of ferries in East Tennessee was comparable to that in other portions of the eastern United States. The temporal span of the ferry's importance, however, seems to have been greater in Tennessee and the rest of the South, where replacement by bridging was slower.<sup>1</sup> Inferences drawn in this study can be applied elsewhere if attention is paid to temporal aspects of settlement and transportation improvements which reflect regional differences.

### Related Geographic Research

Interest in stream crossing methods has been expressed in previous geographic studies, and some of the concepts and approaches presented in these studies were drawn upon in the formulation of this thesis.

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<sup>1</sup>Balthasar H. Meyer, ed., History of Transportation in the United States before 1860 (New York: Peter Smith, 1948), p. 50.

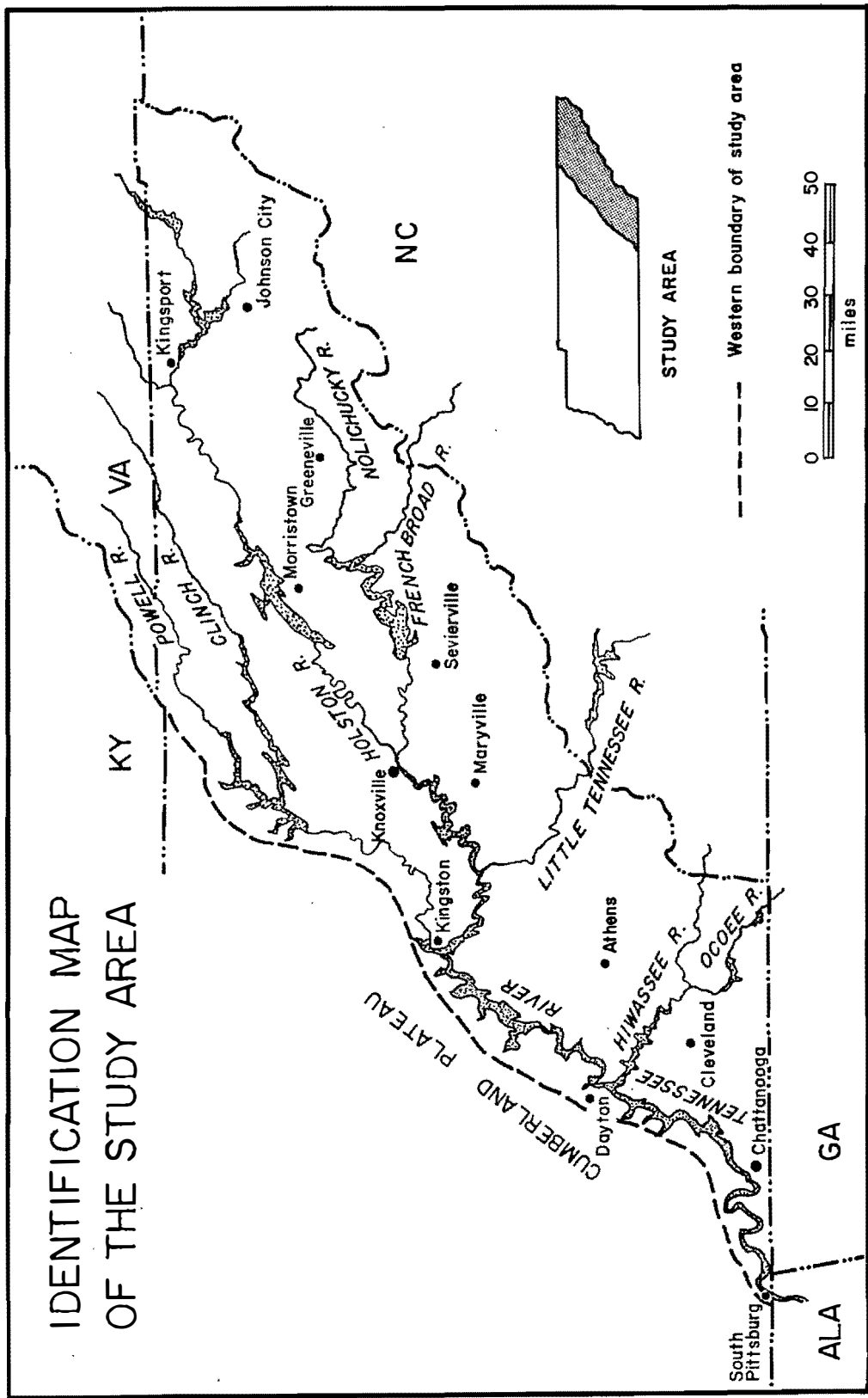


Figure 1. Identification map of the study area.

Kniffen, in his study of the American covered bridge, gave little more than casual acknowledgment to ferries. He recognized their importance prior to the Revolutionary War, and suggested that concern over the slowness of ferries was a major impetus to bridge building in New England after the war.<sup>2</sup> Despite their slowness, however, ferries continued to be important in the eastern United States for over a century after the American Revolution.

Gritzner included ferries in his survey of Louisiana waterway crossings and felt that, because of the physical and economic considerations associated with stream crossing techniques, the topic was ideally suited to geographic study.<sup>3</sup> He noted that ferries were among the earliest relatively permanent methods of stream crossing in Louisiana, and were a logical choice for that area. Prior to 1925 problems such as lack of capital and construction materials, sparse populations, and inadequate flood control systems combined to give ferries advantages over bridges. Over one hundred ferries were operational in Louisiana in 1925; only twenty-five remained by 1963. Gritzner concluded that inconvenience of crossing time was primarily responsible for the declining importance of ferries in Louisiana.<sup>4</sup>

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<sup>2</sup>Fred B. Kniffen, "The American Covered Bridge," Geographical Review, Vol. 41 (January, 1951), p. 114.

<sup>3</sup>Charles F. Gritzner, Jr., "Louisiana Waterway Crossings," Louisiana Studies, Vol. 2, Number 4 (Winter, 1963), pp. 213-214.

<sup>4</sup>Ibid., pp. 219-220.

A. J. Lamme studied ferries on the Wabash River in southern Indiana, tracing their influence in that area since the nineteenth century.<sup>5</sup> He explained their importance in the history of westward movement in the United States and viewed the surviving ferries as relicts of an historically important transportation system. In the 1800's, three major westward routes (the Buffalo Trace from Louisville to Vincennes, the Ohio River route, and the Cumberland Road from Wheeling to St. Louis) all had some type of transport interruption at or near the Wabash. During this period, ferries were practically the only means of river crossing. Even though the Wabash was bridged by 1850, ferries continued to be important carriers of local traffic.

The relationship between ferries in the Tennessee Valley and westward settlement is similar to the situation along the Wabash. Because of economic and physical factors, ferries in East Tennessee have played an equally important regional role and have contributed to the westward expansion of settlements. Their influence, although diminished like those on the Wabash, has continued to the present.

#### Method

Changes in the distribution and function of ferry crossings took place as the use of ferries rose to prominence and then declined

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<sup>5</sup>Ary J. Lamme III, "Crossing the Wabash: The Role of Ferries Since the Early Nineteenth Century," Professional Geographer, Vol. 11, Number 6 (November, 1969), pp. 401-405.

in East Tennessee. Because of the evolutionary character of ferry operations and the transportation system they served, the topic was developed as an historical geography. It also seemed desirable to treat the changing use of ferries in terms of the processes which changed the region and its transportation network.

Of the methods previously used in historical geography, the vertical theme approach was adopted, allowing one topic or theme to be considered through time. Furthermore, such an approach permitted the processes of change to be integrated into the discussion. Borchert employed similar techniques to portray geographic change through time in his "American Metropolitan Evolution."<sup>6</sup> He handled the time dimension by keying changes in urbanization with epochs of changing transportation technology.

Another applicable concept for this thesis was found in Newton's examination of routes in St. Helena Parish, Louisiana.<sup>7</sup> He viewed the route as a "cultural landform" and offered the following conceptual approach to the study of routes:

The actual localization of a route is determined by physical, cultural, historical, political, and economic factors, and the route varies sensitively as each factor changes. Conversely, variations in the route can call attention to important variations in the underlying factors.<sup>8</sup>

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<sup>6</sup>John R. Borchert, "American Metropolitan Evolution," Geographical Review, Vol. 57 (July, 1967), pp. 301-332.

<sup>7</sup>Milton B. Newton, Jr., "Route Geography and the Routes of St. Helena Parish, Louisiana," Annals of the Association of American Geographers, Vol. 60, Number 1 (March, 1970), pp. 134-152.

<sup>8</sup>Ibid., p. 134.



As an element of a route, the ferry displays a similar sensitivity to the complex of underlying factors. Temporal changes in the distribution of ferries in East Tennessee have been coincident with changes in the character of the transportation network as well as the area served by the network. Newton, like Borchert, used chronological divisions to depict the evolution of a particular geographic phenomenon, and their examples provided the basic organizational framework for this thesis.

#### Procedure and Data Sources

Research for this study consisted of two primary tasks: (1) reconstruction of past geographies of East Tennessee's ferry crossings, and (2) a discussion of their functions in the transportation network and economy of the area as these changed through time.

The initial phase of research involved compiling a series of maps of ferry crossings. The earliest of these maps was based largely on Matthew Rhea's 1832 map of Tennessee.<sup>9</sup> Rhea's map was the first to be compiled from an actual survey and is the most reliable of the area's early maps. A number of ferries were shown on the Rhea map, and it represents the only reasonably complete areal coverage of ferries to that time.

A second map was constructed from U.S. Geological Survey

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<sup>9</sup> Robert M. McBride and Owen Meredith, eds., Eastin Morris' Tennessee Gazetteer, 1834 and Matthew Rhea's Map of the State of Tennessee, 1832 (Nashville: Gazetteer Press, 1971), p. x.

thirty-minute topographic quadrangles. The quadrangles were surveyed between 1882 and 1909, with the majority being done in the late 1880's and early 1890's. These temporal differences were recognized, but it was felt that they were not great enough to distort the pattern of ferry crossings in the area as it would have appeared in the 1890's.

The area's first set of county highway maps was published between 1937 and 1939, with revisions in the early 1950's and late 1960's, and provided data for the third (1938), fourth (1953), and fifth (1974) distributional maps. U.S. Geological Survey and Tennessee Valley Authority fifteen-minute topographic quadrangles were also examined to derive data for the fourth and fifth maps.

Although these cartographic sources do not provide a wholly comparable data base, they do represent the only complete sets of maps for the area during the time period covered. Furthermore, they are well-keyed to changes in the area's transportation system and thus reflect the areal rise, prominence, and decline of ferry crossings. This feature allowed the patterns to be utilized not only for the locational changes they revealed, but also raised questions concerning the relationships between ferries and the places they served, and suggested a suitable temporal organization for the study.

On the basis of the available cartographic and historical sources, the study was organized into four time periods: (1) the emergence of ferries in the transportation system, 1790-1850, (2) the expanded use of ferries, 1850-1900, (3) the decline of the

ferry's importance, 1900-1940, and (4) the continued decline of ferry operations and the present pattern, 1940-1974.

Various historical sources were then examined to aid in the interpretation of mapped patterns, to establish the varying functional role of ferries, and to identify processes which influenced the character and spatial extent of ferry crossings. The section dealing with the emergence of the ferry as a cultural landscape element relies upon state and local histories, county court records, newspapers of the period, travelers' accounts, and historical maps. State histories and, to a lesser degree, local histories reveal the character of the area's early settlement, travel routes and conditions, and the orientation of trade patterns. Generalizations based on such sources must be carefully drawn, because comparisons between works sometimes reveal inconsistencies which limit their use and reliability. Most useful of the state histories are Abernethy's From Frontier to Plantation in Tennessee,<sup>10</sup> Phelan's History of Tennessee,<sup>11</sup> and Folmsbee's Sectionalism and Internal Improvements in Tennessee, 1796-1845.<sup>12</sup> Each is well-documented and treats the topic of transportation in depth.

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<sup>10</sup>Thomas P. Abernethy, From Frontier to Plantation in Tennessee (Chapel Hill: The University of North Carolina Press, 1932).

<sup>11</sup>James Phelan, History of Tennessee (Boston: Houghton Mifflin and Company, 1889).

<sup>12</sup>Stanley J. Folmsbee, Sectionalism and Internal Improvements in Tennessee, 1796-1845 (Knoxville: East Tennessee Historical Society, 1939).

Local histories are of mixed value. Some are poorly documented, and more are almost wholly biographical. Often, local histories must be recognized as simply presenting generalizations about parts of the study area; care must be taken to limit conclusions to the areas they cover, as they may or may not be representative of the larger study area. Exceptional among local histories is the East Tennessee Historical Society's The French Broad - Holston Country.<sup>13</sup> It provides an excellent treatment of transportation, including ferries.

County court records came into existence in the 1790's and provide a view of the operation and importance of ferries during the region's early history. The courts were responsible for granting permission to individuals wishing to operate ferries, and while reference to location is rather vague, the records do indicate that a great number of crossings were being established in the middle and late 1790's. Of additional value is the documentation of road building and maintenance, which was a local responsibility during this early period.

Editions of three of the area's early newspapers, the Knoxville Gazette, the Knoxville Register, and the Knoxville Times contain advertisements for ferries and stagecoach lines which give impressions of ferry operations and the development of travel routes.

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<sup>13</sup>Mary U. Rothrock, ed., The French Broad - Holston Country: A History of Knox County, Tennessee (Knoxville: East Tennessee Historical Society, 1946).

Travelers' accounts were also useful in characterizing the nature of the area's early transportation system. The most valuable was the report of Steiner and Schweinitz who traversed the region during 1798-99. Their travels took them down the Holston Valley as far south as the Hiwassee River, and west to the Cumberland Settlements over the Walton Road. Williams presented their account in his Early Travels in the Tennessee Country and praised their documentary as being far above the ordinary in terms of observation and expression.<sup>14</sup> These attributes made their journal, according to Williams, the most valuable account of the Cherokees and early white inhabitants. Their observations were particularly helpful because they paid close attention to the methods of stream crossings used during their journey. F. A. Michaux visited East Tennessee in 1801-02, and though his Travels Westward of the Allegheny Mountains lacked the details of the Steiner and Schweinitz report, he made useful observations on modes of transport, freight rates, and travel time between cities on the eastern seaboard and principal centers in East Tennessee.<sup>15</sup>

Interpretation of each of the accounts was aided by reference to historical maps. Place names appearing in Goodspeed's "Aboriginal

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<sup>14</sup>Samuel Cole Williams, ed., Early Travels in the Tennessee Country, 1540-1800 (Johnson City: Watauga Press, 1928), p. 447.

<sup>15</sup>F. A. Michaux, "Travels to the West of the Allegheny Mountains, 1802," Vol. III, pp. 105-306 in Early Western Travels, 1748-1846, Reuben Gold Thwaites, ed. (Cleveland: The Arthur H. Clark Co., 1904).

Map of Tennessee"<sup>16</sup> complemented the reports of Steiner and Schweinitz and Michaux and increased the utility of their commentaries, as no maps accompanied their works.

A view of the regional geography of the nineteenth century was gained from Hilliard's Hog Meat and Hoecake,<sup>17</sup> Atherton's The Southern Country Store,<sup>18</sup> and Smith's 1842 sketch of the area.<sup>19</sup> These sources give details on the nature of commerce and economic development in East Tennessee.

Another useful source is Condon's "Tennessee's Vanishing Ferries."<sup>20</sup> He presents historical sketches of the state's ferries which were in operation in 1969. His study is the only published source dealing exclusively with ferries in Tennessee and offering details found lacking in more general works. Condon's article was most valuable in substantiating information gained for the thesis through fieldwork and interviews.

Several of the previously cited state and local histories were further helpful in developing the study for the period 1850-1900.

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<sup>16</sup>Goodspeed Publishing Co., History of Tennessee (Nashville, 1887), frontispiece.

<sup>17</sup>Samuel Bowers Hilliard, Hog Meat and Hoecake: Food Supply in the Old South, 1840-1860 (Carbondale: Southern Illinois University Press, 1972).

<sup>18</sup>Lewis E. Atherton, The Southern Country Store, 1800-1860 (Baton Rouge: Louisiana State University Press, 1949).

<sup>19</sup>J. Gray Smith, A Brief Historical, Statistical, and Descriptive Review of East Tennessee, U. S. of A. (London: J. Leath, 1842).

<sup>20</sup>James E. Condon, "Tennessee's Vanishing Ferries," Pt. I and Pt. II, Tennessee Conservationist, Vol. 35 (Feb. and March, 1969), pp. 4-9 and pp. 4-10.

Additionally, Killebrew and Safford's Introduction to the Resources of Tennessee<sup>21</sup> (the first and second agricultural reports of the state) presents an excellent coverage of physical, economic, and cultural data for the area as it appeared in the early 1870's.

Bryan's Picturesque America,<sup>22</sup> a travelogue published in 1872, contains some of the more vivid descriptions of ferryboat activities in the area and was employed to demonstrate how ferries functioned within the transportation network.

In some cases, ownership of ferries became a family tradition, and a surprisingly full historical background has been passed from generation to generation. This kind of information was retrieved through interviews and yielded material which would have been otherwise inaccessible.

Some information on processes of change and the function of ferries from 1900-1940 was gained through the use of state and local histories. More pertinent data was extracted from the biennial reports published by the Tennessee Highway Department from 1922 onward. While these have an obvious public relations function, they provide reliable statistics on motor vehicle registration, expenditures, and highway and bridge construction. Transportation

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<sup>21</sup>J. B. Killebrew and J. M. Safford, Introduction to the Resources of Tennessee (Nashville: Travel, Eastman, and Howell, 1874).

<sup>22</sup>William Cullen Bryant, ed., Picturesque America, Vol. I (New York: D. Appleton and Co., 1872).

developments from 1900 are traced in History of the Tennessee Highway Department,<sup>23</sup> also published by the State Highway Department. This was useful in tying together data from the biennial reports. Circulars from the U.S. Bureau of Public Roads Office were used to supplement the sources mentioned above.

Studies by Case<sup>24</sup> in 1925 and by Amick<sup>25</sup> in 1934 gave a picture of the changing geography of East Tennessee in the 1920's and 1930's and presented information which was compared with the earlier regional economic, agricultural, and industrial patterns. Additional insights were achieved from interviews with persons who had operated ferries during the period.

Bridge construction was important news during the late 1920's, and accounts appeared in area newspapers such as the Knoxville Journal, News-Sentinel, and the Chattanooga Times. Ferries, especially those which continued to operate, also attracted the attention of the newspapers. Such material gives a view of the changing character of ferries in the automobile era. The results of these changes are emphasized in the discussion of the decade of the thirties.

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<sup>23</sup>Tennessee, State Department of Highways, Highway Planning Survey Division, History of the Tennessee Highway Department (Nashville, 1959).

<sup>24</sup>Tennessee, State Department of Education, Division of Geology, Bulletin 36, "The Valley of East Tennessee: The Adjustment of Industry to Natural Environment," by Earl C. Case (Nashville: Williams Publishing Co., 1925).

<sup>25</sup>H. C. Amick, "The Great Valley of East Tennessee," Economic Geography, Vol. X, No. 1 (January 1934), pp. 35-52.



County highway maps compiled between 1937 and 1939 provide a clear portrayal of road and highway surfaces. The relationships between ferry location and type of road proved to be a critical explanatory factor during this and later time periods. The objectives of temporal locational analysis, changing function, and importance to places served by ferries are met by interpreting the relationships which appear on the map.

Geographic change from 1940 to 1974 was examined by considering the continued effects of the rise of the automobile and its related transportation improvements. Biennial reports of the State Highway Department were again the primary data sources used. Ferry locations were also affected by the Tennessee Valley Authority's program of dam construction. To evaluate the impact of damming and reservoir establishment, a series of TVA technical reports were studied. Newspaper articles and interviews with ferry operators provided information which related to ferry operations within this period of change. Temporal mapping of ferries was compiled from county highway maps and supplemented U.S.G.S. and TVA fifteen-minute topographic quadrangles.

Presentation of the present pattern was achieved through fieldwork and interviews used to develop case studies on existing ferries. Topographic maps and county highway maps were used in conjunction with fieldwork to identify relic features associated with ferry crossings. Ferry crossings were evaluated in terms of existing function, future survival, and as remnants of a past transportation system.

The objective of this study is to explain the changing location, function, and importance of ferry crossings in East Tennessee's transportation network. It is essentially, then, a story of the rise and decline of a cultural landscape element. As a part of a greater complex of landscape features, the ferry crossing has both reflected and shaped the geography of the area, and its sensitivity to a complex of physical, political, economical, and cultural geographical factors must be considered.

## CHAPTER II

### THE EMERGENCE OF THE FERRY AS AN ELEMENT OF THE TRANSPORTATION SYSTEM, 1790-1850

East Tennessee's initial settlement and transportation patterns were strongly oriented to the area's drainage pattern. Migration followed the Holston River valley from southwest Virginia, and the valleys of the Watauga, French Broad, and Nolichucky from North Carolina. Before 1790, these routes, with the exception of the Great Holston Road from Virginia to Long Island (Kingsport) (see Figure 2), were little more than a crude system of trails and paths.<sup>1</sup> Early difficulties in the establishment and maintenance of permanent routes stemmed from the fact that settlement preceded both organized government and territorial agreements with Indian nations. Internal improvements were left to the responsibility of individual communities which lacked engineering skills and finances required to build and maintain roads.<sup>2</sup> In spite of the limitations, settlement expanded, and a rudimentary transportation system developed.

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<sup>1</sup>Balthasar H. Meyer, ed., History of Transportation in the United States before 1860 (New York: Peter Smith, 1948), pp. 27-28.

<sup>2</sup>George Rogers Taylor, The Transportation Revolution, 1815-1860 (New York: Rinehart and Company, 1951), pp. 15-17.

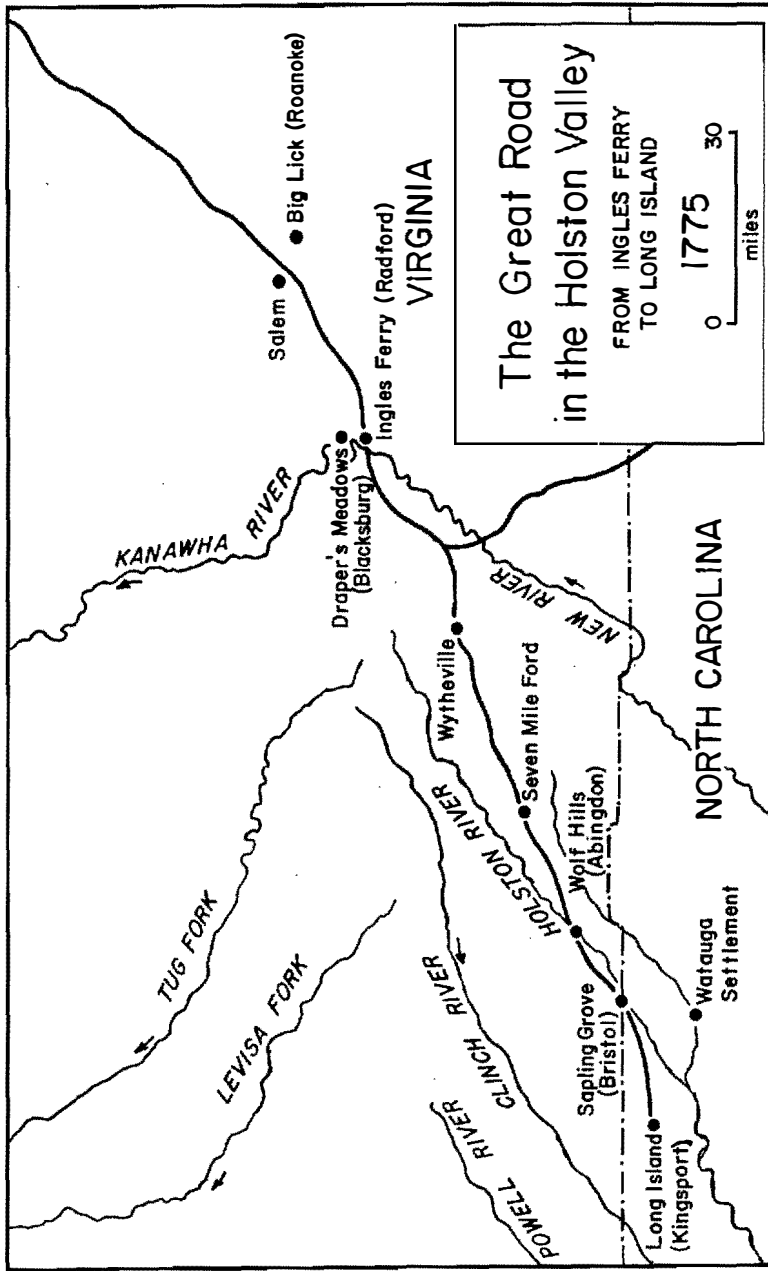


Figure 2. The Great Road in the Holston Valley.

Source: Robert L. Kincaid, The Wilderness Road, p. 69.

The tempo of settlement increased significantly after the signing of the Treaty of Holston in 1791. Provisions of the treaty not only opened more land to settlers, but gave the area an important position with regard to travel routes on an expanding frontier. Knoxville and Asheville became the centers of a developing tract of land lying between the French Broad and Little Tennessee Rivers.<sup>3</sup> Following the treaty, the Holston Route was extended to Knoxville, and the Walton Road was completed to Nashville in 1795<sup>4</sup> (see Figure 3).

As the road network became more permanent in response to established patterns of population and travel, reliable stream crossing methods became critical. With few exceptions, stream crossing methods were limited to either ferrying or fording. Bridging of the larger streams was not economically or technically feasible. Fording was uncertain and restrictive, and ferries emerged as a relatively reliable and economically expedient crossing method.

#### Locational Factors Influencing Crossing Sites

The choice between ferries and fords was based, in part, on the velocity, depth, width, and variation of flow of the streams. Greater velocity increased the difficulty and danger of ferrying and fording. Seasonal high water conditions complicated ferry operations, but rendered fords impassable, and in areas of greatest

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<sup>3</sup>Thomas P. Abernethy, From Frontier to Plantation in Tennessee (Chapel Hill: The University of North Carolina Press, 1932), pp. 154-156.

<sup>4</sup>Ibid.

## EARLY ROADS

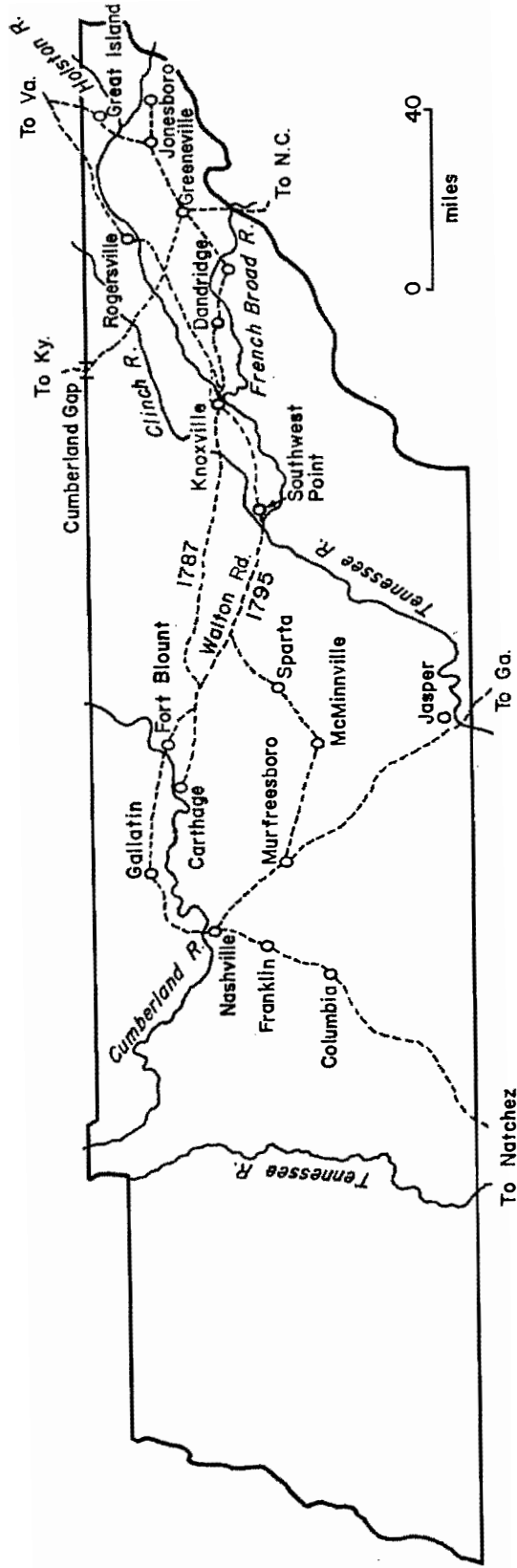


Figure 3. Early Roads in Tennessee, c. 1817.

Source: Thomas P. Abernethy, From Frontier to Plantation in Tennessee, p. 157.

fluctuation contributed to the relative impermanency of fording sites and bridging attempts.

Stream depth and the character of the stream bed were also involved in the choice between ferries and fords. Depths exceeding three feet or so limited fording, especially if the cargo were subject to damage by water. Crossing by ferry involved less risk and difficulty for horse and wagon teams and offered a more reliable method than fording. Newton observed that fording might be attempted only under certain restricted conditions--preferably where a shallow, moderately wide stream with firm, low banks flowed over sand and gravel beds.<sup>5</sup> The main body of the Tennessee, from Knoxville to Chattanooga, and the wider portions of its tributaries, consisted of a series of deep pools separated by shoals.<sup>6</sup> Although some places were shallow enough to be forded, the width and roughness of the shoals became prohibiting factors.

Excepting water depth which prohibited fording, physical considerations were usually secondary to cultural and economic factors in the location of ferries and fords. Fording adequately met demands on routes serving thinly populated areas where commercial patterns were poorly developed. The establishment of ferries was one of the earliest internal improvements on the area's more

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<sup>5</sup>Milton B. Newton, Jr., "Route Geography and the Routes of St. Helena Parish, Louisiana," Annals of the Association of American Geographers, Vol. 60, Number 1 (March 1970), p. 139.

<sup>6</sup>J. Haden Alldredge, et al., A History of Navigation on The Tennessee River System (Washington: U.S. Government Printing Office, 1937), p. 66.

regularly travelled and commercially significant routes, and occurred in more densely settled areas.

#### Operating Characteristics of Ferries

Ferries were privately operated, subject to permission and regulation of the county courts.<sup>7</sup> Ferry operations and the type of boat used differed according to variations in stream depth, stream width, and the nature of the traffic carried. Travelers on foot might simply cross by row boat, but the large, flat-bottomed ferry boat became most common.<sup>8</sup> The early Pinhook Ferry, shown in Figure 4, is a typical example of the type of ferry boat used on the Tennessee River in the late eighteenth century. During low water periods, the boats were either "set across" by using poles to push off the stream bed, or by an overhead rope or cable and pulley system which propelled the ferry to the opposite bank. At sites where the stream current permitted, cables were used to guide the raft at an angle to the stream, and the boat was allowed to drift downstream to the opposite landing.<sup>9</sup> Crossing was a problem at high water and was accomplished by additional manpower using oars.

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<sup>7</sup> Edward Scott, Laws of the State of Tennessee Including Those of North Carolina Now in Force in This State from the Year 1715 to the Year 1820, Inclusive (Knoxville: Heiskell and Brown, 1821), p. 818.

<sup>8</sup> Seymour Dunbar, A History of Travel in America (Indianapolis: Bobbs-Merrill Company, 1915), p. 109.

<sup>9</sup> Interview with Wilson Nance, owner and operator of Nance's Ferry, August 23, 1974.



Toll rates reflected the difficulty of high water crossings. Rates established for a ferry at Knoxville were doubled when depth exceeded six feet, and when water was over twelve feet, rates were left to the discretion of the ferryman.<sup>10</sup>

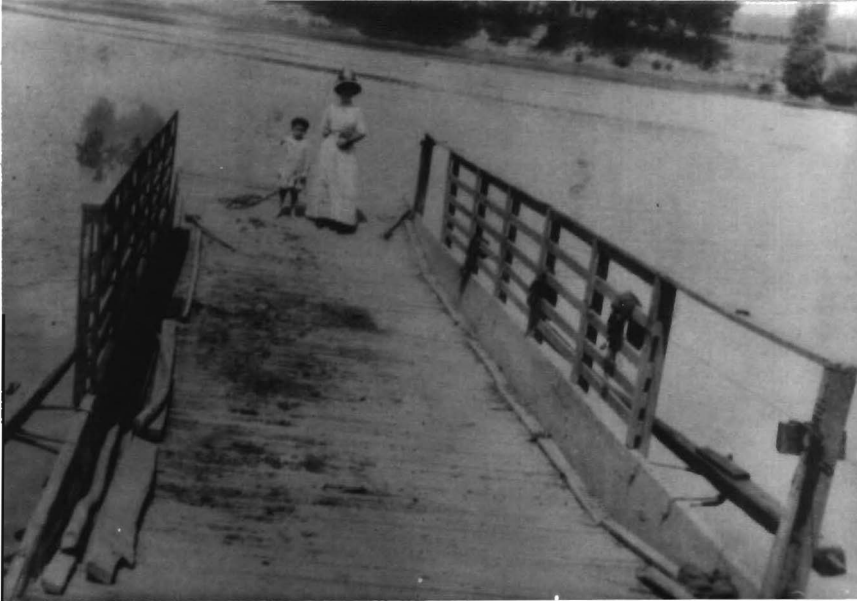


Figure 4. The Pinhook Ferry as it appeared in the nineteenth century. (Photograph courtesy of Mrs. J. Howard Hornsby, Decatur, Tennessee.)

Though these ferries appear to be rather crude, they were well adapted to the demands of the early transportation system. Travel was slow, and manufacturing and marketing centers were distant. Despite the network of wagon roads constructed in the

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<sup>10</sup>Knox County Court, Minute Book 16, 1839, pp. 398-399.

1790's (see Figure 3, p. 20), difficulties in overland travel placed East Tennessee at tremendous locational and economic disadvantages. From the beginning, trade in the Tennessee Valley took on a northeastward orientation. The northeast orientation of trade had been partially molded by physiography which limited access into the area and by the location of distant manufacturing centers. Steiner and Schweinitz, during their stay in Knoxville in 1799, reported that almost all trade was carried on with Baltimore and Philadelphia.<sup>11</sup> In 1801 Michaux estimated the travel time to be 20-24 miles per day for the 600-mile wagon routes from Baltimore to Knoxville. An almost singular dependence on overland transport not only increased travel time, but also inhibited competition which could have lowered transport costs. Freight rates for that time were \$120-\$140 per ton.<sup>12</sup>

The regional transport system further suffered from the lack of a concerted effort toward road building and internal improvements. In these early years, the state government did not have the tax base necessary for assuming financial responsibility for internal improvements. Road building was carried on at the county level

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<sup>11</sup>Samuel Cole Williams, ed., "Report of Steiner and de Schweinitz," Early Travels in the Tennessee Country (Johnson City: Watauga Press, 1928), p. 455.

<sup>12</sup>F. A. Michaux, "Travels to the West of the Allegheny Mountains, 1802," Vol. III, pp. 105-306 in Early Western Travels, 1748-1846, Reuben Gold Thwaites, ed. (Cleveland: The Arthur H. Clark Co., 1904), p. 266.

and resulted in a system of routes which varied in quality from county to county.<sup>13</sup>

### The Functional Role of Ferries

Early ferry crossings were more than simply convenient places to cross a river. Many provided additional services important to travel and the regional economy.

Ferry sites were used as overnight stops and supply stations. Ingles' Ferry in southwestern Virginia (the present site of Radford) served as an embarkation and outfitting point for journeys down the Holston Valley to Tennessee (see Figure 2, p. 18). The ferry had been in continuous service since 1762,<sup>14</sup> and because of its situation on a major migration route to both Kentucky (via the Wilderness Road) and Tennessee, played an important role in the growth of population and trade in East Tennessee by providing a linkage on the most important route between East Tennessee and Baltimore.

In 1795 McBee's Ferry, a major crossing on the southern leg of the Holston Route (see Figure 5), placed the following advertisement with the Knoxville Gazette: "Travellers may be supplied, on the lowest terms, with liquors, corn, oats, and fodder. . ."<sup>15</sup> These accommodations improved travel conditions

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<sup>13</sup> Stanley J. Folmsbee, Sectionalism and Internal Improvements in Tennessee, 1796-1845 (Knoxville: East Tennessee Historical Society, 1939), p. 38.

<sup>14</sup> Robert L. Kincaid, The Wilderness Road (Indianapolis: Bobbs-Merrill Company, 1947), p. 25.

<sup>15</sup> Knoxville Gazette, Feb. 3, 1795.

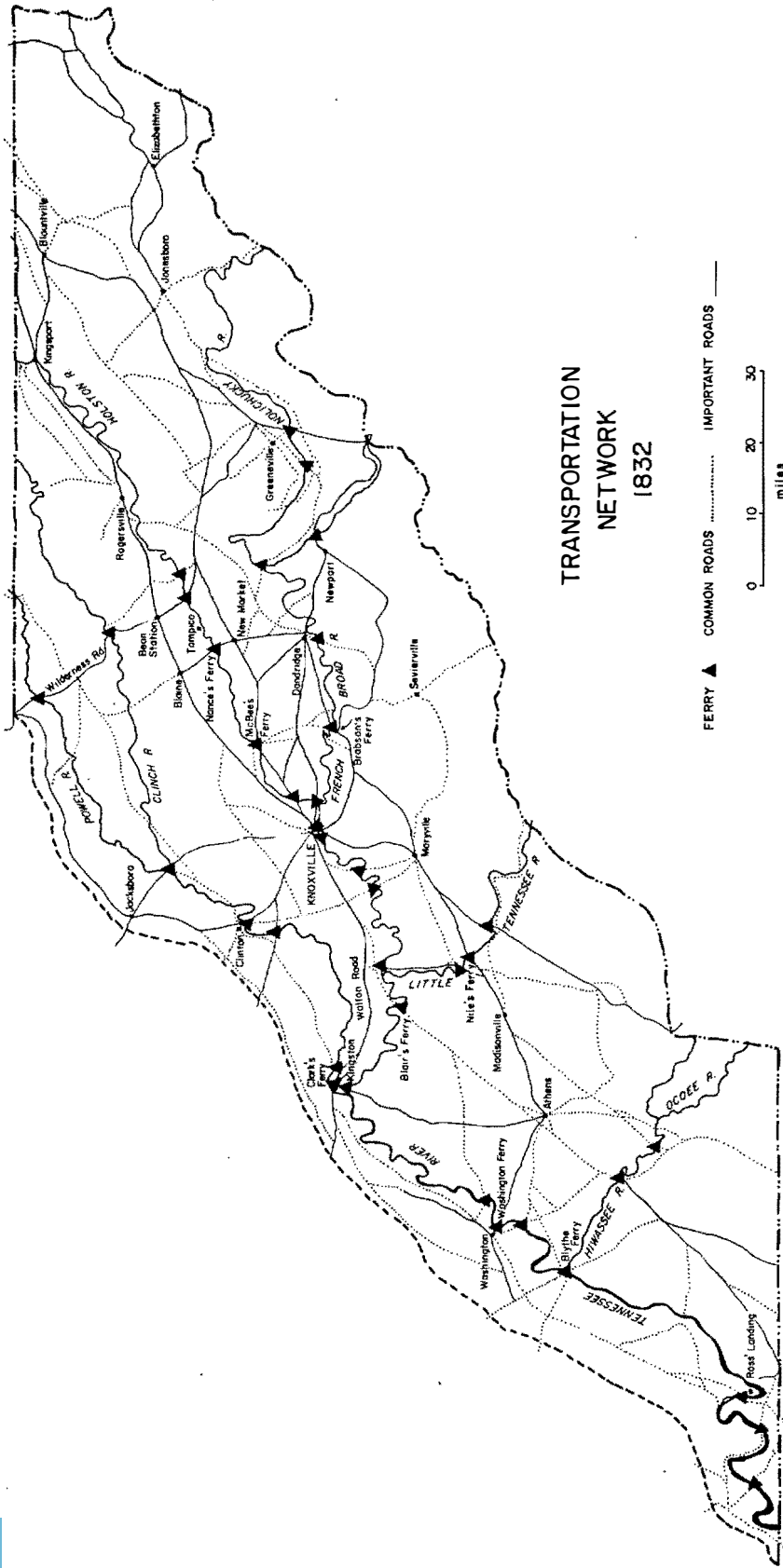


Figure 5. Transportation Network, 1832.

Source: Rhea's Map of Tennessee, 1832.

and established a market for local agricultural commodities.

Similar arrangements were found at Clark's Ferry near Southwest Point (Kingston) where the major route from Knoxville to Nashville crossed the Clinch River (see Figure 5). The ferry house, which was also an inn operated by the ferry owner, was the last supply point before the road continued west across the Cumberland Plateau. Toll rates of 12 1/2¢ for a single horseman and one dollar for a loaded wagon drawn by four or five horses often provided the ferryman with a twenty dollar per day income in 1799, which gives an indication of the amount of traffic along the route.<sup>16</sup> The successful operation of Clark's Ferry is an example of the significance of ferries on busier roads. A ford, passable for about eight months of the year, was located upstream from the ferry but did not discourage the ferry's use.<sup>17</sup>

Another ferry of extra-regional importance, Niles Ferry, on the Little Tennessee River, was the northern terminus of the federal road from Georgia.<sup>18</sup> By provision of the Treaty of Holston, the ferry was maintained as a route through the Cherokee nation to New Orleans. Wagons loaded with salt and bacon from southwestern Virginia also used this crossing to reach Atlanta markets.<sup>19</sup>

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<sup>16</sup>Williams, *op. cit.*, pp. 501-502.

<sup>17</sup>Samuel Cole Williams, ed., "The Executive Journal of John Sevier," East Tennessee Historical Society Publication, Number 6, 1934, pp. 107-108.

<sup>18</sup>John H. Goff, "Retracing the Old Federal Road," The Emory University Quarterly, Vol. VI, No. 3 (Oct. 1950), pp. 167-171.

<sup>19</sup>Knoxville News-Sentinel, July 30, 1929.

Because of their strategic locations, ferry crossing sites became centers for local commerce. At least two ferry sites provided the nuclei of what were to become significant settlements. A ferry, flatboat landing, and warehouse were established in 1815 by John Ross on the Tennessee River near Moccasin Bend. This rather unimpressive community, known as Ross' Landing (see Figure 5), immediately became a center of trade between whites and the Cherokee nation.<sup>20</sup> The ferry subsequently served the western arm of the Federal Road from northwest Georgia to Nashville.<sup>21</sup> Ross' Landing was the beginning of vigorous regional commercial activity that evolved into the city of Chattanooga.

At a smaller scale, Blair's Ferry, established on the Tennessee River in 1819 provided a nucleus for the development of the city of Loudon. The ferry was situated on a major north-south thoroughfare which gave the settlement a sizeable economic importance.<sup>22</sup>

By the 1830's, a system of overland routes had been established, and the fixing of ferry crossing sites constituted a significant portion of the area's internal improvement. With the exception of the Ocoee, which was in Indian territory, each of the streams in the study area created interruptions on major land routes through the region. A number of these routes had extra-regional significance,

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<sup>20</sup> Gilbert E. Govan and James W. Livingood, The Chattanooga Country 1540-1951 (New York: E. P. Dutton and Co., Inc., 1952), pp. 77-78.

<sup>21</sup> Goff, op. cit., pp. 159-170.

<sup>22</sup> Knoxville News-Sentinel, Feb. 9, 1947.

and ferry crossings became important connections on them (see Figure 5, p. 26). The Wilderness Road between Bean Station and Cumberland Gap was served by ferries on the Clinch and Powell. These same streams were also crossed by ferry on roads leading to Kentucky from Knoxville. The crossing at Kingston was of great importance because it served the famous Walton Road connecting Knoxville and Nashville. Two ferries were established near Washington, on the Tennessee. The town was a significant crossroads between Middle and East Tennessee during the ante-bellum period. Crossings on the Little Tennessee served the primary transportation corridor down the Great Valley of East Tennessee. Near Knoxville and further east along the French Broad, the wagon road from North Carolina required ferry service. The ferry boat, then, was essential on major arteries of the transport network, since it provided a reliable alternative to fording, and allowed streams to be crossed at points too deep for fording. In this respect, ferries made travel easier and improved communications at both regional and extra-regional levels.

The area's population increased from 28,000 in 1790 to 174,000 in 1830, and was concentrated in the Holston, French Broad, and Nolichucky Valleys.<sup>23</sup> These same valleys were the areal focus of a developing agrarian economy based on corn and swine production.<sup>24</sup>

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<sup>23</sup>U.S. Bureau of the Census, Census of Population, Eleventh Census, 1890.

<sup>24</sup>J. Gray Smith, A Brief Historical, Statistical, and Descriptive Review of East Tennessee, U.S. of A. (London: J. Leath, 1842), pp. 25-27.

Most of the exported corn crop left the region on the hoof and was driven down the Tennessee and French Broad Rivers to southern markets.<sup>25</sup> A number of the rural inhabitants, however, concentrated on general farming oriented toward frontier-like self-sufficiency, and their surpluses entered local trade for staples such as coffee, sugar, salt, and to a lesser degree, manufactures. In exchange for these items, horses, mules, hogs, bacon, lard, flour, dried fruits, and feathers constituted the area's marketable staples. At least some of these commodities were sent by wagon to South Carolina, Georgia, and Alabama.<sup>26</sup> This trade was regionally significant, if not sizeable, and much of it was carried on through local country stores.<sup>27</sup> The pattern of commerce that evolved under the marketing systems mentioned above increased the importance of ferries in the regional transportation network.

Around 1830, a new era of commercial development came to East Tennessee with the arrival of the steamboat. As late as 1832, the traditional pattern of trade with Baltimore and Philadelphia remained costly in time and money. The average round trip by wagon took 50-60 days, and freight rates averaged \$90 per ton.<sup>28</sup> In an

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<sup>25</sup>Sam Bowers Hilliard, Hog Meat and Hoecake: Food Supply in the Old South, 1840-1860 (Carbondale: Southern Illinois University Press, 1972), pp. 193-194.

<sup>26</sup>Smith, op. cit., p. 2.

<sup>27</sup>Hilliard, op. cit., pp. 186-187.

<sup>28</sup>Twenty-second Congress, 1st Session, House Document 104 (Washington: U.S. Government Printing Office, 1831), p. 22.



attempt to overcome these handicaps, regular steamboat service was established between Kingston and Chattanooga. Routes extended up the Clinch to Clinton, on the French Broad to Dandridge, and on a more limited basis, up the Holston to Tampico.<sup>29</sup> Flatboats and keelboats had been used during high water periods on the Tennessee and its tributaries for a number of years, and their use was renewed with the advent of steam navigation.<sup>30</sup>

The transportation of agricultural commodities overland and by flatboat to steamboat landings became a common practice in the 1830's and 40's. Two features of ferry crossing sites gave them a significant position in this regional commodity flow. By providing access to water routes, they became trans-shipment points for down-river flatboat traffic,<sup>31</sup> and ferry landings located on steamboat routes were potential steamboat landings.<sup>32</sup>

The country store continued to be pivotal in the system of commerce and, when linked with water routes by ferries, sometimes became the final destination of river cargoes. A store established

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<sup>29</sup> Donald Davidson, The Tennessee, Volume I: The Old River: Frontier to Secession (New York: Rinehart and Company, Inc., 1946), pp. 160-162.

<sup>30</sup> Folmsbee, op. cit., p. 11.

<sup>31</sup> Interview with Wilson Nance, owner and operator of Nance's Ferry, August 23, 1974.

<sup>32</sup> Interviews with Mr. Sam Breeden, Knoxville, July and August, 1975. Mr. Breeden, an engineer with the State Highway Department in the 1920's and 30's, has given considerable study to the history of steamboating in East Tennessee.

in 1833 at Shield's Station near Blaine (see Figure 5, p. 26) received the bulk of its merchandise by steamboats which came up the Holston from Knoxville. These supplies were transferred from boats to wagons at Nance's Ferry and hauled a short distance to the store.<sup>33</sup> The ferry also served as a staging area for agricultural products marketed in Knoxville via steamboats and flatboats.<sup>34</sup> As will be seen, ferries continued to hold these functions well into the twentieth century.

Overland routes also became more important for passenger travel, and a number of stagecoach lines were operational in the late 1830's. Regular service on routes along both sides of the Holston River was provided between Knoxville and Kingsport three times per week. Reliable stage and mail service also existed between Greeneville, Tennessee, and Asheville, North Carolina.<sup>35</sup> The reliability of ferries made them the preferred stream crossing method on these and other heavily traveled routes. An example of the relative ease of crossing by ferry can be seen in a traveler's account of a trip from Knoxville to Cumberland Gap in 1839. In explaining his choice of crossing the Clinch by ferrying instead of fording, John Trautwine, a noted engineer, remarked that, "A person well-acquainted with the ford may cross without danger, but

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<sup>33</sup> Frank L. Teuton, Steamboating on the Upper Tennessee (Morlow Heights: South Capitol Press, 1975), p. 11.

<sup>34</sup> Interview with Mr. Wilson Nance, August 23, 1974.

<sup>35</sup> Knoxville Register, February 14, 1838.

the uneven, rocky bottom renders it truly hazardous to the uninitiated." Although Trautwine stated that the average depth at the ford was only eighteen inches, and the river was 75-100 yards wide, he continued on to a ferry where he crossed without further comment.<sup>36</sup>

Ferries had become an integral part of the transportation network on both land and water systems and were enjoying a thriving business. In 1848 Brabson's Ferry, on the French Broad near Sevierville, for example, realized profits in excess of \$1,000 from toll rates set at 10¢ for a man on foot, 15¢ for a horse and rider, and 25¢ for a wagon and team.<sup>37</sup> In the last half of the nineteenth century, ferryboats were even more widely used and their functions of greater significance in an expanding regional economy.

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<sup>36</sup>Knoxville Times, May 24, 1839.

<sup>37</sup>Sevier County News Record, January 14, 1971.

## CHAPTER III

### THE EXPANDED USE OF FERRIES, 1850-1900

The variety of functions that ferry crossings had assumed prior to 1850 remained important during the latter half of the nineteenth century. Two events occurred early in this period to bring about modifications in the pattern and operation of ferries. One, the coming of railroads, exerted long-term influences. On the other hand, the Civil War acted to briefly interrupt transportation improvements and to preserve the system of regional trade which had evolved during the ante-bellum period.

Expensive overland travel, seasonality of river traffic on the upper Tennessee tributaries, and distance to extra-regional markets had been lingering sources of concern which encouraged railway construction in East Tennessee. Although railway development attracted the bulk of attention given to internal improvements, a wholesale restructuring of commodity flows did not immediately occur. At first, railroads were not competitive for local traffic and brought as much business to river boats as they took away. The steamboat lines began to experience the effects of divided traffic when the East Tennessee and Georgia Railroad was finally completed from Chattanooga to Knoxville in 1856. Passengers first responded to the railway's greater speed, and much of the through

freight traffic between the two cities was later diverted to the rails.<sup>1</sup>

The position of ferries changed little during the establishment of the rail system. However, Blair's Ferry, at Loudon, temporarily increased its business because of rail passenger traffic. For three years before the East Tennessee and Georgia Railroad was completed to Knoxville, Loudon was the northern terminus of the route. Travelers arriving by rail at Loudon were ferried across the Tennessee to make stagecoach connections for the final portion of their trip to Knoxville.<sup>2</sup>

The plans for a railroad through East Tennessee had been initiated in the late 1830's and finally became a reality in 1858. In that year, the East Tennessee and Virginia line from Knoxville to Bristol was linked with the East Tennessee and Georgia from Knoxville to Macon, Georgia, at Knoxville. The long sought after connections with both the lower South and eastern cities of Baltimore and Philadelphia were achieved.<sup>3</sup> Water transportation had made an important contribution to the functional role of ferry crossings, and competition from railroads had the potential to reduce the

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<sup>1</sup>T. J. Campbell, The Upper Tennessee (Chattanooga; T. J. Campbell Publishing Co., 1932), p. 43.

<sup>2</sup>Arthur Fowler, Beloved Landmarks of Loudon County, Tennessee (Loudon: Hiwassee Chapter, Daughters of the American Revolution, 1962), p. 14.

<sup>3</sup>James W. Holland, "The East Tennessee and Georgia Railroad, 1836-1860," East Tennessee Historical Society Publication, No. 3 (January, 1931), p. 106.

significance of ferries. The effects of the Civil War, however, were to delay the impact of rail transport in the area and rejuvenate river boat traffic.

### The Effects of the Civil War on the Regional Economy and Transportation

During the war, both armies traversed almost the entire length of the region and either interrupted production or consumed most of the area's crops and livestock. In the spring of 1864, travelers commented on the scarcity of livestock, the empty-looking barns, and the rarity of hogs and poultry. Wheat sowings were only five to ten percent of the pre-war average, and corn, the region's primary crop, reached no more than twenty percent of the usual acreage and yield.<sup>4</sup>

Transportation experienced interruptions of similar proportions. The railroad to Chattanooga was not reopened until December 1864.<sup>5</sup> By the end of the war, the Tennessee River had returned to a natural condition--only two military bridges, one at Knoxville and one at Chattanooga, remained over the river. Ferry boats were gone, either burned or captured.<sup>6</sup> Stream crossings had to be reorganized, much as they had been in the 1790's. The economic

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<sup>4</sup>James B. Campbell, "East Tennessee During the Federal Occupation, 1863-1865," East Tennessee Historical Society Publication, No. 19 (1947), pp. 70-73.

<sup>5</sup>Ibid., p. 74.

<sup>6</sup>Donald Davidson, The Tennessee, Volume II; The New River: Civil War to TVA (New York: Rinehart and Co., Inc., 1946), p. 162.

and technical simplicity of the ferry again made it an expedient alternative to bridge construction. The bridges at Knoxville and Chattanooga were lost in the flood of 1867,<sup>7</sup> exemplifying the difficulty of establishing and maintaining long spans across the area's wider streams. Neither bridge was deemed important enough to be rebuilt during the years immediately following the war. The following description of a ferry at Chattanooga in 1870 or 71 provides a view of economic priorities during the period, and illustrates the importance of ferry service in the area's transportation network:

There was once a fine bridge across the Tennessee, at Chattanooga, but it fell a victim to a great flood a few years ago [1867]. The Chattanoogaians (sic) have been so busy since erecting new warehouses, new railroad-depots, and new hotels, that they have forgotten the piers of masonry in the river-bed, which in grim solitude seem to utter a protest against their neglect. Not that we, searchers for the picturesque, would have had it otherwise — for a bridge would have deprived . . . us . . . of one of the quaintest ferries in the country. . . . It is a rope-ferry, having for motive-power the river-current. . . . A long rope from the ferry-boat, supported at regular intervals on poles resting on small flat-boats, is attached, several hundred feet up-stream, to an island in mid-water. The boat thus secured is pushed from the shore, when it begins to catch the force of the current, . . . the boat is swiftly propelled on the arc of a circle across the stream. . . . The groups upon its decks were striking. There were sportsmen with a great following of dogs, horsemen, . . . vehicles, and groups of cattle, . . . On the opposite shore, as we drew near, were visible great numbers of waiting horsemen and

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<sup>7</sup> David E. Donley, "The Flood of March, 1867, in the Tennessee River," East Tennessee Historical Society Publication No. 8 (1936), p. 84.

cattle, giving evidence of the active business of the ferry, and emphasizing the wonder that the bridge has not been restored.<sup>8</sup>

The writer, O. B. Bunce, further observed that great numbers of cattle and other livestock crossed the ferry into Chattanooga, and that near the ferry landing, flat boats from the Clinch and Powell Rivers delivered corn, wheat, and bacon to be marketed in the South from the trading center at Chattanooga.<sup>9</sup> Bunce's narrative is interesting in a number of respects. His account of the ferry operation reveals that little attention was given to transportation improvements other than the railroads. Ferries continued to be connectors within the road network and quietly resumed the functional roles they had attained in the 1830's. He viewed the ferry as a quaint Southern institution, outdated by bridging elsewhere in the Eastern U.S. Bunce's editor, William Cullen Bryant, had sent him to seek the picturesque and exceptional. The ferry boat was, however, neither quaint nor exceptional to East Tennesseans, and retained a prominent role in the area's transportation and economy.

#### The Revival of Transportation and Trade, 1870-1900

The regional economy had become more diverse, but continued to be agrarian. A strong dependence on corn persisted, but a growing emphasis on hay and small grains, especially wheat and oats, was

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<sup>8</sup>O. B. Bunce, "Lookout Mountain and the Tennessee," in William Cullen Bryant's Picturesque America Vol. I (New York: D. Appleton and Company, 1872), pp. 62-63.

<sup>9</sup>Ibid., p. 69.



a significant trend of the period. Production of cattle and hogs, plus the reliance on draft animals in agriculture and transportation, caused livestock and livestock-oriented crops to enter both regional and extra-regional markets.

Manufacturing patterns had also developed. Textile mills were established in Kingsport, Knoxville, Loudon, and Chattanooga and became locally important. Although Knoxville and Chattanooga were noted for diversity of manufactures, most heavy industries, such as railway rolling stock and foundaries, were located in Chattanooga.<sup>10</sup>

Knoxville was more prominent as a wholesaling and distribution center, but it shared some of these activities with Chattanooga. Country stores assumed new importance as distribution points for merchandise from the two cities.<sup>11</sup> The earlier system of trade between the farmer and the country store remained in effect. A typical exchange would involve a trade of feathers, eggs, chickens, and dried fruit for items such as calico, sugar, salt, and coffee. After being collected in considerable quantities, the farm products would be shipped to places such as Knoxville and enter into regional commerce much as they had in the 1830's and 40's.<sup>12</sup>

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<sup>10</sup>J. B. Killebrew and J. M. Safford, Introduction to the Resources of Tennessee (Nashville: Travel, Eastman, and Howell, 1874), pp. 526-527, 565.

<sup>11</sup>Thomas D. Clark, "The Country Store in Post-Civil War Tennessee," East Tennessee Historical Society Publication, No. 17 (1945), p. 4.

<sup>12</sup>Killebrew and Safford, op. cit., p. 354.

A clear example of this renewed pattern of trade may be seen in the operation of the ferry and store at Pinhook Landing on the Tennessee River. The crossing site, established before 1857, connected Spring City and Decatur (see Figure 6), and was one of a number of steamboat landings on the runs between Chattanooga and Knoxville. The site also served as a warehousing point for shipments of local agricultural products and for distribution of merchandise from Knoxville and Chattanooga.<sup>13</sup>

Further indications of economic revival in the 1870's are suggested by the number of transportation modes being used at the time. Horse and wagon, flatboats, steamboats, and railroads all shared in the area's commerce. Each mode operated at different economic scales, and their integration with ferry crossings varied geographically over the region.

Flatboats were forced to rely on high water periods and were most used on the upper courses of the Clinch, Powell, Holston, and Little Tennessee Rivers. Ferry landings, such as Nance's Ferry on the Holston, and Niles' Ferry on the Little Tennessee, were useful places for collecting farm products to be marketed in Knoxville and Loudon.<sup>14</sup> By 1873, it was estimated that annual traffic amounted to 250 boat-loads, with corn, hay, bacon, and

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<sup>13</sup> Interview with Mr. and Mrs. J. Howard Hornsby, last owners of the Pinhook Ferry, September 7, 1974.

<sup>14</sup> Mayme Parrott Wood, Hitch-hiking along the Holston River, 1792-1962 (Gatlinburg: Brazos Printing Company), pp. 37-38.

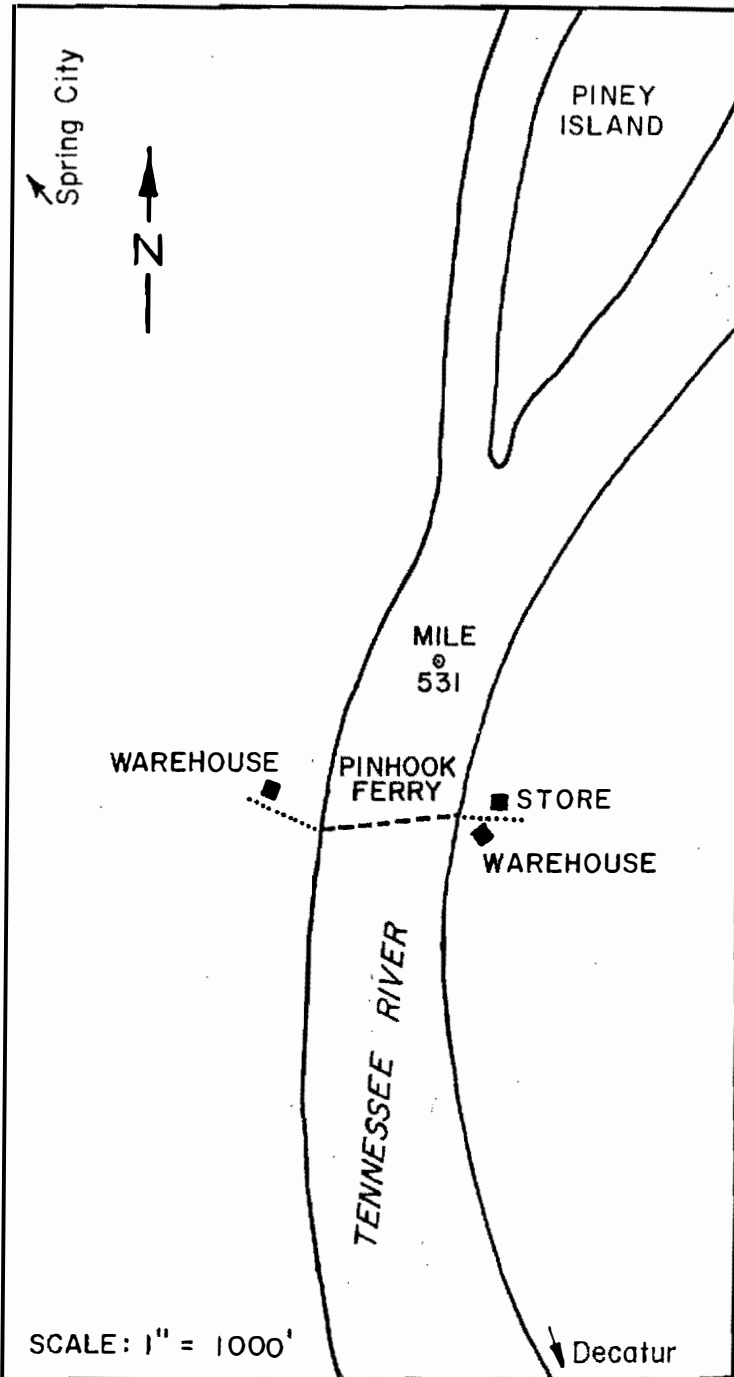


Figure 6. The Pinhook Ferry Crossing and Related Trade Facilities.

Source: Burnett and Coverdale, An Archaeological and Historic Survey of the Watts Bar Steam Plant Fly Ash Disposal Pond Extension.

wheat making up the primary cargoes.<sup>15</sup> This type of activity was carried on mostly by individual farmers at scales of operation which could not bear the expense of extended wagon or rail transport.<sup>16</sup>

The characteristics of trade between steamboats and ferry crossings on the Tennessee River have been mentioned and the commercial patterns that developed in the 1830's on the Holston, French Broad, and Clinch Rivers continued to be important. Agricultural products still provided most of the trade, as illustrated by the 1871 manifest of a steamer arriving in Knoxville from Bryant's Ferry on the French Broad in Sevier County (see Figure 7). The cargo, which was described as typical, consisted of: 11 sacks of corn, 80 sacks of flour, 26 sacks of potatoes, 8 sacks of bran, 64 sacks of oats, 100 pounds of bacon, 6 cans of lard, "a lot of feathers and chairs," and some peach butter.<sup>17</sup> Although the ubiquitous country store was not mentioned in this particular instance, the quantity of goods received at the ferry suggests that some system of collecting goods prior to shipment was in effect. More important, however, is the ferry's focal role in the transportation pattern.

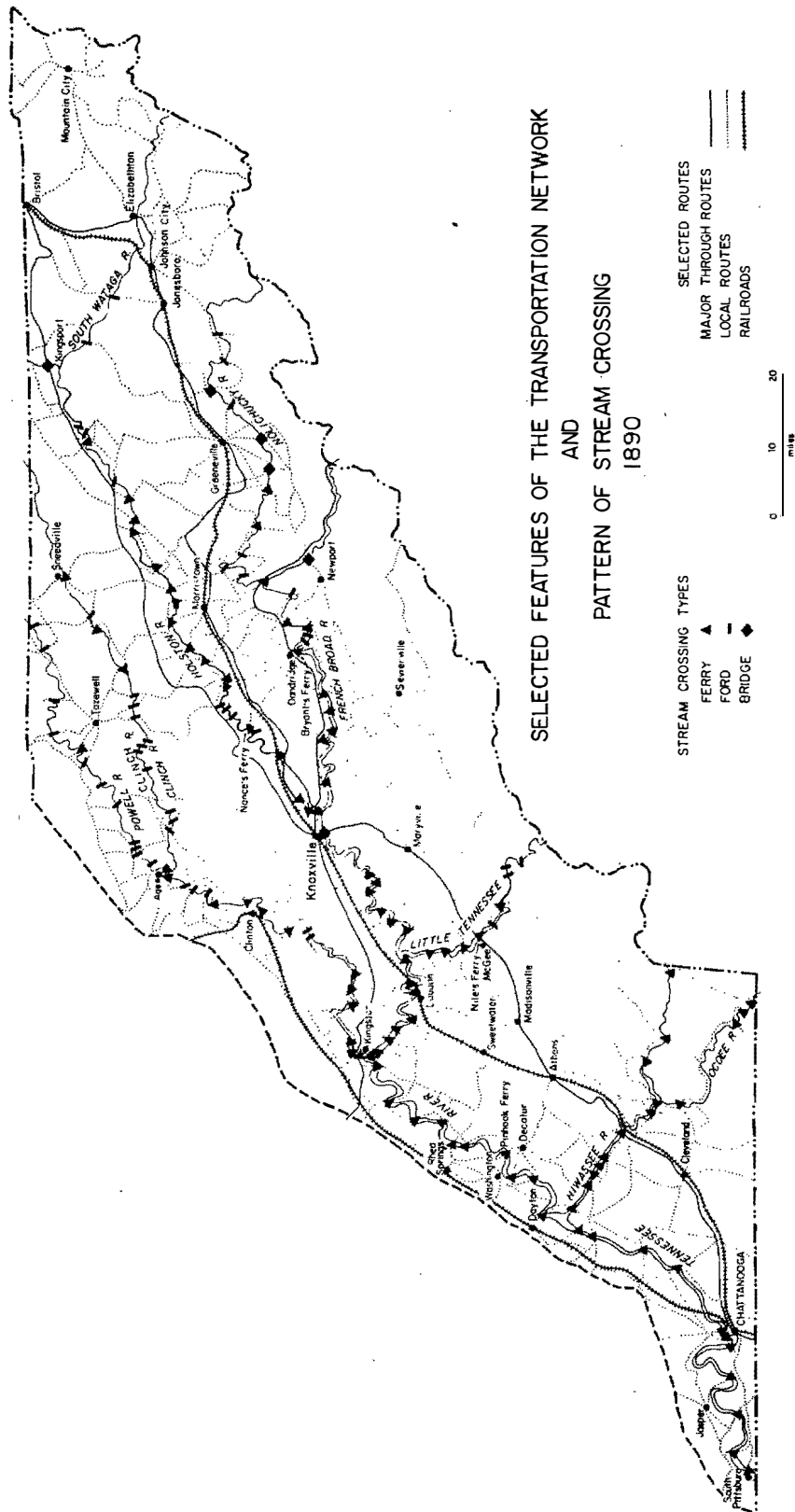
Railroads were oriented toward a different economic and geographic level of operation. By 1872, the East Tennessee and Virginia Railroad had been re-opened between Bristol and Chattanooga, thus re-establishing extra-regional connections with the northeastern

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<sup>15</sup>Killebrew and Safford, *op. cit.*, p. 285.

<sup>16</sup>Bunce, *op. cit.*, p. 69.

<sup>17</sup>*Knoxville Daily Chronicle*, Sept. 9, 1871.



SELECTED FEATURES OF THE TRANSPORTATION NETWORK  
AND  
PATTERN OF STREAM CROSSING  
1890

STREAM CROSSING TYPES  
 FERRY ▲  
 FORD —  
 BRIDGE ◆

SELECTED ROUTES  
 MAJOR THROUGH ROUTES  
 LOCAL ROUTES  
 RAILROADS

Figure 7. Selected Features of the Transportation Network and Pattern of Stream Crossing, 1890.  
 Source: U.S.G.S. Thirty Minute Quadrangles; Surveys taken 1882-1901.

and southern United States.<sup>18</sup>

The agricultural economy was stimulated by railways which traversed the region's most productive agricultural areas. Jonesboro, Rogersville, Morristown, Knoxville, Loudon, and Athens became leading centers for shipments to southern markets. Corn, wheat, and oats were the principal grains going by rail, and Morristown and Knoxville were centers for shipping of cattle, hogs, poultry, and horses.<sup>19</sup> Marketing and processing of pork products was carried on at Knoxville.<sup>20</sup>

Horse and wagon remained the principal mover of goods and people in areas adjacent to rail and water transport. The commonplace nature of traffic on the system of wagon roads has produced a scant body of documentary information. Contemporary maps do, however, reveal some relationships which aid in understanding the significance of the road network. Travel by horse and wagon over unimproved roads was slow and distance was critical. To alleviate this problem, the most direct routes between settlements were chosen. The pattern of roads which resulted from this decision was rather dense, and a great number of stream crossings were necessary within the network.

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<sup>18</sup> Killebrew and Safford, op. cit., p. 326.

<sup>19</sup> Ibid., p. 329-330.

<sup>20</sup> Mary U. Rothrock, ed., The French Broad-Holston Country: A History of Knox County, Tennessee (Knoxville: East Tennessee Historical Society, 1946), p. 196.

One example of the kind of local importance held by ferries and wagon roads is represented in a farmer's use of Rice's Ferry on the Clinch River in Union County. After learning of a rise in prices at an Andersonville store in December, 1887, the farmer had decided to sell twenty bushels of corn. Crossing at the ferry afforded him access to the most immediate market for his surplus and increased his profit by reducing transportation cost through a savings of distance.<sup>21</sup> Local marketing on this scale was probably quite common, but there are few documented examples.

#### Description and Analysis of the Distribution of Stream Crossings in the 1890's

During the final decade of the nineteenth century, stream crossing sites were more numerous than at any other time in the region's history. The chief method of stream crossing in this period was the ferry boat, and approximately one-hundred operated in the area (see Figure 7). With the exception of railroads, the same modes of transport had facilitated communication and trade prior to 1850. The demands placed on the transportation system had changed, however, and one adjustment to the patterns of population and economic growth was the increase in the density of ferry crossings. Ferries were used where water depths prohibited fording, but their distribution

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<sup>21</sup>John Rice Irwin, The Story of Marcellus Moss Rice and His Big Valley Kinsmen (Montevallo: The Times Printing Co., 1963), pp. 57-58.

was keyed to areas of greater demand, while fording was more acceptable on less used routes.

Figure 7 shows the distribution of stream crossings in the transportation network of the 1890's. The occurrence of established fording sites reflects both the physical and cultural geography of the area. With the exception of a few sites on the Little Tennessee River, fording was not practiced on the river system south of Knoxville. Water depths and the character of stream beds in this portion of East Tennessee apparently ruled out safe fording. Fords were widely used on the upper tributaries and were concentrated on the Powell and Clinch. Patterns of population and agriculture were less developed in these valleys, thus less demand for a more reliable type of crossing existed. Fords were located at points on the Holston and Nolichucky Rivers but were of minor importance in the transportation system since they were primarily oriented to small farming communities and presumably supported only local traffic.

While ferry locations sometimes occurred as an alternative to fording because of physical conditions, the fact that they were privately established in anticipation of profits from tolls suggests that most were related to routes that were either locally or regionally significant. On the Clinch and Powell, north of Clinton, ferries served the more traveled routes through Tazewell and Sneedville and the crossroad at Agee (see Figure 7). Ferries became more numerous south of Clinton, and the crossing just west of Kingston continued its long-standing extra-regional prominence as a link on the major western route from Knoxville to Nashville.



The crossings on the Tennessee between Kingston and Knoxville served primarily local requirements, with the exception of the upper ferry at Loudon, which handled traffic on a major north-south route through the region. Ferries on the Little Tennessee supported similar travel demands, with the ferry near McGee serving the primary route connecting Maryville, Madisonville, and Athens, which had become a major north-south artery of both regional and extra-regional significance.

Ferries were numerous south of Kingston on the Tennessee River, where stream width and depth made fording impractical. As previously mentioned, these crossing sites were also actively involved in the pattern of steamboat trade between Kingston and Chattanooga. The ferries also fit into the pattern of rail transportation and provided small river communities with connections to the larger trading centers, such as Dayton, Sweetwater, Athens, and Madisonville. The density of crossings thinned north of Chattanooga, because traffic flows in that area crossed the river after reaching the city. Ferries west of Chattanooga to South Pittsburg linked routes oriented to Chattanooga and those crossing the Cumberland Plateau toward Murfreesboro and Nashville.

Interruptions in north-south routes occurred along the Hiwassee, and ferry boats were used extensively for both through and local traffic. On the Hiwassee's main tributary, the Ocoee, ferries were evidently used for access to agricultural lands, for the area was thinly populated, and the routes did not connect concentrated centers of population.

Many small settlements were located in the Holston Valley, and the two most important routes through East Tennessee flanked the river for the greater part of its course. Access to either of these routes which converged at Knoxville could be gained by crossing the Holston at various points via the local feeder roads. A substantial agricultural district was located in the Holston Valley, and ferries linked farming communities with the rail route from Knoxville to Bristol at Morristown, which had become a center for rail shipment of agricultural products. Steam navigation was more limited here than on the other major tributaries, and rail transport provided an important outlet for the valley's produce, although some steamboat trade was carried on with Knoxville.

Ferries on the French Broad did not differ appreciably from that of the Holston in function. Ferry landings were less numerous here but again served feeder routes to the primary road from Knoxville to North Carolina, which roughly paralleled the river. An extension of the road went north into upper East Tennessee, and ferries on the Nolichucky linked feeders to that route. River traffic between Knoxville and Dandridge increased the value of ferries in the agricultural marketing scheme, and enhanced their local role in travel and commerce.

If the area's few bridges had anything approaching a concentration, it occurred on the Nolichucky. The stream was relatively narrow, and bridge construction involved less capital outlay and engineering knowledge. Settlement was greater northeast of the river, creating a demand for permanent crossing methods. The area

around Greenville was prosperous, and communication was obviously well developed. Outside of the Nolichucky basin, only Knoxville and Kingsport were served by bridges on the road system.

Ferries, however, adequately served the demands of horse and wagon transport and the predominantly agrarian society. They contributed to travel and communication by breaking down isolation in an area where land routes were frequently interrupted by rivers. The ferry boat had also provided functions vital in the pattern of the regional economy and trade. This prominent position would eventually be lost in the automobile age of the twentieth century, but the important roles that ferries assumed had done much to shape the regional geography of the eighteenth and nineteenth centuries.

## CHAPTER IV

### DECLINE OF THE FERRY'S PROMINENCE, 1900-1940

A number of forces combined to alter the distribution of ferries and change their role as transportation elements during the first four decades of the twentieth century. Unlike the preceding century, transportation improvements in the 1900's made ferry crossings less advantageous within the system of highways and roads. The demise of the ferry did not occur immediately; nineteenth century systems of trade survived beyond the turn of the century, and the processes which diminished the prominence of ferries evolved slowly.

#### Survival of 19th Century Trading Patterns

By 1904, only 802 of the area's 14,752 miles of public roads were improved (i.e., surfaced with gravel or stone).<sup>1</sup> The poor quality of these wagon and stage roads was a product of insufficient expenditures and the lack of regional road improvement programs. Furthermore, most of the attention and finances allocated to internal improvements had focused on railway construction, and in

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<sup>1</sup>U.S., Department of Agriculture, Office of Public Roads, Circular Number 48, Public Roads of Tennessee: Mileage and Expenditures, 1904 (Washington: U.S. Government Printing Office, May 10, 1906), pp. 2-3.

some areas improvement of county roads was actually discouraged by the bonding and building of railroads.<sup>2</sup> Within the transportation network, railroads and wagon roads operated at different scales; the former were of great importance to the regional and extra-regional economy, while the latter were vital in integrating the local economy with the regional economy.

At the local and regional scales, steamboat traffic remained as an element in the marketing of agricultural items until roads became more efficient. As late as 1918, the steamer N. H. Holbert was making two trips a week up the French Broad from Knoxville to Dandridge. Grocery and farm supplies from Knoxville were delivered at ferry landings, while corn, hay, wheat, and livestock were taken on during the return from Dandridge. The Holston River was used to a lesser degree, but commerce on the Tennessee between Knoxville and Chattanooga continued to be fairly active.<sup>3</sup>

Ferry crossings on the Tennessee River also held locally significant social functions during this period. From 1906 to 1926, the Joe Wheeler made day-long excursions on the Tennessee between Cottonport Ferry and the Knott community, just west of Decatur. These cruises usually began around the 4th of July and continued through mid-September. The Cottonport, Washington, Eaves,

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<sup>2</sup>Oliver Taylor, Historic Sullivan (Bristol: The King Printing Co., 1909), p. 232.

<sup>3</sup>Interview with Capt. John M. Thomas, Knoxville, Sept. 12, 1975. Capt. Thomas was a steamboat pilot from 1914-1965, and his experience on the Tennessee system extended from the French Broad and Holston to Paducah, Kentucky.

and Pinhook ferry landings were regular stops where passengers were taken aboard.<sup>4</sup>

Such operations were remnants of the multiple functions which had characterized ferry operations prior to the twentieth century. The passing of the horse and wagon and the steamboat were a part of the process of change associated with the rise of automobile traffic and extensive highway improvement. With these developments, ferries were relegated to their initial function of providing a means for stream crossing. In order to assess the ferry's position in the changing transportation system, it is necessary to consider the forces which contributed to the decline in the number and function of ferry crossings.

#### Influence of the Automobile, Federal Aid, and Highway Improvements

Prior to the twentieth century, state-wide plans for highway improvements were ineffective. Some programs had been initiated by the state legislature, but implementation remained a county responsibility. The relationship of the state in an organizing role and the county in an active role was evident as late as 1913. In that year, counties were authorized to issue bonds for road construction and levy special taxes for maintenance on roads

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<sup>4</sup>Interview with Mr. Sam Breeden, Sept. 11, 1975.

built through bond appropriations.<sup>5</sup> This legislative action represented the first effective arrangements for financial support of highway improvements. A more important political development occurred in 1915, when the state highway department was formed. Creation of the department was necessary so that Tennessee would be eligible for benefits of the Federal Aid Road Act initiated in the following year.<sup>6</sup>

Impetus for these legislative measures was derived from demands created by tremendous numerical increases in motor vehicles. In 1900, there were only forty vehicles in the state. By 1913 the number of motor vehicle registrations in the state had risen to 14,830, and reached 102,000 by 1920.<sup>7</sup> The type of traffic changed dramatically as the automobile replaced the horse and wagon. By the 1920's, animal-drawn traffic on the state highway system had decreased to the negligible proportions indicated below in Table 1. The shift in modes of transport required highway improvements which would allow the network of highways and roads to accommodate a fundamentally different set of weight and density criteria. Federal aid allocations were an essential supplement to state money expended

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<sup>5</sup>Tennessee, State Department of Highways and Public Works, Report of the State Highway Commissioner of Tennessee: For the Biennium Ending June 30, 1930, January 1, 1931, p. 17.

<sup>6</sup>Tennessee, State Department of Highways, Highway Planning Survey Division, History of the Tennessee Highway Department (Nashville, 1959), p. 23.

<sup>7</sup>Ibid., pp. 16-21.

TABLE 1  
 Percentage of Traffic by Vehicle Type,  
 For the Years 1916 and 1922\*

Year	Autos	Trucks	Wagons	Buggies
1916	36.8	7.4	32.4	23.4
1922	73.7	15.9	6.8	3.6

\*Source: Tennessee State Department of Highways and Public Works, Report of the State Highway Commissioner of Tennessee: For the Biennium Ending June 30, 1928, January, 1929, p. 27.

toward meeting these new demands. State revenues came primarily from registration fees and gasoline taxes which were introduced in 1919 and 1923.<sup>8</sup> With these monetary sources, a vigorous program of highway expansion was developed.

Reduced travel time accompanied highway improvements, and this feature influenced ferry operations. Speed limitations varied with the type of road surface: dirt roads - 10 miles per hour; poor gravel roads - 20 miles per hour; good gravel roads - 25 miles per hour; and two-lane paved roads - 40 miles per hour.<sup>9</sup>

<sup>8</sup>Tennessee, State Department of Highways and Public Works, Report of the State Highway Commissioner of Tennessee: For the Biennium Ending June 30, 1932, January 2, 1933, p. 23.

<sup>9</sup>Charles A. Thornton, "The Role of Transportation (1790-1962): Implications in the Decentralization and Centralization of the Wholesaling Function in Selected Cities of East Tennessee" (unpublished Doctoral dissertation, University of Tennessee, 1970), p. 264.



These variations affected the ferry's compatibility within the transportation network. Prior to improved road surfaces, travel was slow, even by automobile, and the waiting time for ferries represented only a slight delay within the total travel time. As paved roads appeared, motorists became accustomed to greater speeds and shorter travel times from place to place, and the delay involved in ferriage became more annoying. While a fifteen to thirty minute delay for stream crossing may have represented a welcome rest stop in the horse and wagon era, this kind of interruption was not compatible with rapid modes of transportation.

Replacement of ferries by bridges became a major goal of the highway department, and routes which generated enough traffic to justify expenditures for paving were primary choices for bridging.

In an effort to realize this goal, the 1927 State Legislature authorized the construction of sixteen special toll bridges, and the 1929 Legislature increased the number to twenty.<sup>10</sup> Nine of the twenty projects were located in East Tennessee. The State Highway Commissioner's Report for 1930 pointed out that a ferry was in operation at each toll bridge site. The report continued by stating that, ". . . those who have crossed on ferries know from experience that it is unsatisfactory, both from the standpoint of danger involved,

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<sup>10</sup>Tennessee, State Department of Highways and Public Works, Report of the State Highway Commissioner of Tennessee: For the Biennium Ending June 30, 1930, January 1, 1931, p. 18.

and from the fact that when the river is high, approaches to the ferry are under water and traffic is hampered or completely stopped."<sup>11</sup>

Ferries were further criticized by the Commissioner on the basis that while ferry and toll bridge rates were practically equal during normal river levels, ferrymen asked unreasonable prices during high water periods. Toll bridge rates, on the other hand, were the same year round, regardless of the weather or water level.<sup>12</sup>

Toll bridges did not always immediately displace ferries. Two ferries in East Tennessee, Blair's Ferry at Loudon and Niles' Ferry at Vonore, continued to operate on routes bridged by the special projects and offered effective competition. Both of the ferries were located on major north-south routes and had enjoyed a flourishing business. Traffic across Blair's Ferry averaged 600 vehicles per day,<sup>13</sup> and its income for 1927 was estimated at \$100,000.<sup>14</sup> Toll rates for the bridge were established at 25¢ per car plus 5¢ for each passenger. When the bridge was opened in 1929, the ferry set its toll at 20¢ per car, regardless of the number of passengers. A toll bridge was opened at Niles' Ferry in the same year, and tolls for the bridge and ferry were identical to the arrangement at Loudon.<sup>15</sup>

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<sup>11</sup>Ibid., p. 91.

<sup>12</sup>Ibid., p. 92.

<sup>13</sup>Chattanooga Times, August 4, 1929.

<sup>14</sup>Knoxville Journal, November 25, 1928.

<sup>15</sup>Knoxville News-Sentinel, February 9, 1947.

The competition offered by ferries was great enough to command the attention of the highway commissioner. His 1932 report suggested that ferries had realized increased income because of state expenditures on the highway system. The Loudon ferry was used as an example in the commissioner's report. According to the commissioner, the ferry had achieved financial success as a result of highway improvement, and its earnings were out of proportion to operating expenses. He added that the state should be protected against the "unfair and unsafe" competition of ferries.<sup>16</sup> The bridge did take some business from the ferry, but after the first year of competition, the ferry still had revenues in excess of \$73,500.<sup>17</sup> By 1931, income at the ferry had dwindled to \$28,000,<sup>18</sup> probably more because of the Depression than bridge competition. At that time, however, a deficit of \$300,000 had been incurred by the state toll bridge system, and ferries were blamed for the loss of state revenue.<sup>19</sup>

Paving of highways accompanied bridge building. Selection of routes to be improved was generally determined by the volume of traffic generated, and areas of greatest demand received first attention. Under this policy, significant progress was made

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<sup>16</sup> Tennessee, State Department of Highways and Public Works, Report of the State Highway Commissioner of Tennessee: For the Biennium Ending June 30, 1932, January 2, 1933, pp. 108-109.

<sup>17</sup> Knoxville News-Sentinel, February 9, 1947.

<sup>18</sup> Ibid.

<sup>19</sup> Tennessee, State Department of Highways and Public Works, Report of the State Highway Commissioner of Tennessee: For the Biennium Ending June 30, 1936, January 4, 1937, p. 32.

toward replacing dirt and gravel road mileages on the state system (Table 2). The improvements illustrated in Table 2 were made only on routes within the state highway system.

TABLE 2  
State Highway Mileage in East Tennessee\*

Year	Paved	Earth, gravel, stone, or chert
1928	471.8	1,025.2
1930	645.4	968.5
1936	729.7	664.1

\*Compiled by the author from biennial reports of the Commissioner, State Highway Department, 1928, 1930, and 1936.

The process of improving rural roads was much slower. Each county had large mileages of trails and wagon roads on which few improvements had ever been made. Furthermore, much work at the county level had been done without consideration of location and drainage because of the demand for passable roads. As a consequence, in a number of counties, the network of roads was simply too large to be properly built and maintained with the funds available.<sup>20</sup>

<sup>20</sup>Tennessee, State Department of Highways and Public Works, Report of the State Highway Commissioner of Tennessee: For the Biennium Ending June 30, 1936, January 4, 1937, p. 96.

These problems combined with the changing structure of the regional economy to make the ferry a more rural phenomenon than it had been in the past.

Geographic studies by Case in 1925<sup>21</sup> and Amick in 1934<sup>22</sup> revealed changes in the area's economy, but both classified the region as an agricultural district. Corn continued in its century-long role as the leading cash crop. Greater acreages were now being devoted to hay and wheat which pointed to more diversified agricultural practices. Cattle and hogs held their previous position in the livestock economy, but the use and breeding of draft animals was giving way to competition from trucks and tractors. Patterns of population and industry, however, had given rise to a shift in agriculture. Dairying and truck farming had become increasingly important near the larger cities and towns, and the attraction of factory wages had introduced the part-time farmer into the agricultural scheme.<sup>23</sup> The part-time farmer also had a place in breaking down the economic system which had focused on the country store. In the course of commuting to work, he became accustomed to doing most of his shopping in the larger towns. A re-orientation of commerce

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<sup>21</sup>Tennessee, State Department of Education, Division of Geology, Bulletin 36, "The Valley of East Tennessee: The Adjustment of Industry to Natural Environment," by Earl C. Case (Nashville: Williams Publishing Co., 1925).

<sup>22</sup>H. C. Amick, "The Great Valley of East Tennessee," Economic Geography, Vol. X, No. 1 (January 1934), pp. 35-52.

<sup>23</sup>Ibid., pp. 44-51.

occurred with highway improvements and automobile travel so that access to larger centers was easier, and the importance of the country store was diminished.

Urban areas also grew because of industrial expansion. The region's abundant water resources and hydro power had attracted the aluminum industry to Alcoa, and textile industries had expanded in response to cheap power and labor. The area was more industrialized, Chattanooga and Knoxville having benefited most from industrial growth.<sup>24</sup> This pattern of growth focused attention on urban areas, which gained political and economic prominence at the expense of rural areas.

#### Operating Characteristics and Functions of Ferries

Successful ferry operations involved a greater investment during the automobile era. Ferries used in the period of horse and wagon transport were little more than elaborate rafts which relied primarily on man power. Both the operational characteristics and the character of the ferry changed with the widespread use of internal combustion engines. Figure 8 depicts the motorized Pinhook Ferry operating at this time. Most of the Tennessee River ferries were now guided across by tugs powered by automobile or marine engines.<sup>25</sup> This not only increased the ease of crossing, but also

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<sup>24</sup> Ibid., pp. 49-50.

<sup>25</sup> Interview with Mr. Reeves, operator of South Pittsburg Ferry, September 17, 1974.



Figure 8. The Pinhook Ferry as it appeared in the 1920's.  
(Photograph courtesy of Mrs. J. Howard Hornsby, Decatur, Tennessee.)

allowed ferries to speed up their operation, which had become criticized for slowness in the automobile era.

Ferry owners who were able to make the transition to motor power adjusted their operations to automobile traffic and continued lucrative businesses. Reference to the success of Blair's Ferry at Loudon has been made. Although the lower toll rate at the ferry was significant in the scheme of competition, two ten-horsepower

tugs were added to the boat in 1929 and allowed it to operate more efficiently.<sup>26</sup>

The Pinhook Ferry, near Decatur, enjoyed its greatest business in the 1920's and '30's. The ferry had long been an important crossing and adopted the gasoline engine earlier than its competitors. Until the late 1930's, strawberries were the principal cash crop in the area served by the ferry. An important production area was located in Meigs County, east of the Tennessee River, and shipping by rail to Cincinnati markets took place west of the river at Spring City. During the season, the ferry experienced a thriving business as the strawberries were taken by truck to the rail connection across the river.<sup>27</sup>

The service provided by these ferries exemplifies the functional change which had taken place with the introduction of the automobile era. Although ferries remained as vital links in the transportation system, only the function of stream crossing continued to be significant to the region and its economic structure.

#### The Distribution of Ferry Operations, 1938

By 1938, the number of ferries had been reduced by almost sixty percent; only thirty-nine of the nearly one-hundred ferries

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<sup>26</sup> Chattanooga Times, August 4, 1929.

<sup>27</sup> Interviews with Mr. and Mrs. J. Howard Hornsby, September 1974, and Mr. Sam L. Breeden, August 1975.



of 1890 remained operational (see Figure 9). The number of bridges had increased ten-fold and represented a more efficient crossing technique. In some locations, one bridge handled the same traffic that previously had been served by two or three ferries.

The relationship between paving and bridging was characteristic of the transportation network in 1938 and helps explain the persistent use and location of ferries at that time. Major routes had been considered important enough to be included in the state highway system. Each of these routes had been paved and bridged so that ferries no longer functioned as vital linkages on major arteries. Two notable exceptions existed: Blair's Ferry and Niles' Ferry. Both continued to compete with state toll bridges. Nevertheless, travelers on these routes no longer had to rely on ferries as the sole crossing method.

Although the coincidence of ferry crossings on gravel roads suggests lesser importance, the network of relatively unimproved routes was significant to communication within the region. Ferries continued to play a vital role in rural areas, especially where wide streams had to be crossed. Some bridges were built on rural gravel roads, but tended to be situated on narrow streams, particularly the Nolichucky, where shorter spans incurred lower construction costs and involved fewer engineering problems. Where bridges spanned larger streams, the number of crossing sites was reduced. The bridges across the Holston help to explain the decline in numbers of ferry crossings along its course. These crossings functioned

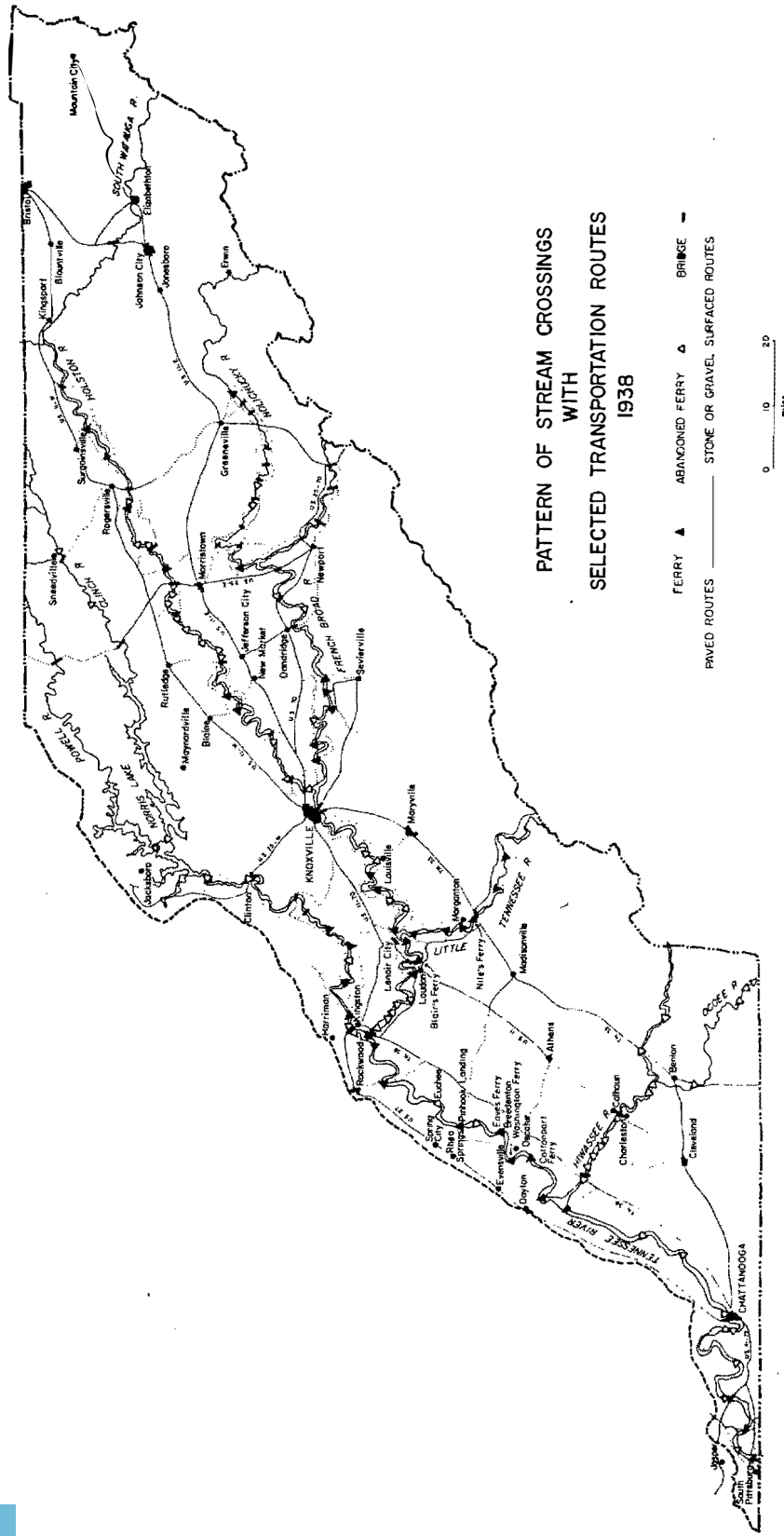


Figure 9. Pattern of Stream Crossings with Selected Transportation Routes, 1938.

Source: Tennessee State Highway Department, County Highway Maps, editions of 1937, 1938, and 1939.

as they had in the 1890's, as local feeders to the major routes now designated as U.S. Routes 11W and 11E which traverse the Holston Valley.

The French Broad ferries had also declined, but those remaining continued to serve small population centers and provide rural access to U.S. Highway 70E. County highway maps also show that ownership of ferry operations in Knox County had changed from private to public control. The two ferries east of Knoxville were operated by the county and were toll free.

The number and distribution of ferries on the Little Tennessee River changed least. The special toll bridge constructed on the highway between Maryville and Madisonville had failed to discourage the use of Niles' Ferry at that site. One ferry had been added to the pattern at a crossing which had formerly been forded. With the exception of Niles' Ferry, each landing served poor gravel routes. This uniformity of road conditions was similar to the nineteenth century situation, and with respect to transportation demands, places in this area had changed little.

Ferries on the main course of the Tennessee River had declined in number by nearly 50 percent. Toll bridges had replaced ferries south of Kingston on Tennessee Highway 58, and near Hale's Bar Dam, west of Chattanooga. A bridge had absorbed traffic formerly handled by two ferries at Chattanooga. The Euchee and McElwee Ferries, located between Kingston and Decatur, had gone out of business in the 1930's because they no longer carried enough traffic to make

their operation profitable.<sup>28</sup> It seems likely that similar circumstances prevailed at other landing sites.

On the Hiwassee and Ocoee, bridges had completely replaced ferries. County highway maps also reveal that a large area below the mouth of the Hiwassee had passed into government ownership in order to establish reservoir boundaries for the Chickamauga Dam. Three ferry landings had been located within the reservoir boundaries, and inundation suspended their operation. The Ocoee area had also become public land as a part of the Cherokee National Forest.

The pattern of crossings on the Clinch and Powell was modified by the creation of Norris Reservoir in 1936. Agee, a small settlement at the confluence of the two rivers which had been the focus for two ferry crossings in the 1890's, was inundated. The dam itself provided a new crossing on the Clinch, and bridges were also built further downstream. Reservoir establishment would have a great impact on the regional geography during the 1940's, and the character and location of ferry operations would become significantly modified.

#### Comparative Function of Ferries, 1890 and 1938

By 1938, ferries lost the functions and significance they had held in the 1890's. The advent of motor traffic led to transportation improvements which rendered the ferry obsolete and diminished its

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<sup>28</sup>Interview with Mr. and Mrs. J. Howard Hornsby, last owners of the Pinhook Ferry, September 7, 1974.

influence in the study area. Bridge building flourished in response to state and federal aid programs non-existent in the nineteenth century, and the regional economy matured to strengthen the financial base for a more efficient transportation network. In the 1890's, ferries were improved transportation facilities and were regionally significant. By the late 1930's, they survived only on less important routes. Re-orientation of trade patterns limited their function within the regional economy so that ferries remained only locally significant.

## CHAPTER V

### THE CONTINUED DECLINE OF FERRY CROSSINGS, 1940-1970

An important feature of change in the early 1940's was the construction of dams on the area's major streams. The Tennessee Valley Authority had been created during the depression to oversee the development of flood control, navigation, and electrical power in the Tennessee Valley. Aluminum and chemical industries had located in the area, and the development of cheap electricity by the TVA made its dam projects vital to national defense.<sup>1</sup> Completion of the Authority's proposed electricity-producing facilities, therefore, received great attention, and dam construction was rapidly undertaken (see Table 3).

With the establishment of these reservoirs, the region's character changed dramatically. Both the location and character of ferry operations were affected by the alteration of stream widths. Increased width did not automatically discontinue the use of ferries. Preparation for the Watts Bar Reservoir, for example, included construction or adjustment of ferry approaches at six separate locations on the Tennessee River and three on

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<sup>1</sup>U.S., Tennessee Valley Authority, The Fort Loudon Project: A Comprehensive Report on the Planning, Design, Construction, and Initial Operations of the Fort Loudon Project, Technical Report No. 11 (Washington: U.S. Government Printing Office, 1949), p. 6.

TABLE 3

## Tennessee Valley Authority Dams Constructed in East Tennessee

Project	Date of First Use	River
Norris	1936	Clinch
Chicamauga	1940	Tennessee
Hiwassee	1940	Hiwassee
Watts Bar	1942	Tennessee
Cherokee	1942	Holston
Fort Loudon	1943	Tennessee
Douglas	1943	French Broad

\*U.S. Tennessee Valley Authority, The Douglas Project: A Comprehensive Report on the Planning, Design, Construction, and Initial Operations of the Douglas Project, Technical Report No. 10 (Washington: U. S. Government Printing Office, 1949), p. 4.

the Clinch. These accommodations insured ferry operations at all reservoir levels.<sup>2</sup> Greater crossing distances, however, did complicate ferry operations, because operational costs increased with stream width, and delays in travel time were extended. Lowe's Ferry, south of Knoxville, was abandoned in 1942 because the impoundment of Fort Loudon Lake increased the stream width beyond

<sup>2</sup>U.S., Tennessee Valley Authority, The Watts Bar Project: A Comprehensive Report on the Planning, Design, Construction, and Initial Operations of the Watts Bar Project, Technical Report No. 9 (Washington: U.S. Government Printing Office, 1948), p. 372.

the capability of the ferry, which had been carried across by the river current.<sup>3</sup>

In some areas, impoundments inundated ferry landings, and, in others, roads were relocated in such a manner that former crossing sites were no longer a part of the transportation network. Fluctuations in the water level associated with power generation and reservoir adjustment required ferry operators to give more attention to mooring and landing procedures after the dams were built.<sup>4</sup> Huffaker's Ferry on the French Broad, 15 miles east of Knoxville, operated past the period of impoundment but altered its operation after the construction of Douglas Dam. Crossings were limited to daylight hours because of unpredictable water levels which sometimes were too low to be safe.<sup>5</sup> Nile's Ferry, on the other hand, ceased operation in 1947 after rising water levels forced interruption of service when dams were opened upstream.<sup>6</sup>

Even with these examples, the direct effects of the TVA dam projects are difficult to evaluate. Ferries were already declining prior to the dam construction. By 1941, at least twenty-one ferries

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<sup>3</sup>Knoxville Times, April 9, 1942.

<sup>4</sup>Interviews with Wilson Nance, Charlie Smith, Mr. Reeves, and J. Howard Hornsby, past and present ferry owners or operators, Summer, 1974.

<sup>5</sup>Knoxville Journal, February 19, 1960.

<sup>6</sup>Knoxville News-Sentinel, February 9, 1947.



had ceased to operate on the Tennessee River.<sup>7</sup> Flood control associated with the Authority's activities added to the permanence of bridge construction, and certainly the location and operation of some ferry crossings were influenced. In some cases, roads served by ferries were closed because it was more economical to purchase additional land than to build access roads to isolated tracts. This was particularly true in the peninsular area between the Clinch and Powell Rivers, where many inundated county highways were abandoned.<sup>8</sup>

Highway expenditures had risen slowly after the depression to over \$14 million in 1942, but declined to a little over half that figure during the next two years. This trend was reversed after the war, and by 1948 the \$33 million mark was again reached for the first time since 1930.<sup>9</sup> Motor vehicle registration resumed a steady increase which was followed by significant growth in the 1950's. The objectives of highway improvements, so pronounced in the late '20's and early '30's, again became strongly felt.

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<sup>7</sup>U.S., Tennessee Valley Authority, "Ferries on the Tennessee River before and after TVA," unpublished report compiled by S. Seburn Geer, Jr., June 9, 1972, pp. 4-6.

<sup>8</sup>U.S., Tennessee Valley Authority, The Norris Project: A Comprehensive Report on the Planning, Design, Construction, and Initial Operations of the Norris Project, Technical Report No. 1 (Washington: U.S. Government Printing Office, 1940), pp. 519-521.

<sup>9</sup>Tennessee, State Department of Highways, Highway Planning Survey Division, History of the Tennessee Highway Department (Nashville, 1959), p. 96.

With the passing of the depression and the war, rural road improvements received attention, and the process of highway improvement which had made ferry operations a less important element of the system of state highways and roads in the 1930's now influenced the rural network. These improvements would have great impact on ferry operations because the plans now included rural roads. Federal funds first became available for county road improvements in 1944, and the State Road Act of 1949 made it compulsory that all Federal Aid Secondary funds be expended on county systems.<sup>10</sup> The relationships among travel time, type of road surface, and the viability of ferry crossings became of greater importance in explaining the location of continued ferry operations. Some ferries declined in importance because the relatively unimproved routes they served generated less traffic than they had in the past. Eaves' Ferry, near Breedenton, on the Tennessee River (see Figure 9, p. 64), closed in 1945 because of its location on a chert road. The ferry's nearest competitors (the Washington Ferry downstream and the Pinhook Ferry upstream) both served blacktopped routes and thus held advantages in travel time over the Eaves' Ferry.<sup>11</sup>

Improved secondary routes affected the distribution of ferries in another important way. Paving also increased the efficiency of

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<sup>10</sup>Tennessee, State Department of Highways and Public Works, Report of the State Highway Commissioner of Tennessee: For the Biennium Ending June 30, 1952, December 1, 1952.

<sup>11</sup>Interviews with Mrs. Adah Eaves and Mrs. Flossie Bennett, last owners of Eaves' Ferry, June 5, 1974.

the rural network by decreasing travel time. It may be reasoned, then, that as access to crossing sites became more rapid, the number of crossing sites would decline. The slower travel conditions of the past had made direct routes more desirable because of the greater importance of distance, and a greater number of crossing sites were characteristic of the rural network. As travel along routes paralleling streams became more rapid, direct access to crossings became less important.

#### The Pattern of Ferry Operations, 1953

The alteration of the Tennessee River's width and other hydrographic changes associated with the Tennessee Valley Authority reservoirs produced a marked change in the character of the region (see Figure 10). It might appear that the increased surface area of water bodies would give rise to an increased demand for stream crossings. Instead, the pattern of land routes tended to parallel streams rather than crossing them. Improvements on the rural road network had reduced travel time so that the effects of greater distances were somewhat neutralized. The number of crossings between small places separated by streams had been declining for some time, suggesting that communication among them had become less significant than that of larger central places. Use of ferries had become significantly more local, and their role within the regional transportation network was now relatively minor. Ferries continued to cross the Tennessee River on State Routes 68, 30, and 60. Roads to each of the three ferries had been improved

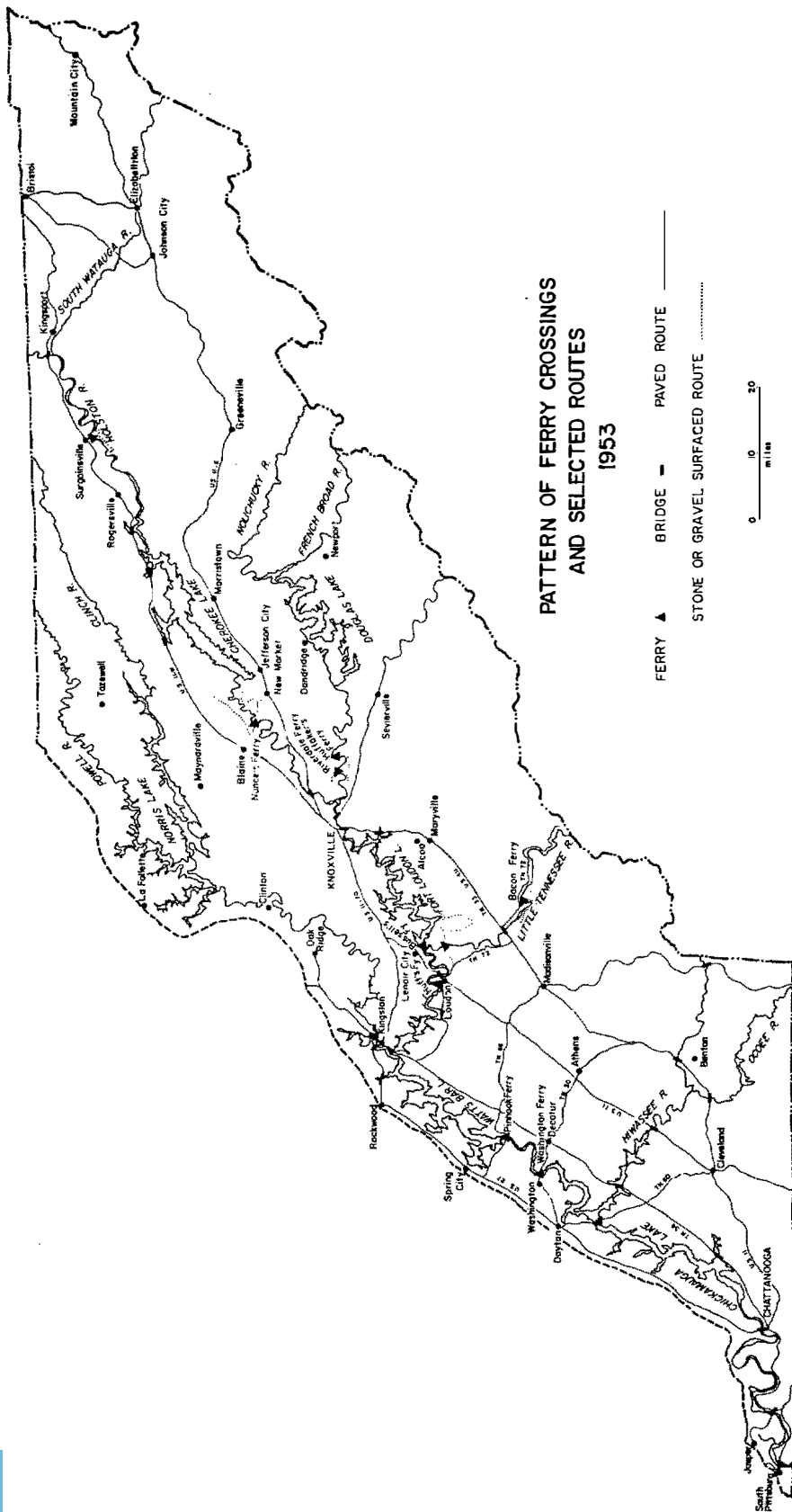


Figure 10. Pattern of Ferry Crossings and Selected Routes, 1953.

Source: Tennessee State Highway Department, County Highway Maps, editions of 1952, 1953, and 1954.

during the previous decade, and their positions on the state routes caused them to be important when compared with the minor significance of other ferry operations in the 1950's. The Pinhook Ferry on Highway 68 closed in 1956, when the bridge across Watts Bar Dam was completed. The closing marked an end to approximately 110 years of service for the ferry.<sup>12</sup>

Local traffic was carried by county-operated ferries at South Pittsburg, Kingston, Knoxville, and Surgoinsville. In addition to the Surgoinsville Ferry, only Nance's Ferry, linking Blaine in Grainger County and New Market in Jefferson County, remained on the Holston. Local demands were also met by Huff's Ferry at Loudon and Bussell's Ferry at Lenoir City. Routes along the Little Tennessee were served by ferries at two locations. With the exception of the Loudon and Lenoir City ferries, each of the above was associated with gravel-surfaced routes, which indicates primarily local importance.

Further evidence of the ferry's decline is obvious in the experience of three of the ferries that operated in the 1960's. The two county-owned ferries across the French Broad east of Knoxville both went out of service during this period. These ferries had used the stream current for power and evidently needed numerous repairs. The Riverdale Ferry ceased operation

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<sup>12</sup>Walter J. Burnett and John C. Coverdale, Jr., An Archaeological and Historic Survey of the Watts Bar Steam Plant Fly Ash Disposal Pond Extension, Unpublished Manuscript. The University of Tennessee, Chattanooga, Tennessee, August, 1973.

in the fall of 1962 after it sank, for replacement was deemed too expensive.<sup>13</sup> Huffaker's Ferry, six miles upstream (see Figure 10), endured similar difficulties for a year longer. It sank three times between September, 1962, and March, 1963, and was finally replaced by a bridge later that year.<sup>14</sup> The ferries had handled local traffic between the Riverdale and Kimberlin Heights communities. With some re-routing, the bridge absorbed traffic formerly carried by the ferries and brought an end to ferry service on the French Broad.

Bacon's Ferry, the last to run on the Little Tennessee River, was used primarily by hunters going into the wildlife area around Citico Creek. Aside from this seasonal traffic, the ferry was used by people living on the south side of the river as a shorter route to Knoxville and Maryville.<sup>15</sup> In spite of these light demands, the ferry continued to run until 1970.

#### Distribution and Character of Ferries In the Present Transportation Network

At present, only five ferry crossings exist in Eastern Tennessee. Their influence is local, and they continue to serve traffic adequately in their respective areas. With some exception, their operations remain a logical--if sometimes inconvenient--crossing method in view of travel demands at their locations.

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<sup>13</sup>Knoxville News-Sentinel, February 11, 1962.

<sup>14</sup>Knoxville News-Sentinel, March 24, 1963.

<sup>15</sup>Knoxville Journal, December 20, 1962.

Three of the ferries serve state routes interrupted by the Tennessee River, and the other two link county roads across the Clinch and Holston Rivers (see Figure 11).

The character of ferry operations is largely influenced by stream width and the volume of traffic crossing. Each of the three ferries crossing the Tennessee is constructed of steel and is driven by diesel-powered tugs. The Washington Ferry crosses the river on State Route 30, connecting Decatur and Dayton (see Figure 12). Ferry service has been continuous at or near this site since the nineteenth century. The river is approximately one-quarter of a mile wide at the ferry landing, and diesel power has been used for the past twenty-five years. Traffic is seasonal, averaging 150 cars per day in summer, when many tourists use the ferry. A slack winter period prevails when practically all traffic is local. No night crossings are attempted, but in the summer, the ferry is open for fifteen hours each day. The ferry has an eight-car capacity, and handles traffic so that no significant back-up occurs. However, a delay of approximately fifteen minutes is involved while waiting for the ferry to make its return trip. A one-dollar per car toll was charged here, and the ferry operator agreed that, despite its seasonality, it is a profitable business. Some speculation concerning bridge construction has been made in the past, but no future replacement of the ferry seems likely in the immediate future.<sup>16</sup>

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<sup>16</sup>Interview with Charlie Smith, operator of Washington's Ferry, August 24, 1974.







Figure 12. The Washington Ferry approaching its landing on Route 30 between Decatur and Dayton.

Blythe's Ferry (see Figure 13), on Highway 60 just below the confluence of the Hiwassee and Tennessee, also has a long history. The crossing site can be traced as far back as 1832, when it appeared on Rhea's map of Tennessee. Operating characteristics are similar to the Washington Ferry--summer traffic at a maximum of 140 cars per day, and no ferriage at night. An average trip across on the six-car ferry takes six to seven minutes, as the river is just over three-quarters of a mile wide. The greater stream width results in a \$1.50 per car toll rate.<sup>17</sup>

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<sup>17</sup>Interview with operator of Blythe's Ferry, August 24, 1974.



Figure 13. Blythe's Ferry crossing the Tennessee River.

As with the Washington Ferry, stream width and the breadth of the valley require lengthy approaches. Because of the expense involved and the light traffic density, the likelihood of bridge construction seems slight. The cost of highway relocation to a more suitable bridging site also adds to the secure future of the ferry here.

Both ferries play an important role locally since the road across Watts Bar Dam is the only other crossing of the Tennessee between Kingston and Chattanooga. These three east-west routes provide linkages between State Routes 29 and 58 which parallel the river.

The South Pittsburg Ferry (see Figure 14) serves State Route 156, connecting South Pittsburg and the rural area east of the river. This ferry is operated by the state. A distance savings of twenty-five to thirty miles is provided by the toll-free ferry. Operating hours are 5 a.m. to 11 p.m., Monday through Friday, and 5 a.m. to 10 p.m. on Saturday and Sunday. Volume of traffic is heavy. The daily average is 600 to 700 cars, and the ferry's fifteen-car capacity can hardly prevent a build-up of traffic waiting to cross. The estimated daily total given by the ferry operator seems reasonable, as the ferry's capacity was reached on every trip during an hour-and-a-half of observation. The traffic problem seems great enough to warrant a bridge at



Figure 14. The South Pittsburg Ferry completing a crossing on the Tennessee River.

this site. The stream is approximately 1200 feet wide, thus crossing time is not great; loading and unloading, however, is time consuming. This slowness was unfavorably commented upon by some motorists, and the ferry operator stated that such complaints are commonplace. He also indicated that surveys for a bridge had been conducted during the past year but added that "talk of a bridge" had been going on for the twenty years he had been working on the ferry. A bridge is really needed to ease the traffic congestion, but the necessary financial appropriations have not been made.<sup>18</sup>

Center's Ferry (see Figure 15), crossing the Clinch between Kingston and Oak Ridge, is also toll-free, being maintained by the Roane County government. Operating characteristics reflect different demands from those previously mentioned. The ferry has a two-car capacity and averages about fifty cars per day. No service is provided at night or on Sunday; it operates ten hours each day Monday through Friday and is closed for lunch during the noon hour. A sixty-five horsepower outboard engine powers a boat which guides the ferry across the river. A distance savings of ten to twelve miles on the trip from Kingston to Oak Ridge is realized, and the traffic is predominantly local.

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<sup>18</sup>Interview with South Pittsburg Ferry operators, September 17, 1974.

<sup>19</sup>Interview with Mr. Miles, operator of Center's Ferry, August 24, 1974.



Figure 15. Center's Ferry on the Clinch River, north of Kingston.

Nance's Ferry, on the Holston between Blaine and New Market, is the most interesting of the present ferries (see Figure 16). Since the 1790's, the operation has been handed down through seven generations in the Nance family. No set hours of operation are established, but service is available on demand, day or night. The ferry has a cypress and pine bottom bolted onto steel gunwales. The power supply is unique among those in this era. When the river is up, the ferry is steered into the stream at a forty-five degree angle and is carried to the other side by the current. By this method, the four-hundred foot crossing can be accomplished in under two minutes. In times of low water, the ferry is pulled across by hand with an over-head cable system.



Figure 16. Wilson Nance preparing to set his ferry across the Holston River.

An average of three to four cars use the crossing daily, and for the fifty-cent toll, they save about twenty miles by taking the direct route. The ferry is important to Mr. Nance's farming operation because he buys supplies in Grainger County. Other farmers in the area use the ferry to move equipment to land being farmed on the other side of the river. Beef cattle dominate the area's agriculture, and veterinarians often use the ferry two

or three times a week. The ferry service, then, is an important local convenience, and as previously mentioned, has been historically important. Unfortunately, Wilson Nance expects the ferry to close after he is no longer able to operate it.<sup>20</sup>

These remaining ferries, in addition to their present day function, serve as reminders of an historically important transportation system which contributed to the early settlement and development of the area. Other ferries, in their passing, have left remnants of their operation which are a part of the present cultural landscape. A number of local routes in the study area continue to bear the name of a ferry which once served them. In other instances, routes may terminate on either side of a stream where they were once linked by a ferry crossing. Each of these features has contributed to the present character of the area and is remindful of Darby's observation that today's landscape is ". . . a collection of legacies from the past . . ." <sup>21</sup>

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<sup>20</sup>Interview with Wilson Nance, operator of Nance's Ferry, August 23, 1974.

<sup>21</sup>H. C. Darby, "On the Relations of Geography and History," Transactions and Papers, Institute of British Geographers, Publication Number 19 (1953), p. 11.

## CHAPTER VI

### CONCLUSIONS

Although East Tennessee's stream pattern presented interruptions to travel and necessitated the development of crossing techniques, patterns of settlement and economic activity were greater forces in determining the location and type of crossing method. Even on streams which were capable of being forded the ferry boat became the chief method of linking prominent land routes in the area. As such, ferries existed as one of the earliest and more obvious features of internal improvement, and their location was coincident with significant concentrations of population and commercial activity from the 1790's to the 1920's.

During this period, ferries initially held the singular function of facilitating stream crossing. As the process of settlement evolved, they took on a variety of functions within the regional system of transportation and commerce. Ferry operations provided the area with strategically important linkages for communication, gathering places for social activities, trading centers of local importance, and convenient integration of water and land transportation. These multiple functions gave ferry crossings an important role in directing flows of people and goods over the area. In this way, ferries made their contributions to



the pattern of human activity and helped to shape the regional geography of the late eighteenth and nineteenth centuries.

As the complex of transportation modes changed in the 1920's, some ferries became technically obsolete. The changes which had greatest impact on ferry operations and functions were the termination of steamboat traffic and the introduction of motor vehicle traffic. When steamboats disappeared, functions held by ferry landings for nearly 100 years were lost. The rise of motor vehicle traffic brought about a restructuring of the regional economy and gave impetus to public demand for bridge construction. The period of ferry prominence in the transportation system had passed, and their use became associated with places and routes of lesser regional importance. In this period, the variety of functions they had previously held dwindled, and their influence became more and more localized. These developments have left surviving ferries with only one function--a method of stream crossing.

Because of the ferry's sensitivity to physical, economic, cultural, and political forces, the changes in the distribution and function of ferry crossings reflect the changing geography of the area. Throughout most of the period studied, the regional economy was dominated by agriculture. Patterns of agriculture naturally occurred in valley areas, and changing patterns of ferry operations responded to the structure of travel and commerce in the agricultural areas. Through this relationship, much of the development of the study area is mirrored in the rise and decline of ferry crossings.

The use of ferries in East Tennessee is similar to that of the rest of the state. Ferries in the study area have had a more pronounced areal influence than elsewhere because of the number of streams in the area. The rate of change has occurred more slowly here, as it appears to have done in the rest of the South. The concepts and approaches applied in this thesis could be used elsewhere, as long as the temporal aspects of regional development were carefully treated.

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